Fort Bliss

Texas and New Mexico

Mission and Master Plan

FINAL

SUPPLEMENTAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

VOLUME I: CHAPTERS 1 THROUGH 11

March 2007

Fort Bliss, Texas and New Mexico
Mission and Master Plan

Final Supplemental Environmental Impact Statement

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COVER SHEET

Lead Agency: U.S. Army, Installation Management Agency

Title of Proposed Action: Changes to the Fort Bliss, Texas and New Mexico, Mission and Master Plan

Location: Fort Bliss is located in El Paso County, Texas and Doña Ana and Otero Counties, New Mexico

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Designation: Final Supplemental Programmatic Environmental Impact Statement (FEIS)

Abstract: The U.S. Army proposes to make changes to land use in the Main Cantonment Area and Fort Bliss Training Complex and develop infrastructure and facilities, including live-fire and qualification ranges, to support Base Realignment and Closure (BRAC) and Integrated Global Presence Basing Strategy (IGPBS) decisions. The purpose of the proposed land use changes is to more fully utilize the installation's capability and flexibility to support Army training and testing requirements; the evolving force structure; potential future missions; and Joint, Interagency, Intergovernmental, and Multinational agencies. As a result of BRAC and Army Transformation, Fort Bliss will receive a Heavy Armor Division comprised of four Heavy Brigade Combat Teams (BCTs), a Combat Aviation Brigade, an Artillery Brigade, and various other supporting units. One Heavy BCT, the 4th BCT of the 1st Cavalry Division, was relocated to Fort Bliss in 2006 and subsequently deployed to southwest Asia. The Air Defense Artillery (ADA) School and some of the ADA Brigades currently at Fort Bliss will be relocated to other installations.

The net effect of these changes will be an increase of approximately 20,000 military personnel assigned to Fort Bliss by 2011. New and upgraded facilities and infrastructure are needed to support the additional personnel, their dependents, additional vehicles and equipment, and operations of the incoming units. The stationing of an Armor Division and Heavy BCTs at Fort Bliss will change training requirements to more off-road vehicle maneuvers involving both tracked and wheeled vehicles such as M1A tanks, Bradley fighting vehicles, and High Mobility Multipurpose Wheeled Vehicles (HMMWVs). In addition, helicopter training will increase with the addition of the Combat Aviation Brigade and its 110 helicopters. The Fort Bliss Training Complex will also continue to support missile firings and other ongoing training, as well as the installation's mobilization mission as a Power Projection Platform.

The Army is considering four action alternatives for meeting the additional infrastructure and training needs of the new units. Each action alternative involves expanding the Main Cantonment Area and providing the capability to conduct off-road vehicle maneuver training on portions of McGregor Range in the Tularosa Basin. Off-road vehicle maneuvers are already conducted on approximately 335,000 acres in the North Training Areas, South Training Areas, and a small portion of McGregor Range.

Alternative 1 would provide approximately 216,000 additional acres of off-road vehicle maneuver space in the Tularosa Basin portion of McGregor Range, south of New Mexico Highway 506. Alternative 2

would include land in the Tularosa Basin portion of McGregor Range north of Highway 506, increasing the amount of available off-road vehicle maneuver space by approximately 280,000 acres. Alternative 3 would provide approximately 287,000 acres of additional off-road vehicle maneuver space in the south and southeast Tularosa Basin portions of McGregor Range. Alternative 4 (the Proposed Action), would include all of the changes considered in the other three alternatives, providing approximately 352,000 acres of additional off-road vehicle maneuver space which, when combined with the existing maneuver areas, would provide a total of 687,000 acres of off-road vehicle maneuver training capability at the installation. Alternative 4 is the Army's preferred alternative. None of the alternatives would involve off-road vehicle maneuvers on Otero Mesa or in the Sacramento Mountain foothills on McGregor Range.

In addition, this FEIS includes the No Action Alternative, which would limit off-road vehicle maneuver training to the areas currently approved for that use and only support one Heavy BCT at Fort Bliss. The No Action Alternative is not considered feasible because it would not adequately support the requirements of BRAC.

The FEIS assesses the direct, indirect, and cumulative environmental and socioeconomic effects of the alternatives. It describes impacts on land use, both within the installation and in the surrounding area; infrastructure, including transportation, utilities, and energy; airspace management and use; earth resources including soils; air quality; water resources; biological resources; cultural resources; noise from weapons firing, helicopter operations, and vehicle maneuvers; safety; and hazardous materials and items of special interest. Socioeconomic effects addressed in the document include population increases; economic benefits; housing; public services including schools, law enforcement, fire protection, and medical services; and quality of life. In addition, the analysis evaluates whether the proposed activities would result in disproportionately high and adverse impact on minority or low-income populations. The FEIS also identifies mitigation measures for reducing the environmental impacts of the Proposed Action and other alternatives.

The Draft SEIS was distributed for public comment from October 6 through December 12, 2006. Three public meetings were held in El Paso, Texas and Alamogordo and Las Cruces, New Mexico during the public comment period. Transcripts from these meetings and copies of written comments on the Draft SEIS are included in the FEIS.

Fort Bliss, Texas and New Mexico
Mission and Master Plan

FINAL SUPPLEMENTAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

Volume I: Chapters 1 through 11

Prepared for:

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Fort Bliss, Texas and New Mexico

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SUMMARY

This Supplemental Environmental Impact Statement (SEIS) supplements the *Final Fort Bliss, Texas and New Mexico, Mission and Master Plan Programmatic Environmental Impact Statement* (Mission and Master Plan PEIS) dated December 2000 and associated Record of Decision (ROD) signed in 2001. It identifies the potential environmental effects that would result from modifying land and airspace use at Fort Bliss to continue supporting evolving changes in missions and units, associated facilities and infrastructure, and training activities.

Fort Bliss is a multi-mission United States (U.S.) Army installation located on approximately 1.12 million acres in Texas and New Mexico. It consists of the Main Cantonment Area and the Fort Bliss Training Complex, which is comprised of three large geographic segments: (1) the South Training Areas, (2) Doña Ana Range-North Training Areas, and (3) McGregor Range.

The SEIS differs from the 2000 Mission and Master Plan PEIS in that part of the purpose of the PEIS was to enhance management of Fort Bliss land, airspace, and infrastructure through adoption of the Real Property Management Plan (RPMP), Training Area Development Concept (TADC), Integrated Natural Resources Management Plan (INRMP), Integrated Cultural Resources Management Plan (ICRMP), and related management plans and procedures. Those plans and procedures are now in place, and the purpose of this SEIS is to modify land use to continue supporting Fort Bliss' evolving missions. The land use changes adopted after completion of the SEIS will be used to amend those and other plans and procedures as needed to incorporate the selected alternative.

The SEIS has been prepared in compliance with the National Environmental Policy Act (NEPA) (42 United States Code [U.S.C.] 4321-4347, as amended), Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and 32 CFR Part 651, Environmental Effects of Army Actions.

Purpose of and Need for Action

The purpose of the proposed action is to:

- Modify current land use on Fort Bliss to more fully realize the installation's capability and flexibility to support Army training and testing requirements; the evolving force structure; potential future missions; and Joint, Interagency, Intergovernmental, and Multinational agencies, without compromising the commitment to stewardship of natural and cultural resources.
- Construct additional facilities and infrastructure in the Main Cantonment Area necessary to support Base Realignment and Closure (BRAC) and Integrated Global Presence Basing Strategy (IGPBS) (also known as the Global Defense Posture Realignment) stationing decisions.
- Develop live-fire, qualification, and testing ranges required to support the requirements of units stationed at Fort Bliss.
- Develop range camps, auxiliary facilities, and other improvements.

In April 2002, the Deputy Chief of Staff of the Army for Operations and Plans announced the decision to proceed with the proposed 30-year, phased implementation of Army Transformation. Fort Bliss was one of 25 Army "force projection" installations described and analyzed in the Army Transformation PEIS. Continued strategic planning and lessons learned from the Global War on Terrorism and Army operations in Iraq and Afghanistan resulted in the development of the Army Campaign Plan (ACP) to support Army Transformation.

The need for the proposed action is to support Army Transformation and the ACP by more fully realizing the capability of Fort Bliss lands and facilities, including off-road vehicle maneuver lands, airspace, and

firing ranges. Recent BRAC and IGPBS stationing decisions define the known future missions of Fort Bliss and create the near-term requirements for off-road vehicle maneuver space and facilities and infrastructure improvements. Over the long term, Fort Bliss needs to be able to continue supporting the evolving operational, infrastructure, training, and testing requirements of the Army.

As Army restructuring and realignment evolve, there is a potential need to utilize fully the training capability at any given installation. Furthermore, it is reasonable to assume that installations with additional training capability could receive new missions in the future.

Transformation to a modular force will result in changes in fighting unit structure, higher intensity levels of training activity, use of new types of equipment, and construction or upgrade of live-fire ranges using digital technology. New weapons systems and ranges using digital technology will expand the size requirements for live-fire ranges. There will also be a need for new types of live-fire ranges such as those required to train soldiers for urban combat and convoy protection. These changes, combined with changes in training doctrine to support highly mobile, self-contained units, will involve use of larger areas of the available training land. In addition, the new brigades and the realignment of the force will require increased use at existing live-fire ranges, training areas, and airspace.

The primary unit changes expected to occur at Fort Bliss between fiscal years (FY) 2006 and 2010 are shown in **Figure S-1** and include the following additions:

- Four Heavy Brigade Combat teams (BCTs), self-contained brigades that provide combat power needed to deploy and fight. Each Heavy BCT will include four tank companies, four mechanized infantry companies, three reconnaissance troops (company size), and one surveillance troop. Typically, a Heavy BCT is comprised of approximately 3,800 military personnel and is equipped with approximately 360 tracked vehicles and 900 wheeled vehicles.

  The first Heavy BCT, the 4th BCT of the 1st Cavalry Division (CAV) was moved to Fort Bliss in 2006. A Future Force Integration Directorate (FFID) and Army Evaluation Force (AEF) were also established at Fort Bliss.

- An Armor Division Headquarters (HQ), a self-contained modular headquarters that commands and controls up to six maneuver BCTs engaged in combat operations. It may direct and control additional brigades depending on the operational environment. There are approximately 700-800 military personnel assigned to the Armor Division Headquarters.

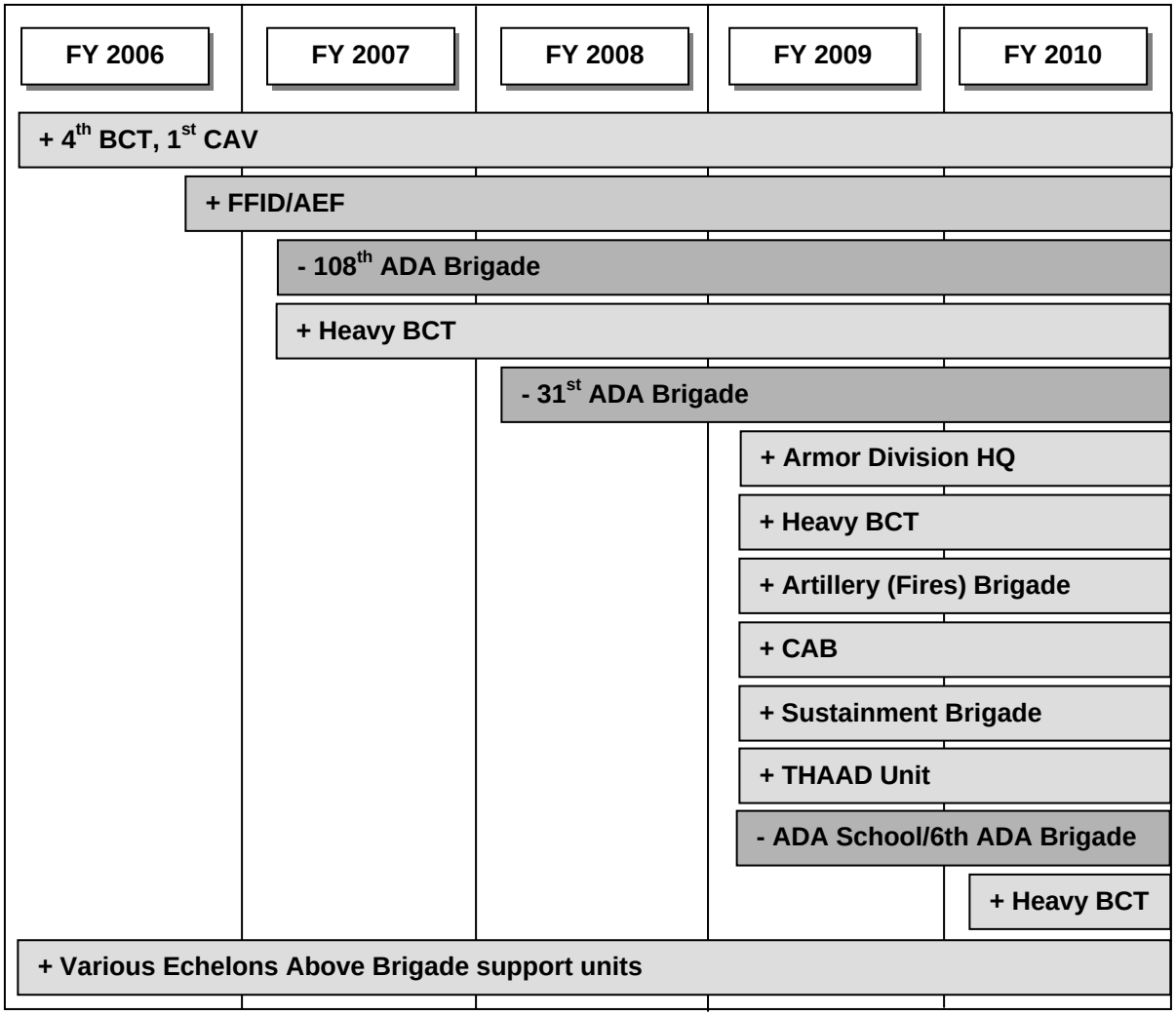
- An Artillery (Fires) Brigade that plans, prepares, executes and assesses combined arms operations to provide close support and precision strikes for BCTs and support brigades using artillery, rockets, and missiles. It includes two Multiple Launch Rocket System battalions and signal, target acquisition, and forward support companies with a total of approximately 1,600 military personnel, 423 wheeled vehicles, and 36 tracked vehicles.

- A Combat Aviation Brigade (CAB) that plans, prepares, executes, and assesses aviation and combined arms operations to support division and maneuver brigades to find, fix, and destroy enemy forces at a decisive time and place. It is organized with two attack battalions, an assault battalion, a general support battalion, and an aviation support battalion, with a total of approximately 2,700-2,800 military personnel and 110 helicopters.

- A Sustainment Brigade that plans, coordinates, synchronizes, monitors, and controls sustainment (administration, medical, ammunition, transportation, maintenance, and supply) functions. This brigade includes approximately 400-500 military personnel and 140 wheeled vehicles.

- Echelons Above Brigade (EAB) and other units may include Military Police Battalion, Military Police Combat Support Companies, Motor Transportation Battalion, Mobility Augmentation Companies, Signal Support Network, Support Maintenance Company, Operating Force Band, Personnel Services Battalion, Movement Control Team, Quartermaster Supply Company, Truck

Company-Cargo, Engineer Battalion, Terminal High-Altitude Area Defense (THAAD) Battalion, and Survey and Design Team. These units include approximately 2,500 military personnel.



Note: As of January 2007. Subject to change.

Figure S-1. Planned Unit Changes at Fort Bliss

The BRAC Commission also recommended, and the President accepted the recommendation, to relocate the Air Defense Artillery (ADA) School and 6th and 31st ADA Brigades out of Fort Bliss.

In addition, elements of the 108th ADA Brigade have also been identified to move from Fort Bliss as a discretionary move in support of the ACP. A National Guard and Reserves Joint Training Center complex is being established at Fort Bliss in FY 2008 to support units in the Texas Army and Air National Guard and Army Reserves in the El Paso area. The complex includes an Armed Forces Reserve Center and consolidated vehicle maintenance facility. The center will have approximately 140 permanent personnel, more than 90 wheeled vehicles, 25 tracked vehicles, and 170 other pieces of equipment. It will provide training for 1,200-1,300 National Guard and Reserve personnel in 2-day sessions two to three times per month and 2-week sessions during the summer.

In total, the Army Transformation and BRAC changes at Fort Bliss will result in a net increase of approximately 20,000 military personnel and 2,700 Government civilian personnel, 1,440 tracked vehicles, 3,600 wheeled vehicles, and 110 helicopters at Fort Bliss.

With the stationing of four Heavy BCTs at Fort Bliss, training requirements will increase substantially and focus more on live-fire qualification training and off-road vehicle maneuvers. Emerging Army doctrine, operational experience in Afghanistan and Iraq, and new equipment capabilities are changing Army training concepts and training space requirements. Training in the current operational environment requires large off-road vehicle maneuver/training areas of varying characteristics with complex terrain and urban environments. Units should train in the same maneuver space conditions for live-fire, tactical movement, and resupply as they would encounter in combat. Ground forces need large contiguous off-road vehicle maneuver/training areas to support "free-flowing exercises." Tactical maneuver wins battles and engagements. By keeping the enemy off balance, it also protects the force. A training environment that restricts unit training and does not properly reflect varied and complex battlefield conditions will not adequately prepare units for combat.

Training requirements for the units moving to Fort Bliss are defined in Training Circular (TC) 25-1. TC 25-1 identifies both the spatial requirements (in terms of maneuver "boxes") and frequency and duration of training events required for each unit to achieve and maintain proficiency. These maneuver "boxes" range from about 10 square kilometers (km^2) for some platoon-level exercises to about 250 km^2 for battalion-level exercises, up to almost 500 km^2 for BCT-level exercises. The combination of space and time requirements can be measured in "square kilometer days" (km^2d); for example, a battalion-level exercise that is conducted twice a year for 14 days uses approximately 7,000 km^2d (250 km^2 x 2 x 14). The stationing of four Heavy BCTs and other units identified through Army Transformation and BRAC, along with Fort Bliss' mobilization mission and other existing units, will generate an annual requirement for approximately 528,000 km^2d of off-road vehicle maneuver. Based on a standard 242 training days per year (excluding weekends and holidays), the areas of Fort Bliss currently approved for off-road vehicle maneuver (North and South Training Areas and a small portion of McGregor Range) have an annual capacity of only 328,000 km^2d. Even if those areas were used 365 days out of the year, their capacity (495,000 km^2d) would be inadequate to meet the defined need. Therefore, additional off-road vehicle maneuver training area is needed to meet the demand. Also, it is reasonable to assume that future demands for use of the Fort Bliss Training Complex will increase further, placing additional pressure on the installation to offer more and more varied training capability.

Scope of the SEIS

The scope of this SEIS is to provide compliance with NEPA for the following actions:

- Changes in land use designations in the Main Cantonment Area and the Fort Bliss Training Complex.
- Development of facilities and infrastructure to support projected changes in unit stationing at Fort Bliss and associated operational and training activities.
- Amendments and updates to existing plans and programs to reflect the land use changes in the Main Cantonment Area and Fort Bliss Training Complex analyzed in this document.
- Future actions that are consistent with the selected land use alternative and within the scope of the umbrella analysis, providing a foundation for tiered environmental documentation to ensure consistent future analysis and documentation of environmental effects.

To understand the reasonably foreseeable consequences of the land use decision to be made, the SEIS qualitatively and quantitatively evaluates the environmental impacts of potential personnel changes, facilities construction, and training activities on Fort Bliss associated with the land use alternatives analyzed.

Fort Bliss has a closed range, Castner Range, located in Texas. It is not currently used for any Army activities and the Army has no plans for its future use. Castner Range is not addressed in this SEIS except as part of the cumulative impacts analysis.

Alternatives Considered in the SEIS

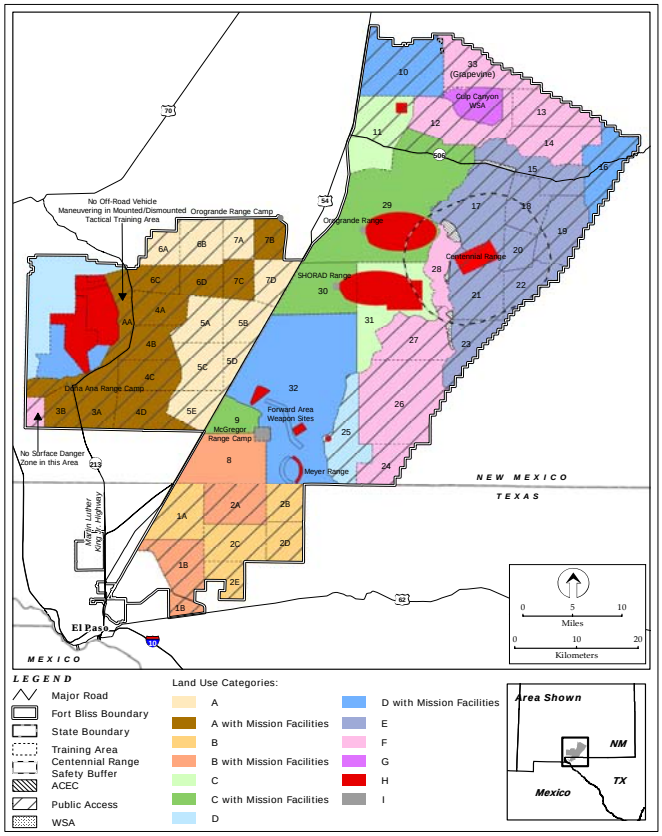
Existing facilities, infrastructure, and land use in the Main Cantonment Area of Fort Bliss were evaluated to identify alternatives for accommodating the facility and adjacency requirements of the new units and maximizing use of existing resources. An operational analysis was conducted to identify and evaluate options for providing the additional training capability needed. In addition to providing expanded off-road vehicle maneuver capacity, the operational analysis identified alternatives satisfying the following criteria:

- Ability to conduct realistic, battalion-level "movement-to-contact" training.
- Provide a variety of terrain and environments for off-road vehicle maneuvers, including various types of terrain that could be encountered in various regions and environments of the world where Army units may be deployed. Fort Bliss not only provides desert conditions and large expanses of flat terrain often encountered in the Middle East, but also has ridges and valleys that replicate terrain conditions in other regions.
- Provide simultaneous maneuver capacity for a minimum of three Heavy BCTs (assuming one of the four BCTs stationed at Fort Bliss is deployed or ready for deployment at any one time), all other units identified in BRAC for stationing at Fort Bliss, and the installation's mobilization mission.
- Provide adequate capacity to support other missions that use Fort Bliss and the flexibility to accommodate changing missions and training needs in the future.

The redevelopment planning process and operational analysis resulted in identification of five alternatives, described below, for consideration in this SEIS. The map next to each alternative description shows the Fort Bliss Training Complex land use designations associated with that alternative (see the fold-out of Fort Bliss Training Area Land Use Categories at the back of this document for an explanation of the color-coding).

No Action Alternative

The No Action Alternative would continue the current land uses as adopted in the 2001 ROD for the Fort Bliss Mission and Master Plan PEIS, defined in the RPMP and TADC, and analyzed in documents tiering from the PEIS. Although this alternative would not change land use, facilities are being constructed in the Main Cantonment Area to support stationing of one Heavy BCT, in accordance with a completed Record of Environmental Consideration (REC). In addition, existing live-fire ranges are being upgraded and new live-fire ranges constructed, within current land use designations and/or on existing range footprints, to support the BCT. Additional mission support facilities will be constructed in areas currently designated for such facilities.

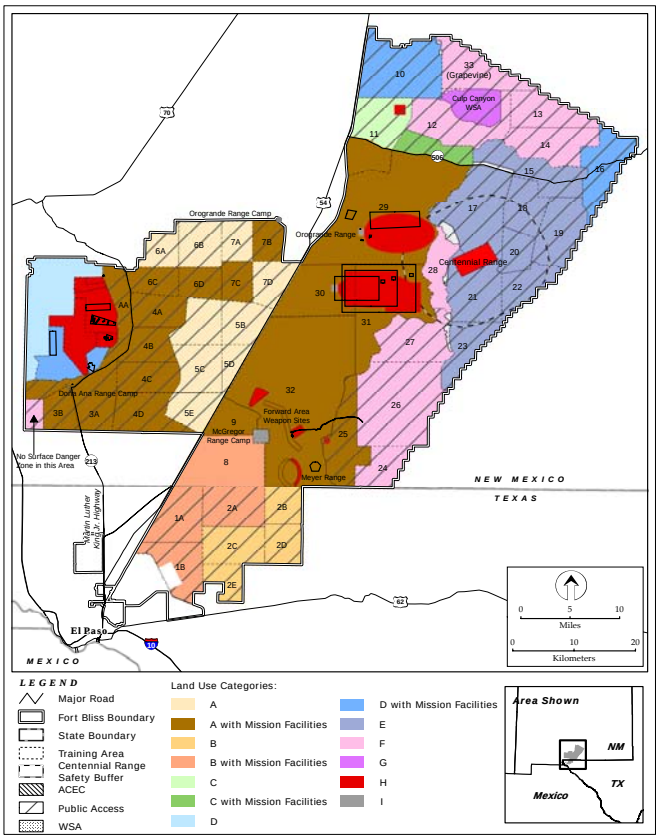


No Action Alternative Land Use

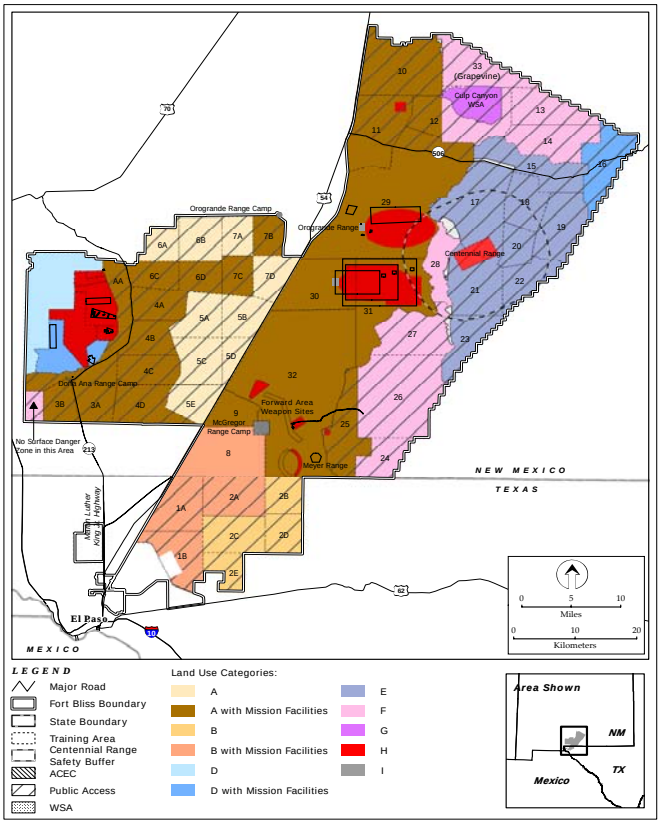
Authorized training activities will continue in the Fort Bliss Training Complex. Off-road vehicle maneuver training will continue on approximately 335,000 acres (1,356 km^2) of the South Training Areas, North Training Areas, and Training Area (TA) 8 on McGregor Range. No off-road vehicle maneuver or live-fire would occur in McGregor Range training areas beyond what is currently designated in the TADC and as analyzed in the PEIS and subsequent NEPA documentation.

Alternative 1

Alternative 1 would include all development described in the No Action Alternative and also involve land use changes in the Main Cantonment Area and the Fort Bliss Training Complex to accommodate personnel, facility requirements, and training activities associated with locating an Armor Division, a total of four Heavy BCTs, and other units shown on Figure S-1 at Fort Bliss as part of Army Transformation and BRAC. The Main Cantonment Area of Fort Bliss would be expanded to the north and east, additional mission support facilities would be constructed on the Fort Bliss Training Complex, additional firing ranges and training facilities would be constructed on Doña Ana and McGregor Ranges, and approximately 216,000 additional acres (875 km^2) of training land in the Tularosa Basin portion of McGregor Range south of New Mexico Highway 506 would be opened to off-road vehicle maneuver training. These changes would increase the total off-road vehicle training capability of the Fort Bliss Training Complex to a total of approximately 540,000 km^2d, minimally meeting the defined need for that training.



Land Use – Alternative 1



Land Use – Alternative 2

Alternative 2

Alternative 2 would include all changes described in the No Action Alternative and Alternative 1 and considers the personnel and equipment, facilities development, operations, and training associated with stationing a second CAB at Fort Bliss. This alternative would also add off-road vehicle maneuver

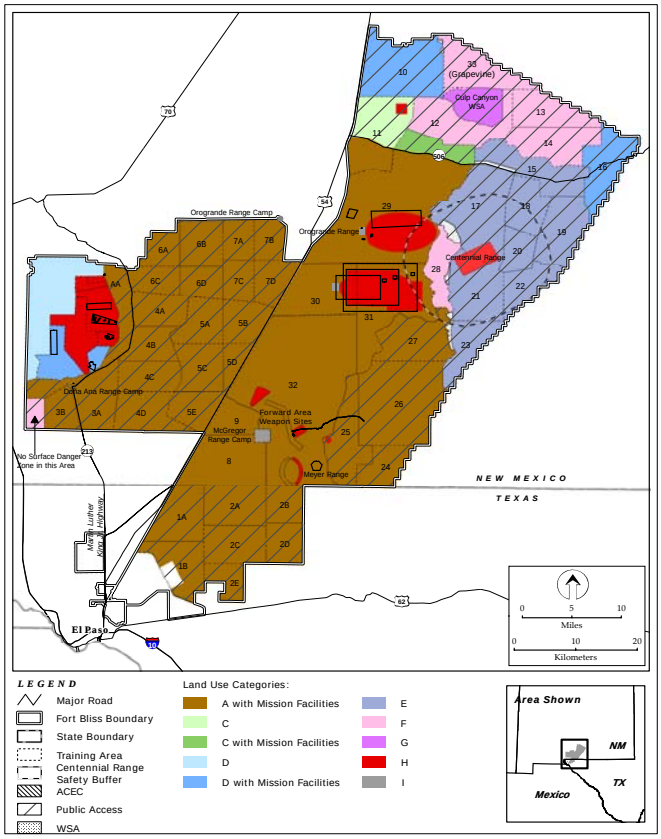
training in training areas within the Tularosa Basin portion of McGregor Range north of Highway 506, providing approximately 280,000 additional acres (1,135 km^2) of off-road vehicle maneuver area above the existing capability. These changes would increase the total off-road vehicle training capability of the Fort Bliss Training Complex to approximately 603,000 km^2d. In addition to increasing the capacity of the installation to support off-road vehicle maneuvers, this alternative would provide the ability to conduct battalion-on-battalion and movement-to-contact exercises.

Alternative 3

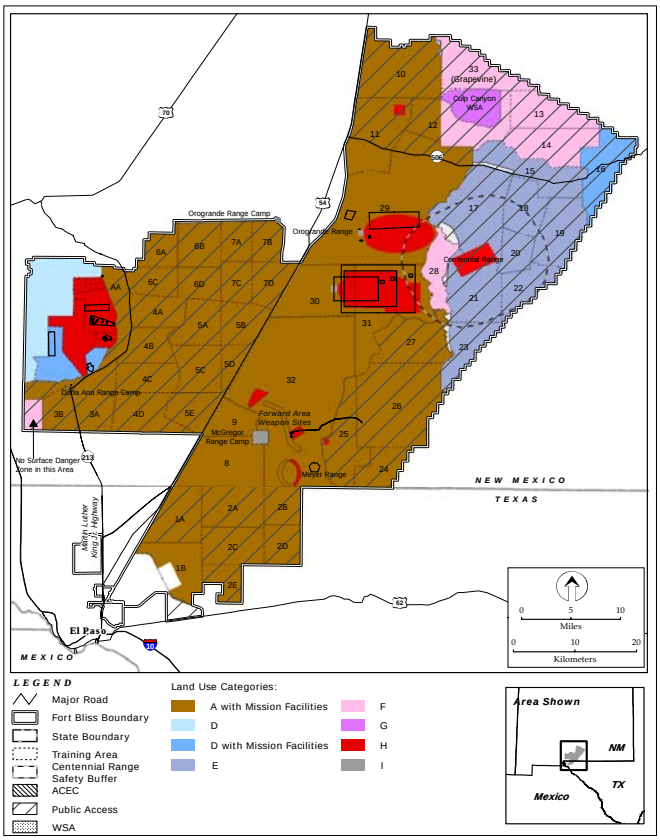
Alternative 3 would include all changes described in the No Action Alternative and Alternative 1 and incorporate a second CAB like Alternative 2. It would not extend off-road vehicle maneuver training north of Highway 506; instead, it would add that capability to three training areas in the southeastern portion of McGregor Range below Otero Mesa, providing approximately 287,000 additional acres (1,163 km^2) of off-road vehicle maneuver capability. These changes would increase the total off-road vehicle training capability of the Fort Bliss Training Complex to approximately 610,000 km^2d. In addition to increasing the capacity for off-road vehicle maneuvers, this alternative would offer more varied terrain and a training environment that is different from the other training areas available for that use.

Alternative 4 — Proposed Action

This alternative would include all changes described in Alternatives 1, 2, and 3, providing approximately 352,000 additional acres (1,424 km^2) of off-road vehicle maneuver training area in the Tularosa Basin portion of McGregor Range. This alternative was selected as the Proposed Action because it would provide all the training benefits of the other alternatives, including battalion-level movement-to-contact exercise capability and a variety of terrain environments, and offer the most capacity and flexibility to accommodate future mission changes and training requirements. These changes would increase the total off-road vehicle training capability of the Fort Bliss



Land Use – Alternative 3



Land Use –Alternative 4

Training Complex to approximately 673,000 km^2d and provide the capacity to support up to six BCTs.

Alternative 4 is the Army's preferred alternative.

Table S-1 presents key attributes of the five alternatives in comparative form.

Table S-1. Comparison of Alternatives

Attribute	*No Action Alternative*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
Military personnel[1]	13,800	30,000	32,700	32,700	40,300
Total personnel[2]	30,000	47,500	50,200	50,200	57,800
Military dependents	22,800	49,500	54,000	54,000	66,500
Primary additional equipment	900 wheeled and 360 tracked vehicles	3,900 wheeled and 1,640 tracked vehicles; 110 helicopters	4,460 wheeled and 1,640 tracked vehicles; 220 helicopters	4,460 wheeled and 1,640 tracked vehicles; 220 helicopters	6,260 wheeled and 2,360 tracked vehicles; 220 helicopters
Area of additional development in Main Cantonment Area	1,500 acres	4,000 acres	4,300 acres	4,300 acres	4,900 acres
Additional building construction in Main Cantonment Area	6.5 million square feet (SF)	21.9 million SF	23.2 million SF	23.2 million SF	25.8 million SF
Area of disturbance for construction in Main Cantonment Area	1,000 acres	3,400 acres	3,700 acres	3,700 acres	4,300 acres
Additional impervious surface in Main Cantonment Area	330 acres	1,300 acres	1,450 acres	1,450 acres	1,600 acres
Additional Off-Road Vehicle Maneuver area	0	216,000 acres (875 km^2)	280,000 acres (1,135 km^2)	287,00 acres (1,163 km^2)	352,000 acres (1,424 km^2)
Total Off-Road Vehicle Maneuver area	335,000 acres (1,356 km^2)	551,000 acres (2,230 km^2)	615,000 acres (2,491 km^2)	622,000 acres (2,519 km^2)	687,000 acres (2,780 km^2)
Total annual Off-Road Vehicle Maneuver training capability (military standard)	328,000 km^2days	540,000 km^2days	603,000 km^2days	610,000 km^2days	673,000 km^2days

Note: All numbers are approximate.

[1.] Active duty, permanent party U.S. military assigned to Fort Bliss.

[2.] Includes non-U.S. military, civilian employees, students, and temporary duty personnel.

Other alternatives considered and eliminated from detailed analysis include opening the Otero Mesa and Sacramento Mountains foothills portions of McGregor Range for off-road vehicle maneuvers, acquisition and/or use of off-post land for off-road vehicle maneuver training, supporting the BRAC and IGPBS without providing additional off-road vehicle maneuver capability, and conducting off-road vehicle maneuver training at White Sands Missile Range.

Affected Environment

The SEIS analyzes impacts from the five alternatives in 14 resource areas: land use, Main Cantonment Area infrastructure, training area infrastructure, airspace use and management, earth resources, air quality, water resources, biological resources, cultural resources, noise, safety, hazardous materials and items of special concern, socioeconomics, and environmental justice. The affected environment includes the Fort Bliss Main Cantonment Area, the Fort Bliss Training Complex, and adjacent off-post areas that may be affected by the proposed changes on Fort Bliss. The region of influence (ROI) varies among resource topics but generally consists of a three-county area comprised of El Paso County in Texas and Doña Ana and Otero Counties in New Mexico.

The physical environment of the ROI has not changed substantially since 2000. Therefore, the SEIS incorporates information contained in the Mission and Master Plan PEIS by reference and updates and augments the data as needed to reflect changes that have occurred since 2000. In general, updated data are for the 2004-2005 timeframe or represent the most recent data available. Recent activities that have been reviewed through the NEPA process, such as the relocation of the 4th BCT, 1st CAV to Fort Bliss, are included in the No Action Alternative as part of the baseline for comparison with the other alternatives.

Since 2001 when the ROD for the Mission and Master Plan PEIS was signed, activities at Fort Bliss have been conducted in accordance with the land use guidelines contained in the RPMP, TADC, and other adopted plans and procedures. Demolition and construction projects identified in the Mission and Master Plan PEIS and similar to those identified in the PEIS have been implemented in accordance with the evaluation guidelines for complying with NEPA that were defined in Appendix A of the PEIS.

Most of the ADA training that has dominated use of the Fort Bliss Training Complex in recent years has primarily involved wheeled ADA units driving on existing roads to set locations, setting up equipment, and performing their training in a largely static position. There was relatively little movement of personnel or equipment. The engagements in Afghanistan and Iraq increased the training load associated with Fort Bliss' mobilization mission, as more Army Reserve and National Guard personnel received qualification training prior to deployment overseas. The relocation of the 4th BCT, 1st CAV to Fort Bliss introduced the first locally based heavy maneuver brigade stationed at Fort Bliss since the 3rd Armored Cavalry Regiment (ACR) was moved from Fort Bliss to Fort Carson in 1995. The off-road maneuver training conducted at Fort Bliss by the 4th BCT, 1st CAV is similar to past training conducted by the 3rd ACR.

The McGregor Range segment of the Fort Bliss Training Complex is primarily comprised of public land withdrawn from the public domain for military use. The withdrawal was renewed in 1999 by Public Law 106-65. Since the completion of the Mission and Master Plan PEIS, the U.S. Air Force has constructed Centennial Range, an air-to-ground training range, on Otero Mesa within McGregor Range. Because of its withdrawal status, McGregor Range is co-managed by Fort Bliss and the Bureau of Land Management (BLM). Portions of the range are leased by BLM to individuals for grazing. In addition, McGregor Range includes the Culp Canyon Wilderness Study Area and the McGregor Black Grama Grassland Area of Critical Environmental Concern, which is managed to protect valuable biological resources and to study the ecology of undisturbed grassland.

The BLM conducts its management responsibilities for McGregor Range in accordance with the *Resource Management Plan Amendment (RMPA) for McGregor Range* (May 2006). The RMPA describes management strategies for the withdrawn public lands on McGregor Range. Actions incorporated in the RMPA include establishing two utility right-of-way corridors, creating right-of-way exclusion areas (where rights-of-way would not be allowed), and designating new Areas of Critical Environmental Concern, including the Escondido Pueblo. The RMPA reflects changes in the mission and uses of Fort Bliss based on the 2000 Mission and Master Plan PEIS and the construction and use of Centennial Range.

The population in the ROI grew by 5 percent between 2000 and 2004. The highest rate of growth was in Doña Ana County (6.5 percent), followed by El Paso County (5 percent), with Otero County experiencing the least growth (1.6 percent). Development in the City of El Paso has extended to the north and east, in areas close to Fort Bliss. Areas of Doña Ana County just north of the New Mexico state boundary have experienced substantial growth, especially in the communities of Chaparral and Anthony south of the Doña Ana Range portion of Fort Bliss.

Increased traffic in the City of El Paso associated with the population growth has resulted in some roadways degrading to unacceptable levels of service, especially along segments of Interstate Highway 10 and Montana Avenue. In response to the increased traffic congestion, the Texas Department of Transportation has planned some improvements on I-10, Montana Avenue, the Inner Loop through the Fort Bliss Main Cantonment Area, and the Northeast Parkway bypassing I-10 through the city.

Population growth has also increased the demand for potable water in the region. Fort Bliss, the City of El Paso, and Ciudad Juárez obtain the majority of their drinking water from wells that pump fresh water out of the Hueco Bolson aquifer. Currently, withdrawals from the bolson exceed the aquifer's recharge rate. A desalination plant to be operated by the City of El Paso Water Utilities (EPWU) is being constructed on Fort Bliss land in the South Training Areas to treat brackish water from the Hueco Bolson and decrease freshwater withdrawals. The desalination plant is one of several projects planned by EPWU to obtain new water sources to accommodate increased demands.

Environmental Consequences

The No Action Alternative involves construction of new facilities and infrastructure in the Main Cantonment Area to accommodate one Heavy BCT, upgrades and enhancements to live-fire ranges in the Fort Bliss Training Complex, increased off-road vehicle maneuver training in the North and South Training Areas and TA 8 on McGregor Range that are currently approved for that use, and increased traffic and demand for utilities, housing, and community services due to the influx of approximately 23,000 new people into the region. None of these impacts of the No Action Alternative are expected to be significant.

The other alternatives are anticipated to generate substantial economic benefits and significantly affect population growth and development, traffic, utility demands, and demand for public and medical services in the region. Expansion of off-road vehicle maneuver training into the Tularosa Basin portion of McGregor Range, along with increased maneuvers in the North and South Training Areas, is expected to increase wind and water erosion significantly and will likely result in long-term changes in vegetation communities in the more intensely used training areas. Training related noise is also expected to increase in areas adjacent to Doña Ana Range and portions of McGregor Range. **Table S-2** summarizes and compares the environmental consequences of the five alternatives.

Changes Between the Draft and Final SEIS

A Draft SEIS was distributed for public review and comment on October 6, 2006. The Final SEIS contains public comments received on the Draft SEIS during the public review period, which ended December 12, 2006, along with responses to those comments. Changes made to the SEIS in response to public comments include providing additional information and analysis concerning transportation, water resources, biological resources, safety, hazardous materials, socioeconomics, and cumulative impacts. A new Chapter 6.0 has been added to consolidate the discussion of mitigation measures and monitoring activities to reduce the environmental effects of the Proposed Action and other alternatives.

391 **Table S-2. Summary Comparison of the Environmental Consequences of the Alternatives**

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
Land Use	No change in land use designations on Fort Bliss or in non-military use of training areas. Off-post areas adjacent to North and South Training Areas could be exposed to increased noise and dust. Development for one Heavy BCT will make Biggs Army Airfield (AAF) appear more urbanized.	Main Cantonment Area land use changed to mixed use designation. Major new development on about 4,000 acres of the Main Cantonment Area. Change in land use designation of south Tularosa Basin portion of McGregor Range and more visible development of ranges. Non-military uses not expected to be greatly affected. Additional personnel and related population increase would increase development in the City of El Paso. Open space would be converted to more urban use. Rural communities in El Paso and Doña Ana Counties likely to become more developed.	Main Cantonment Area effects similar to Alternative 1. Development for a second CAB consistent with existing land use and visual character of Biggs AAF. Off-road vehicle maneuvers on McGregor Range north of Highway 506 would affect visual character of landscape and, depending on level of use, may eventually affect productivity of the land to support grazing.	Main Cantonment Area effects same as Alternatives 1 and 2. Off-road vehicle maneuvers in southeast training areas of McGregor Range would affect visual character of landscape.	Same as Alternatives 1, 2, and 3 combined. In addition, Main Cantonment Area could become more developed, and population growth associated with the potential stationing of two additional Heavy BCTs could further increase development and urbanization of surrounding off-post communities.
Main Cantonment Area Infrastructure	Increased traffic in vicinity of Main Cantonment Area not expected to significantly affect level of service on roadways. Utilities and energy demand well within the capacity of service providers.	Increased traffic in vicinity of Main Cantonment Area would reduce level of service on some roadways, but only one segment of U.S. Highway (US) 54 would degrade to unacceptable level by 2021. Population increase would represent 20 percent of EPWU's demand for potable water. Additional wastewater generation by increased population in combination with baseline population growth in El Paso estimated to exceed existing treatment capacity by approximately 7 percent. If new on-post landfill is	Same as Alternative 1 with marginal increase in traffic and utilities and energy demand associated with second CAB. Roadway level of service would decline to unacceptable level on two additional roadway segments by 2021. Population increase would represent 22 percent of EPWU's demand for potable water. Increased	Same as Alternative 2.	Same as Alternatives 1, 2, and 3. Level of service on another segment of US 54 would decline to unacceptable level. Population increase would represent 28 percent of EPWU's demand for potable water. Increased wastewater generation in El Paso estimated to exceed existing capacity by approximately 13

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
		constructed, solid waste generation from new family housing and increased off-post population is estimated to shorten life of Clint Landfill by about 1.4 years. If new on-post construction is not constructed, increase in solid waste is estimated to shorten life of Clint Landfill by about 1.7 years.	wastewater generation in El Paso estimated to exceed existing treatment capacity by approximately 8 percent. Increased solid waste generation estimated to shorten life of Clint Landfill by about 1.6 years if new on-post landfill is constructed and 1.9 years if new on-post landfill is not constructed. Increased capacity needed in natural gas feeders to Main Cantonment Area.		percent. Additional population increase estimated to reduce the life of the Clint Landfill by about 2.2 years if new on-post landfill is constructed and 2.6 years if new on-post landfill is not constructed.
Training Area Infrastructure	Wastewater treatment facilities at Doña Ana and McGregor Range Camps require expansion and upgrading, including lining, to increase capacity. Size of four culverts at Orogrande Range Camp needs to be increased.	Same improvements needed as No Action Alternative. Military convoys to Doña Ana Range-North Training Areas would reduce level of service on Martin Luther King, Jr. Boulevard/New Mexico Highway 213. Military convoy traffic on US 54 not expected to affect level of service. More frequent solid waste collection and delivery of liquefied petroleum gas needed due to increased use of range camps.	Same as Alternative 1. Highway 506 would be occasionally and temporarily closed for military vehicle crossings; delays expected to last 15 minutes or less. Orogrande pipeline in north McGregor Range would need to be protected from damage by heavy tracked vehicles.	Same as Alternative 1.	Same as Alternative 2.

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
Airspace Use and Management	No impact.	Increase in helicopter and unmanned aerial vehicle operations not expected to affect airspace use or management.	Same as Alternative 1. Additional helicopter operations not expected to affect airspace use or management.	Same as Alternative 2.	Same as Alternative 2.
Earth Resource	Minor, temporary increase in soil erosion potential from construction in Main Cantonment Area. Off-road vehicle maneuvers not expected to change soil conditions significantly in North and South Training Areas and TA 8.	Temporary increase in soil erosion from construction in Main Cantonment Area. Significant increase in wind erosion potential in south Tularosa Basin portion of McGregor Range from range construction and off-road vehicle maneuvers. Heavily used areas would be vulnerable to down-wind soil transport. Down-wind vegetation could become covered, leading to further desertification. Vegetation cover in less heavily used areas likely to become patchy.	Same as Alternative 1, with extension of off-road vehicle maneuvers, and resulting increase in soil erosion, into training areas north of Highway 506.	Same as Alternative 1, with extension of off-road vehicle maneuvers, and resulting increase in soil erosion, into TAs 24, 26, and 27 on McGregor Range, which are also susceptible to moderate to severe water erosion.	Same as Alternatives 1, 2, and 3 combined.
Air Quality	Emissions from construction, vehicle combustion, and training not expected to significantly affect air quality.	Higher emissions from construction, vehicle combustion, and training operations than No Action Alternative; resulting air pollutant concentrations not expected to exceed National Ambient Air Quality Standards. Increase in off-road vehicle maneuvers would result in increased fugitive dust generation. Particulate levels at installation boundary would be well below air quality standards.	Similar to Alternative 1 with slight increase in emissions.	Similar to Alternative 2.	Similar to Alternative 1, 2, and 3 with increased emissions and fugitive dust associated with additional BCTs and associated off-road vehicle maneuver training.

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
Water Resources	Additional water demand within existing planned capacity of water purveyors.	Increase in demand for potable water in combination with baseline population growth in El Paso area estimated to consume 97 percent of EPWU's available resources by 2015. Potential short-term increase in pumpage of groundwater from the Hueco Bolson to meet need while EPWU plans for alternative sources are put in place. Tularosa Basin not expected to be adversely affected.	Increase in demand for potable water in combination with baseline population growth in El Paso area estimated to consume 99 percent of EPWU's available resources by 2015.	Same as Alternative 2.	Increase in demand for potable water in combination with baseline population growth in El Paso area estimated to exceed EPWU's available resources by 3 percent, requiring acceleration of EPWU plans to obtain additional supplies.
Biological Resources	No significant impacts expected. Some loss of breeding bird habitat in Main Cantonment Area.	Construction in Main Cantonment Area would reduce breeding bird habitat and likely to affect nests and displace birds. Off-road vehicle maneuvers in south Tularosa Basin portion of McGregor Range would have moderate impact on vegetation and wildlife. Areas affected are dominated by mesquite coppice dunes and other shrubland vegetation communities, which are common on Fort Bliss. Vegetation cover likely to become more patchy with herbaceous species, which could lead to less wildlife density. A small portion of the affected area susceptible to additional coppice dune formation. Impacts on sensitive species not anticipated to jeopardize regional populations.	Similar to Alternative 1 with impacts extended to eastern portion of Main Cantonment Area and areas north of Highway 506.	Same as Alternative 1 for Main Cantonment Area, North and South Training Areas, and south Tularosa Basin portion of McGregor Range. Habitat in southeast training areas of McGregor Range (TAs 24, 26, and 27) dominated by grasslands with higher species richness. Intensive off-road vehicle maneuver training could ultimately change vegetative cover and ecological state of those TAs. Sensitive species not expected to be significantly affected.	Same as Alternatives 1, 2, and 3 combined.

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
Cultural Resources	Significant impacts reduced or mitigated in accordance with Programmatic Agreement and ICRMP.	Significant impacts reduced or mitigated in accordance with Programmatic Agreement and ICRMP. Some loss of archaeological resources in training areas likely but would be managed as provided for in the Programmatic Agreement. Increased risk of uncovering previously unknown cultural resources during construction.	Same as Alternative 1 with potential for loss of archaeological resources in the north Tularosa Basin portion of McGregor Range.	Same as Alternative 1 with potential for loss of archaeological resources in southeast training areas of McGregor Range.	Same as Alternatives 1, 2 and 3 combined.
Noise	Increase in noise from large caliber weapons firing at Doña Ana Range and southern end of McGregor Range.	Expansion of noise contours associated with large caliber weapons firing at Doña Ana Range and McGregor Range, including new Orogrande Range Complex. No significant impact from increased helicopter operations at Biggs AAF. Additional noise from helicopters crossing US 54 from Orogrande Range Camp to McGregor Range. Off-road vehicle maneuvers would generate elevated noise levels near maneuver areas during use. Elevated noise from military vehicle convoys could extend out approximately 2,000 feet from roadways.	Same as Alternative 1.	Same as Alternative 1.	Further expansion of noise contours associated with large caliber weapons firing at Doña Ana and McGregor Ranges.

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
Safety	Negligible increase in chance of Class A mishap.	Minor increase in chance of Class A mishap. Slight potential increased risk of wildfires not significant due to low fuel load in the Tularosa Basin and prevention, detection, and response procedures in Range SOP.	Same as Alternative 1 with slight increased risk of Class A mishaps with second CAB.	Same as Alternatives 1 and 2. Higher risk of wildfires in grasslands of the southeast training areas.	Same as Alternatives 1, 2, and 3. Additional increase in chance of Class A mishap but probability still low. Risk of wildfires highest in southeast training areas.
Hazardous Materials and Items of Special Interest	Minor increase in hazardous waste generation and risk of release of hazardous materials or waste.	Additional increase of hazardous waste generation and risk of release of hazardous materials or waste manageable through existing procedures.	Same as Alternative 1 with slightly higher generation of hazardous waste with second CAB.	Same as Alternative 2.	Same as Alternative 1 with somewhat higher generation of hazardous waste with second CAB and two additional BCTs.
Socioeconomics	Minor increase in population, economic activity, and demand for housing and community services.	Significant increase in population growth in El Paso County. Annual population growth rate estimated to increase from less than 3 percent to more than 4 percent over next five years. Significant beneficial impact on economic activity and tax revenues in the City of El Paso and El Paso County. Short-term significant increase in military construction may create a risk of "boom-bust" effects. Demand for additional housing may out pace ability of local market to respond, resulting in increased housing prices. El Paso school districts, law enforcement and fire protection, and	Same as Alternative 1 with potential for additional socioeconomic effects from construction and population increase with second CAB. Additional population could further stress housing market and community services.	Same as Alternative 2.	In addition to impacts described for Alternative 2, potential for extended socioeconomic effects from construction and population increase with two additional BCTs. Additional military construction could reduce or defer risk of "bust" effect. Additional population growth could further stress housing market and community services.

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
		medical services would require substantial personnel increases and new facilities in some cases. Medical service impacts especially significant due to already existing shortfalls in the community. Quality of life in El Paso would be affected by increased urbanization and probable cost of living increases.			
Environmental Justice	No disproportionately high and adverse impacts on minority or low-income populations expected.	Noise from large caliber weapons firing at Doña Ana Range would affect the community of Chaparral, which has a higher percent of low-income population than the average for the region of influence.	Same as Alternative 1	Same as Alternative 1.	Additional areas in Doña Ana, El Paso, and Otero Counties with higher than average low-income population would be affected by large caliber weapons firing at Doña Ana and McGregor Ranges.

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1.0 PURPOSE OF AND NEED FOR ACTION

This Supplemental Environmental Impact Statement (SEIS) supplements the *Final Fort Bliss, Texas and New Mexico, Mission and Master Plan Programmatic Environmental Impact Statement* (Mission and Master Plan PEIS) dated December 2000 and associated Record of Decision (ROD) signed in 2001. It identifies the potential environmental effects that would result from modifying land and airspace use at Fort Bliss to continue supporting evolving changes in missions and units, associated facilities and infrastructure, and training activities.

The changes in land and airspace use adopted pursuant to this SEIS will subsequently be incorporated in updates and amendments to the Fort Bliss Master Plan and related management programs, including the Real Property Master Plan (RPMP), Integrated Cultural Resources Management Plan (ICRMP), Integrated Natural Resources Management Plan (INRMP), Training Area Development Concept (TADC), Integrated Training Area Management (ITAM) Program Work Plan, and Range Complex Master Plan (RCMP).

The SEIS has been prepared in compliance with the National Environmental Policy Act (NEPA) (Public Law [PL] 91-190, 42 United States Code [U.S.C.] 4321-4347, as amended), Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and 32 CFR Part 651, "Environmental Effects of Army Actions."

This chapter provides background information leading to the preparation of the SEIS; describes the purpose of and need for the proposed action, including changes in organizations, personnel, equipment, and training requirements at Fort Bliss; identifies the decision to be made; summarizes the scope of the SEIS; and describes changes between the Draft SEIS and Final SEIS.

1.1 BACKGROUND

Fort Bliss is a multi-mission United States (U.S.) Army installation located on approximately 1.12 million acres in Texas and New Mexico (**Figure 1-1**). It consists of the Main Cantonment Area, which is comprised of the Main Post, William Beaumont Army Medical Center (WBAMC), Logan Heights, and Biggs Army Airfield (AAF); Castner Range; and the Fort Bliss Training Complex, which is comprised of three large geographic segments: (1) the South Training Areas, (2) Doña Ana Range-North Training Areas, and (3) McGregor Range (**Figure 1-2**).

Fort Bliss was first established in 1849. Since 1957, the installation has been the home of the U.S. Army Air Defense Artillery Center and Fort Bliss (USAADACENFB). Its primary mission in the 21st century has been to support the Army's Air Defense Artillery (ADA) training and serve as a Power Projection Platform for regular Army, Army Reserve, and Army National Guard troops mobilizing for deployment.

In April 2002, the Deputy Chief of Staff of the Army for Operations and Plans announced the decision to proceed with the proposed 30-year, phased implementation of Army Transformation. Fort Bliss was one of 25 Army "force projection" installations described and analyzed in the Army Transformation PEIS (Ref# 143). Continued strategic planning and lessons learned from the Global War on Terrorism (GWOT) and Army operations in Iraq and Afghanistan resulted in the development of the Army Campaign Plan (ACP) to support Army Transformation.

The ACP was approved in April 2004 to implement Army Transformation to a modular force. It restructures the Army from a division-oriented force to a "brigade-based" or modular force able to efficiently respond to Regional Combatant Commanders, support joint operations, facilitate force packaging (grouping units and equipment to accomplish a specific mission or achieve a desired capability) and rapid deployment, and fight as self-contained units. Each self-contained unit is a brigade-sized building block of combat power. The new brigade modules replicate the capabilities of a former division only in a smaller unit size.

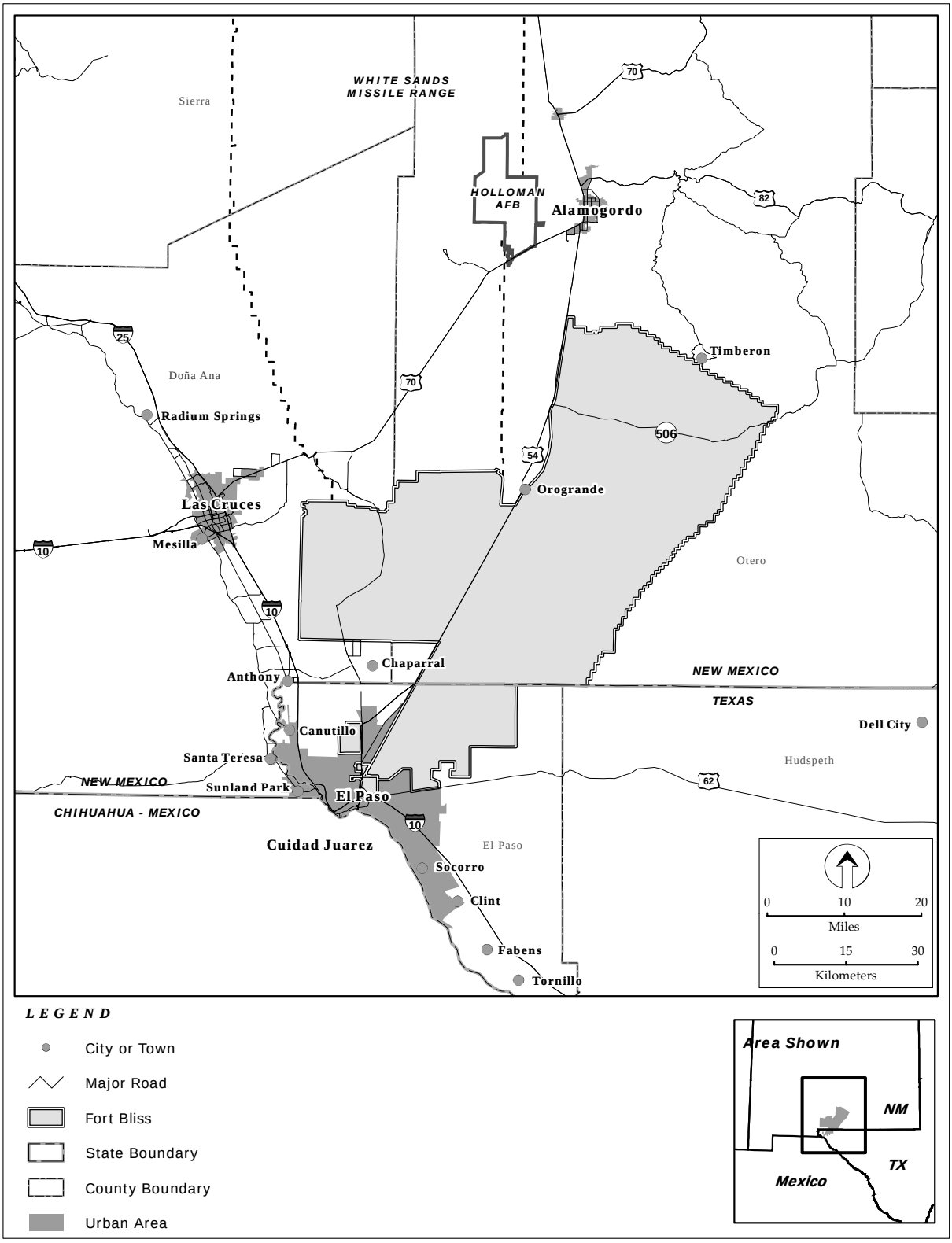


Figure 1-1. Location of Fort Bliss

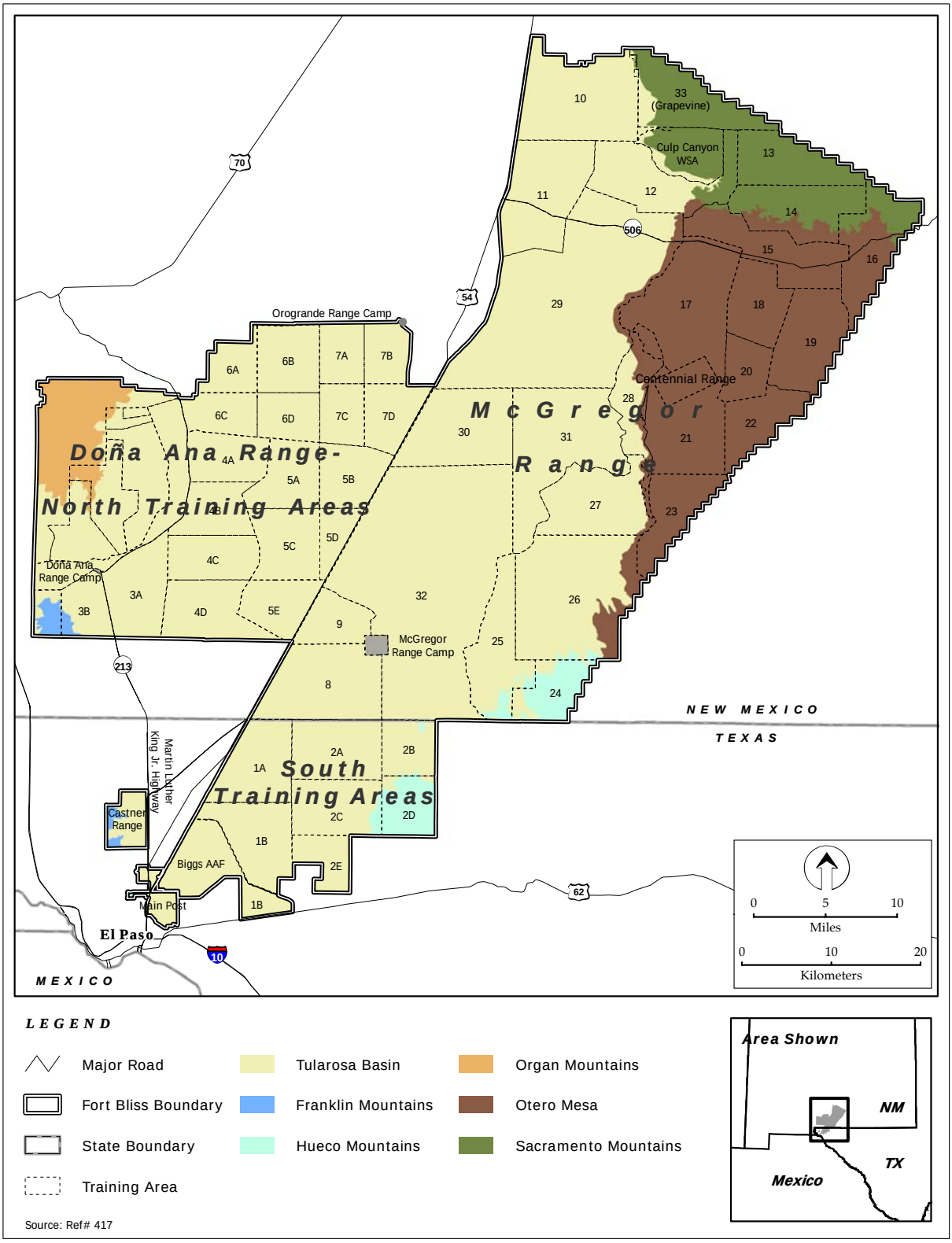


Figure 1-2. Fort Bliss, Texas and New Mexico

Of primary importance is the objective to transform Army structure. The plan is to convert all Active Component and Reserve Component units to modular units by fiscal year (FY) 2007. As part of the modular force transformation, the Army is activating 10 new combat arms brigades for a total of 43 Active Component Brigade Combat Teams (BCTs). As a result, the number of BCTs stationed in the U.S. will rise from 26 to 40. At Fort Bliss, the transformation to a modular force has initially involved relocating the 4th BCT, 1st Cavalry Division (CAV) to Fort Bliss in 2006 and will involve bringing in other units between 2007 and 2011 to support the transformation of Fort Bliss to a heavy mounted maneuver installation, while continuing to support power projection and mobilization/demobilization mission requirements. In addition, as part of an Integrated Global Presence Basing Strategy (IGPBS) (also known as Global Defense Posture Realignment), three more Heavy BCTs and the 1st Armor Division Headquarters (HQ) will be brought back from Germany and stationed at Fort Bliss between 2007 and 2010.

These relocations were endorsed by the Base Realignment and Closure (BRAC) Commission, which also approved a Department of Defense (DoD) proposal to move the ADA Center, including the ADA School, 6th ADA Brigade, and 31st ADA Brigade, from Fort Bliss to Fort Sill, Oklahoma and relocate an Artillery (Fires) Brigade from Fort Sill to Fort Bliss. Moving this Artillery Brigade collocates the artillery with the maneuver units at Fort Bliss. Further, the Commission endorsed moving aviation units from Fort Hood, Texas to Fort Bliss to support the activation of a Combat Aviation Brigade (CAB) and bringing in a Terminal High-Altitude Area Air Defense (THAAD) unit. Finally, the Commission supported a DoD proposal to establish a Joint Pre-Deployment/Mobilization Platform at Fort Bliss. These recommendations became law in December 2005. In addition to the BRAC decisions, the Army plans to relocate the 108th ADA Brigade from Fort Bliss to Fort Bragg, North Carolina, as a discretionary move in support of the ACP and has established a Future Force Integration Directorate at Fort Bliss to support evaluation of future combat systems.

1.2 PURPOSE OF THE PROPOSED ACTION

The purpose of the proposed action is to:

- Modify current land use on Fort Bliss to more fully realize the installation's capability and flexibility to support Army training and testing requirements; the evolving force structure; potential future missions; and Joint, Interagency, Intergovernmental, and Multinational agencies, without compromising the commitment to stewardship of natural and cultural resources.
- Construct additional facilities and infrastructure in the Main Cantonment Area necessary to support BRAC and IGPBS stationing decisions.
- Develop live-fire, qualification, and testing ranges required to support the requirements of units stationed at Fort Bliss.
- Develop range camps, auxiliary facilities, and other improvements.

The SEIS differs from the 2000 Mission and Master Plan PEIS in that part of the purpose of the PEIS was to enhance management of Fort Bliss land, airspace, and infrastructure through adoption of the RPMP, TADC, ICRMP, and INRMP and related management procedures. Those plans and procedures are now in place, and the purpose of this SEIS is to modify land use to continue supporting Fort Bliss' evolving missions. The land use changes adopted after completion of the SEIS will be used to amend those plans and procedures as needed to incorporate the selected alternative.

1.3 NEED FOR THE PROPOSED ACTION

The need for the proposed action is to support Army Transformation and the ACP by more fully realizing the capability of Fort Bliss lands and facilities, including off-road vehicle maneuver lands, airspace, and firing ranges. Recent BRAC and IGPBS stationing decisions define the known future missions of Fort Bliss and create the near-term requirements for off-road vehicle maneuver space and facilities and infrastructure improvements. Over the long term, Fort Bliss needs to be able to continue supporting the evolving operational, infrastructure, training, and testing requirements of the Army.

This section describes the mission and organizational changes and resulting personnel, equipment, and training requirements at Fort Bliss that drive the need to modify land use at the installation.

1.3.1 Change in Fort Bliss Mission

As Army restructuring and realignment evolve, there is a potential need to utilize fully the training capability at any given installation. Furthermore, it is reasonable to assume that installations with additional training capability could receive new missions in the future.

Transformation to a modular force will result in changes in fighting unit structure, higher intensity levels of training activity, use of new types of equipment, and construction or upgrade of live-fire ranges using digital technology. New weapons systems and ranges using digital technology will expand the size requirements for live-fire ranges. There will also be a need for new types of live-fire ranges such as those required to train soldiers for urban combat and convoy protection. These changes, combined with changes in training doctrine to support highly mobile, self-contained units, will involve use of larger areas of the available training land. In addition, the new brigades and the realignment of the force will require increased use at existing live-fire ranges, training areas, and airspace.

1.3.2 Organizational Changes

Currently, Fort Bliss is the home of the USAADACENFB, the U.S. Army ADA School, and over 30 partner units and organizations. The ADA School educates and trains U.S. military students (Active and Reserve Components), civilians, and selected allied forces students in air defense artillery and other subjects that support the air defense mission. The main operational units currently stationed at Fort Bliss are the 11th, 31st, and 108th ADA Brigades. The 4th BCT, 1st CAV located to Fort Bliss in 2006 and subsequently deployed to southwest Asia.

A Future Force Integration Directorate (FFID) with an Army Evaluation Force (AEF) is currently being established on Fort Bliss. The AEF will test and evaluate a network of weaponry and technology under development for Future Combat Systems (FCS). FCS consists of 18 manned and unmanned systems that are connected by a network. Through the network, soldiers and leaders are linked to combat technologies that allow them to maneuver quickly and conduct various missions in complex scenarios. The systems include ground sensors, intelligent munitions, unmanned aerial vehicles, unmanned ground vehicles, an armed robotic vehicle, medical treatment and evacuation, and other equipment.

Biggs AAF provides full airfield services for all U.S. military services, Department of Justice, and other government flight detachments. As an integral part of the ability of Fort Bliss to support national power projection, Biggs AAF is an aerial departure point for all deployable units at Fort Bliss, approximately 115 Army Reserve/National Guard units, and civilian government and contract employees.

Other major organizations currently located on the installation include:

- The Test and Experimentation Command's (TEXCOM) ADA Test Directorate, which provides the ADA Center with an independent organization capable of conducting air defense weapons experimentation, force development, and operational testing.

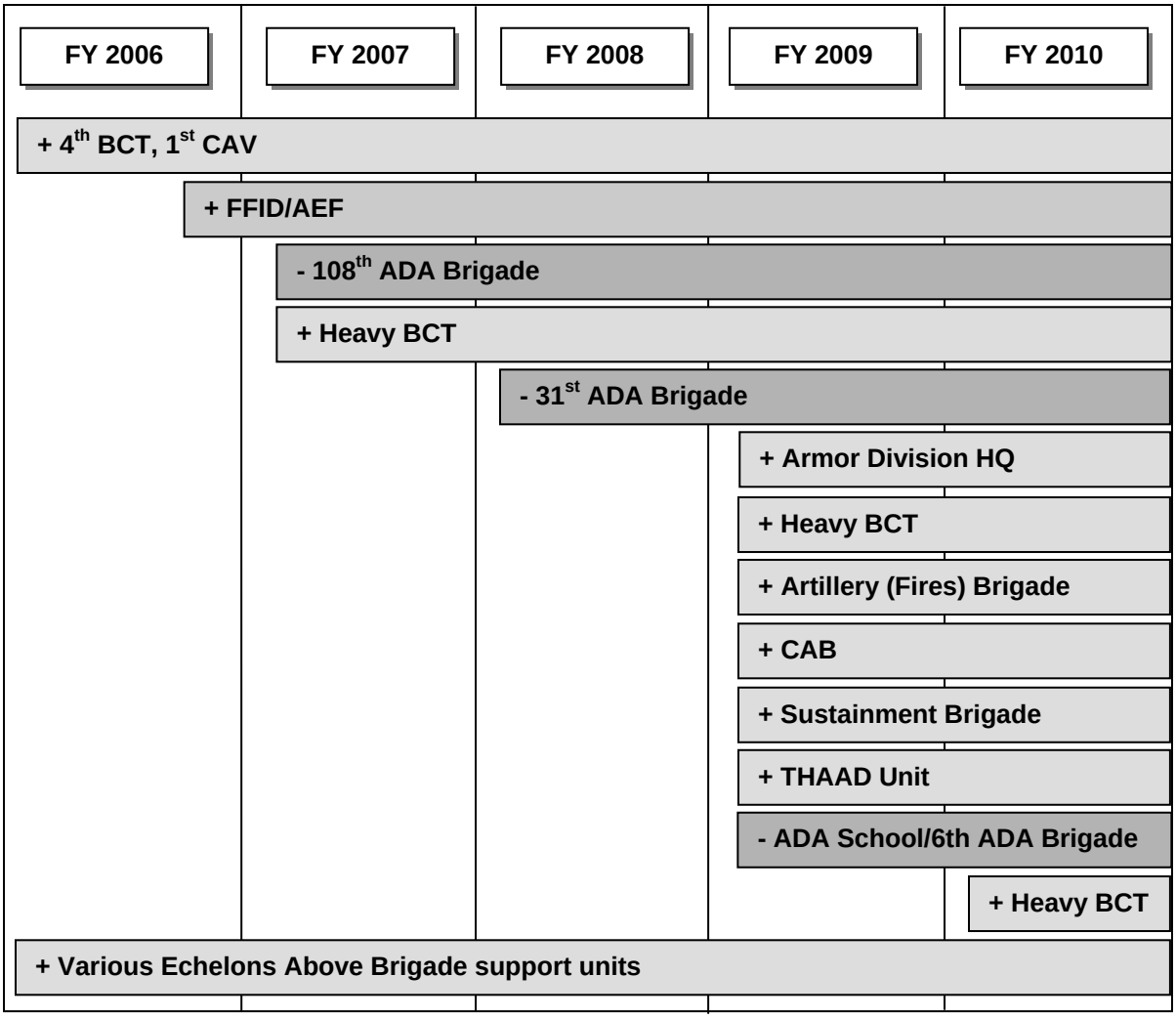
- Joint Task Force (JTF) North, a military command stationed at Fort Bliss that provides support to various law enforcement agencies.
- The U.S. Army Sergeants Major Academy (USASMA), which prepares Army Noncommissioned Officers (NCOs) for assignments as battalion, brigade, and division staff NCOs and First Sergeants. Selected NCOs from the Army, other U.S. services, and international forces attend courses in preparation for assignments as Sergeants Major and Command Sergeants Major.
- WBAMC, a part of the U.S. Army Medical Command, which provides full-service (inpatient and outpatient) medical treatment for all military personnel in the El Paso area. Medical air evacuation services throughout its service area are provided from Biggs AAF.
- Joint, Interagency, Intergovernmental, and Multinational agencies, including Allied Liaison Officers from Canada, Germany, Japan, and the Netherlands. Fort Bliss is the home station for the German Air Force Command in the United States and Canada and the German Air Defense School.

Fort Bliss Garrison Command oversees, maintains, and operates the multi-mission installation. Fort Bliss Garrison Command accomplishes this through its public works, logistics, master planning and engineering, material maintenance, supply and services support, transportation, and environmental management activities. The U.S. Army Combined Arms Support Battalion (USACAS) provides management, control, maintenance, and operation of the Fort Bliss Training Complex.

Figure 1-3 graphically illustrates the unit changes expected to occur at Fort Bliss between FY 2006 and 2010 as a result of IGPBS, BRAC, and other actions. They include the following additions:

- Four Heavy BCTs, self-contained brigades that provide combat power needed to deploy and fight. Each BCT is organized with two Combined Arms Battalions and one Armed Reconnaissance Battalion, a Fires Battalion, Brigade Troops Battalion, and a Support Battalion. The Combined Arms and Armed Reconnaissance Battalions are comprised of four tank companies, four mechanized infantry companies, three reconnaissance troops (company size), and one surveillance troop. Each BCT includes approximately 3,800 military personnel and is equipped with more than 360 tracked vehicles, including M1 tanks, Bradley fighting vehicles, Howitzers, 120 millimeter (mm) mortar carriers, and nearly 900 High Mobility Multipurpose Wheeled Vehicles (HMMWVs) and other wheeled vehicles.
- An Armor Division HQ, a self-contained modular headquarters that commands and controls up to six maneuver BCTs engaged in combat operations. It combines the functions of the current Division HQ with the tactical responsibilities of the corps. It may direct and control additional brigades depending on the operational environment. There are approximately 700-800 military personnel assigned to the Division HQ.
- An Artillery (Fires) Brigade that plans, prepares, executes and assesses combined arms operations to provide close support and precision strikes for BCTs and support brigades using artillery, rockets, and missiles. It enables integrated employment of surface-to-surface and air-to-surface lethal and non-lethal fires. It conducts close support, counterfires, and precision strikes to destroy, fix, or isolate enemy forces or capabilities. It provides precision strike capabilities throughout the depth of an area of operations that is normally larger than that of a single maneuver brigade. It includes two Multiple Launch Rocket System (MLRS) battalions and signal, target acquisition, and forward support companies with a total of approximately 1,600 military personnel, 423 wheeled vehicles, and 36 tracked vehicles.
- A CAB that plans, prepares, executes, and assesses aviation and combined arms operations to support division and maneuver brigades to find, fix, and destroy enemy forces at a decisive time and place. The structure of the CAB is tailored to the type of division or BCTs supported, and can support up to five BCTs. It is organized with two Attack Battalions, an Assault Battalion, a

General Support Battalion, and an Aviation Support Battalion, with a total of approximately 2,700-2,800 military personnel. Each Attack Battalion has 24 attack helicopters (AH) (total 48), the Assault Battalion has 30 utility helicopters (UH), and the General Support Battalion has 8 UHs, 12 cargo helicopters (CH), and 12 medivac heavy helicopters (HH).



Note: As of January 2007. Subject to change.

Figure 1-3. Planned Unit Changes at Fort Bliss

- A Sustainment Brigade that plans, coordinates, synchronizes, monitors, and controls sustainment within an assigned area of operations. It augments or reinforces the Support Battalions within the BCTs and controls sustainment (administration, medical, ammunition, transportation, maintenance, and supply). It consists of one Brigade Troops Battalion and supports between one and 10 brigades based on requirements and operational needs. The sustainment brigade is augmented with assigned finance and human resources (personnel) support; provides ammunition, transportation, maintenance, and supply support; and additional medical support (brigade or less) can also be attached. It is designed as a multi-functional headquarters and can provide Host Nation support and contracting, as well as support to joint, interagency, and multinational agencies on order. This brigade includes approximately 400-500 military personnel and 140 wheeled vehicles.

- Echelons Above Brigade (EAB) and other units may include Military Police Battalion, Military Police Combat Support Companies, Motor Transportation Battalion, Mobility Augmentation Companies, Signal Support Network, Support Maintenance Company, Operating Force Band, Personnel Services Battalion, Movement Control Team, Quartermaster Supply Company, Truck Company-Cargo, Engineer Battalion, THAAD Battalion, and Survey and Design Team. These units include approximately 2,500 military personnel.

In addition, a National Guard and Reserves Joint Training Center complex is being established at Fort Bliss in FY 2008 to support units in the Texas Army and Air National Guard and Army Reserves in the El Paso area. The complex includes an Armed Forces Reserve Center and consolidated vehicle maintenance facility. The center will have approximately 140 permanent personnel, more than 90 wheeled vehicles, 25 tracked vehicles, and 170 other pieces of equipment. It will provide training for 1,200-1,300 National Guard and Reserve personnel in 2-day sessions two to three times per month and 2-week sessions during the summer.

Table 1-1 summarizes the main units that will be assigned to Fort Bliss after all the relocations have been completed.

Table 1-1. Primary Units Assigned to Fort Bliss – FY 2010 and Beyond

1st Armor Division HQ
Four Heavy BCTs
Sustainment Brigade
Artillery (Fires) Brigade
CAB
FFID and AEF
32nd Army Air Missile Defense Command 11th ADA Brigade
TEXCOM ADA Test Directorate
Sergeants Major Academy
JTF-North
WBAMC
German Air Force Command German Air Defense School
EAB support units
Joint Training Center
Garrison Command

1.3.3 Personnel

The relocation of the units described in Section 1.3.2 to Fort Bliss will result in an increase of approximately 23,500 military personnel and 3,100 new Government civilian workers at Fort Bliss between FY 2006 and 2010. Conversely, the actions recommended by the BRAC Commission will result in a reduction of approximately 3,500 military and 400 civilian personnel in FY 2007-2009, for a net increase of approximately 20,000 military and 2,700 Government civilian personnel. Other units not affected by the Army Transformation or BRAC movements, including students attending the Sergeants Major Academy and temporary duty (TDY) personnel who come to Fort Bliss for training, would continue to be part of the installation population. **Table 1-2** shows the approximate personnel strength at Fort Bliss in FY 2000, 2005 (prior to the relocations and realignments), 2006 (start of IGPBS and BRAC relocations), and net personnel strength projected through FY 2011.

Table 1-2. Estimated Personnel Strength at Fort Bliss

Type of Personnel	*FY00*[1]	*FY05*	*FY06*	*FY07*	*FY08*	*FY09*	*FY10*	*FY11*
Officers	1,510	1,300	1,700	1,700	2,000	2,750	3,100	3,300
Warrant Officers	240	200	300	300	400	750	900	900
Enlisted	9,440	8,500	11,800	12,000	14,000	21,500	25,000	25,800
Total U.S. Military	11,190	10,000	13,800	14,000	16,400	25,000	29,000	30,000
Non-U.S. Military	NA[2]	200	200	200	200	200	200	200
Government Civilians	7,400	5,300	5,800	6,500	6,600	7,500	8,000	8,000
Students (TDY)	NA[2]	2,800	2,800	2,800	2,800	1,000	1,000	1,000
Other TDY[3]	7,780	4,900	5,000	5,000	5,000	5,000	5,000	5,000
Contract Civilians	NA[4]	2,200	2,400	2,700	2,800	3,100	3,200	3,300
Total Personnel	26,370	25,400	30,000	31,200	33,800	41,800	46,400	47,500
Military Dependents[5]	18,000	16,500	22,800	23,100	27,100	41,300	47,900	49,500

1. From Mission and Master Plan PEIS.
2. Assumed to be included in Military numbers.
3. Includes mobilization and other off-post units training at Fort Bliss. Estimated as full-time equivalents.
4. Assumed to be included in Government Civilian numbers.
5. Estimated as a ratio of U.S. military personnel, assuming 53 percent of military is accompanied with an average of 3.1 dependents.

NA = Not Available; TDY = Temporary Duty

Source: Ref# 468, 469, 470

1.3.4 Equipment

After the relocation of the 3rd ACR to Fort Carson, the primary equipment at Fort Bliss consisted of wheeled vehicles (e.g., Patriot missile transporters). With the relocation of Heavy BCTs to Fort Bliss, the number of tracked vehicles will increase substantially. Typically, a Heavy BCT includes approximately 360 tracked vehicles (e.g., M1 tanks, Bradley fighting vehicles), 900 wheeled vehicles (such as HMMWVs), 165 generator sets, and other incidental equipment. In addition, the stationing of the CAB at Biggs AAF will add 110 helicopters at the installation. **Table 1-3** lists the main equipment located at Fort Bliss in FY 2000 and 2005 and projected net equipment changes between FY 2006 and 2010.

Table 1-3. Estimated Net Equipment Changes at Fort Bliss

Type of Equipment	*FY00*[1]	*FY05*	*FY06*	*FY07*	*FY08*	*FY09*	*FY10*	*Total*
Wheeled Vehicles	3,250	4,200	+900	+500	-400	+2,000	+900	8,100
Tracked Vehicles	7	2	+360	+360	+143	+415	+360	1,640
Generator Sets	580	45	+165	+165	+55	+190	+165	7850
Helicopters	2	0				+110		110
Fixed-Wing Aircraft	13	8						8
Unmanned Aerial Vehicles	NA	NA	+16		+16	+16	+16	64

Note: Equipment would be phased in and not necessarily arrive at the same time as the personnel.

1. Based on Mission and Master Plan PEIS

NA=Not Available

Some M1 tanks have armor containing depleted uranium (DU) in the turret. The DU is encased and therefore not exposed to the environment. AR 385-65 prohibits firing of DU ammunition in the continental U.S. from tanks and A-10 aircraft unless approved by the Chief of Staff of the Army or the Commandant of the Marine Corps. No exception has been provided to Fort Bliss, nor is one anticipated.

1.3.5 Training Requirements

Emerging Army doctrine, operational experience in Afghanistan and Iraq, and new equipment capabilities are changing Army training concepts and training space requirements. Training in the current operational environment requires large off-road vehicle maneuver/training areas of varying characteristics with complex terrain and urban environments. Units should train in the same maneuver space conditions for live-fire, tactical movement, and resupply as they would in combat. Ground forces need large contiguous off-road vehicle maneuver/training areas to support "free-flowing exercises." Tactical maneuver wins battles and engagements. By keeping the enemy off balance, it also protects the force. A training environment that restricts unit training and does not properly reflect varied and complex battlefield conditions will not adequately prepare units for combat.

Another important dimension for maneuver training is the ability to conduct operations at night. Providing realistic training at night without interference from point source light pollution is especially important since the Army fights at night and uses night capabilities to its advantage. Operating at night is a critical task for both ground maneuver and aviation units. It is especially critical for aviation units flying at night using night vision equipment. Night exercises require large areas away from light sources.

With the stationing of four Heavy BCTs at Fort Bliss, training requirements will increase substantially and focus more on live-fire qualification training and off-road vehicle maneuvers. The ADA training that has dominated range use in the recent past primarily involved wheeled ADA units driving on existing roads to set locations, setting up equipment, and performing their training in a largely static position. There was relatively little movement of personnel or equipment. The Heavy BCTs will train in a vastly more dynamic fashion, moving relatively constantly cross country in tanks and other tracked vehicles.

Training Circulars (TC) 25-1, "Training Land," and 25-8, "Training Ranges," define the training requirements for different types and sizes of units, including armor divisions at the crew (typically 4-10 soldiers), platoon (16-44 soldiers), company (62-190 soldiers), and battalion (300-1,000 soldiers) levels. (The actual size of specific units depends on their particular function.) These requirements include individual qualification at live-fire ranges (e.g., small arms), range complexes for training crews (e.g., gunnery range for crew-served weapons), and off-road vehicle maneuver areas. The number of individual ranges and range complexes needed is a function of the throughput capabilities and requirements of each range/complex. To train one modular Heavy BCT to standard and to qualify soldiers on individual weapons requires a set of ranges as determined by TC 25-8.

The annual maneuver requirements outlined in TC 25-1 were adapted for the new Heavy BCTs by the 4th BCT, 1st CAV. The duration of each training event varies from 1 to 14 days and is required to be conducted annually, semiannually, or quarterly. In aggregate, these requirements result in approximately 109,000 "square kilometer days" of off-road vehicle maneuver training per year for each BCT, including the following basic requirements (Ref# 380):

- Platoon-level (total of 32-33 combat platoons per BCT) – requires training areas generally ranging from approximately 20 km^2 to 30 km^2 and up to 120 km^2 depending on the unit's mission.
- Company level (total of 11 companies per BCT) – requires training areas generally ranging from approximately 30 km^2 to 100 km^2.
- Battalion level (total of 3 per BCT) – requires training areas of approximately 250 km^2.
- BCT level exercise – requires a training area of approximately 500 km^2.

A square kilometer day (km^2d) is a measurement combining the area used (km^2) by each training event and the duration of the event in days. For example, a battalion-level exercise that is conducted twice a year for 14 days uses approximately 7,000 km^2d (250 km^2 x 2 x 14).

The other units being stationed at Fort Bliss (Artillery Brigade, Sustainment Brigade, CAB, and EAB) also have training requirements defined in TC 25-1. In addition, Fort Bliss will continue to support training by the existing units remaining at Fort Bliss, as well as other students and Active, Reserve, and National Guard Components training at Fort Bliss on a TDY basis or during mobilization. These uses can also be measured in terms of km^2d and bring the total training requirement at Fort Bliss to about 528,000 km^2d per year. **Table 1-4** summarizes the components that make up this requirement.

Table 1-4. Off-Road Vehicle Maneuver Training Requirements

Unit	*No. of Units/ BCT*	*Total No. of Units*	*Size of Maneuver Box*[1]	*Duration*	*Times per Year*	*Total Days/ Year*	*Total Km^2d^2*
Heavy BCTs[3]							
Platoon Level Exercises	33	99	9-120 km^2	4-10 days	2-4	2,964	115,920
Company Level Exercises	11	33	10-102 km^2	5-12 days	2	810	78,786
Battalion Level Exercises	3	9	248-465 km^2	14 days	2	375	111,132
BCT Level Exercise	1	3	496 km^2	14 days	1	42	20,832
Total Heavy BCTs							*326,670*
Artillery, Sustainment, Combat Aviation Brigades and EAB[4]							147,150
Mobilization Units[5]							54,500
Total Training Requirement							**528,320**

1. Varies by unit function and component of the exercise.
2. Incorporates varying maneuver box sizes.
3. Based on three Heavy BCTs training in any given year.
4. Estimated to be equivalent to 1.35 Heavy BCTs based on Army Ranges and Training Land Program Requirement Model calculations.
5. Estimate based on historic experience.

Maneuver training requirements for the units identified for relocation to Fort Bliss under BRAC were defined by the Army Transformation Support Center using the Army Range and Training Land Program Requirement Model. This model calculated a total annual requirement of approximately 158,000 km^2d to train each Heavy BCT. It also calculated the annual maneuver training requirements for the other units to be approximately 214,000 km^2d, which equates to 1.35 times the requirements of a Heavy BCT. Subsequently, the Heavy BCT requirements were refined to approximately 109,000 km^2d based on practical experience of the 4th BCT, 1st CAV. This smaller number was used for the analysis in this SEIS. The estimate of other unit requirements was kept as a ratio of 1.35 times the lower Heavy BCT estimate (1.35 x 109,000 km^2d = 147,150 km^2d).

1.4 DECISION TO BE MADE

The Army decision to be made is whether or not to execute the proposed changes in land use to support anticipated and other future changes in the mission and stationing of units at Fort Bliss. In making the decision, the Army will select among the following five alternatives:

No Action Alternative. This alternative would continue the current land uses as adopted in the 2001 ROD for the Fort Bliss Mission and Master Plan PEIS, defined in the RPMP and TADC, and analyzed in

documents tiering from the PEIS. Although this alternative would not change land use, facilities are being constructed in the Main Cantonment Area to support stationing of one BCT, in accordance with a completed Record of Environmental Consideration (REC). In addition, existing live-fire ranges are being upgraded and new live-fire ranges constructed within current land use designations and/or on existing range footprints. Additional mission support facilities will be constructed in areas currently designated for such facilities. Authorized training activities will continue in the Fort Bliss Training Complex. No off-road vehicle maneuver or live-fire would occur in McGregor Range training areas beyond what is currently designated in the TADC and as analyzed in the PEIS and subsequent NEPA documentation. The No Action Alternative is not considered feasible because it would not adequately support the requirements of BRAC.

Alternative 1. This alternative would include all development described in the No Action Alternative and also involve land use changes in the Main Cantonment Area and the Fort Bliss Training Complex to accommodate personnel, facility requirements, and training activities associated with locating an Armor Division and other units at Fort Bliss as part of Army Transformation and BRAC. The Main Cantonment Area of Fort Bliss would be expanded to the north and east, additional mission support facilities would be constructed in the Fort Bliss Training Complex, additional firing ranges and training facilities would be constructed on Doña Ana and McGregor Ranges, and approximately 216,000 additional acres (875 km^2) of training land in the Tularosa Basin portion of McGregor Range would be opened to off-road vehicle maneuver training. Land use changes on McGregor Range would include adding off-road vehicle maneuver in Training Areas (TAs) 9, 25, 30, 31, and 32 and portions of TAs 11 and 29 south of Highway 506 (see Figure 1-2).

Alternative 2. This alternative would include all changes described in the No Action Alternative and Alternative 1 and add off-road vehicle maneuver training in TAs 10, 11, 12, and 29 north of Highway 506, providing approximately 280,000 additional acres (1,135 km^2) of off-road vehicle maneuver capability in the Tularosa Basin portion of McGregor Range. This alternative would also support stationing a second CAB at Fort Bliss.

Alternative 3. This alternative would include all changes described in the No Action Alternative and Alternative 1, support stationing of a second CAB, and add off-road vehicle maneuver training in TAs 24, 26, and 27, providing approximately 287,000 additional acres (1,163 km^2) of off-road vehicle maneuver in the Tularosa Basin portion of McGregor Range.

Alternative 4 – Proposed Action. This alternative would include all changes described in Alternatives 1, 2, and 3 and provide approximately 352,000 additional acres (1,424 km^2) of off-road vehicle maneuver training area in the Tularosa Basin portion of McGregor Range. This would provide training capability for up to six BCTs or their equivalent in km^2d.

Alternative 4 – Proposed Action is the Army's preferred alternative.

1.5 SCOPE OF THE SEIS

The scope of this SEIS is to provide compliance with NEPA for the following actions:

- Changes in land use designations in the Main Cantonment Area and the Fort Bliss Training Complex.
- Development of facilities and infrastructure to support projected changes in unit stationing at Fort Bliss and associated operational and training activities.
- Amendments and updates to existing plans and programs to reflect the land use changes in the Main Cantonment Area and Fort Bliss Training Complex analyzed in this document.

- Future actions that are consistent with the selected land use alternative and within the scope of the umbrella analysis, providing a foundation for tiered environmental documentation to ensure consistent future analysis and documentation of environmental effects.

To understand the reasonably foreseeable consequences of the land use decision to be made, the SEIS qualitatively and quantitatively evaluates the environmental impacts of potential personnel changes, facilities construction, and training activities on Fort Bliss associated with the land use alternatives analyzed.

Fort Bliss has a closed range, Castner Range, located in Texas. It is not currently used for any Army activities and the Army has no plans for its future use. Castner Range is not addressed in this SEIS except as part of the cumulative impacts analysis.

1.6 CHANGES BETWEEN THE DRAFT AND FINAL SEIS

The Draft SEIS was distributed for public review and comment between October 6 and December 12, 2006. Section 2.5.2 describes public meetings and other activities undertaken during the public review period. The following changes and additions have been made to the Draft SEIS in response to the public comments:

- A new appendix (Appendix D Comments and Responses) has been added. It contains transcripts of the public meetings held to accept comments on the Draft SEIS and copies of all written comments received during the review period. It also contains responses to those comments.
- A new Chapter 6.0 Mitigation and Monitoring has been added to consolidate the discussion on potential mitigation measures for reducing impacts from the Proposed Action and other alternatives. Chapters 6.0, 7.0, 8.0, 9.0, and 10.0 of the Draft SEIS have been changed to Chapters 7.0, 8.0, 9.0, 10.0, and 11.0, respectively, in the Final SEIS.
- Additional information has been added to Sections 1.3, 2.5, 3.8, 4.8, 4.11, 4.13, 5.2, 5.5, 5.7, 5.8, 5.11, 5.12, 5.13, and 5.15 to clarify or expand upon training requirements, transportation costs, water resources, biological resources, wildfire hazards, hazardous materials, cost of public services, and cumulative impacts. Minor additions and corrections have been made in various parts of the document.

In addition, as part of the refinement of Army Transformation plans, recent organizational changes affecting Fort Bliss are reflected in Section 1.3.2. These changes are largely administrative and not expected to measurably affect the analysis of environmental and socioeconomic effect presented in the Draft SEIS.

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2.0 PLANNING AND ENVIRONMENTAL IMPACT ANALYSIS PROCESSES

This chapter describes the regulatory and management framework established by the Mission and Master Plan PEIS and its underlying laws and regulations (Section 2.1). The plans and procedures adopted pursuant to the PEIS continue to form the foundation of land use management at Fort Bliss and are common to all the alternatives considered in this SEIS. This chapter (Section 2.2) also describes the programmatic environmental impact analysis process and how the SEIS supplements and is used in concert with the original PEIS to guide that process. Section 2.3 discusses other environmental impact statements that are related to the analyses presented in the SEIS. Section 2.4 identifies cooperating agencies involved in preparing the SEIS, and Section 2.5 describes public involvement activities performed in connection with the SEIS.

2.1 REGULATORY AND MANAGEMENT FRAMEWORK

The Mission and Master Plan PEIS describes the overall NEPA process, the Army master planning process, and other statutes, regulations, and Executive Orders (EO) applicable to federal projects. That general information is incorporated by reference and not repeated here.

This section focuses on the existing land use planning and management framework established by the Fort Bliss RPMP, TADC, and related plans and programs that were adopted by the ROD for the Mission and Master Plan PEIS. The RPMP and TADC guide the development and use of facilities and live-fire ranges and training areas in accordance with the assigned missions, policies, goals, and objectives of the installation. These plans and their current counterparts (e.g., RCMP) would be updated based on the alternative selected by the decision-maker in an amended ROD culminating from this SEIS. Two management plans that contribute to planning and land management activities at Fort Bliss would also be amended as needed to support the updated RPMP and TADC:

- The ICRMP, which establish routine procedures for managing historic properties and other cultural resources on Fort Bliss.
- The INRMP, which implements the natural resources program on Fort Bliss.

In addition, Fort Bliss has an active environmental management program aimed at ensuring that operations, physical development, and training activities are performed in compliance with all applicable laws and regulations and managed to provide a sustainable training base to support national security. Fort Bliss is implementing an Environmental Management System based on International Organization for Standardization (ISO) 14001 Standards.

Fort Bliss manages the environmental effects of military training by applying natural and cultural resource conservation and rehabilitation programs while providing public access to these resources as appropriate and consistent with the military mission. The objectives for natural and cultural resource protection at Fort Bliss 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.

A result of these objectives is reduced environmental damage and effective land rehabilitation, reduced costs for land management and environmental compliance, and enhanced land stewardship. Environmental resource management is coordinated with all planning efforts on Fort Bliss, including the RPMP, TADC, ICRMP, INRMP, ITAM, and other compliance plans and agreements. All these elements facilitate land and resource management decisions on the installation.

2.1.1 Real Property Master Plan

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 Main Cantonment Area. 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 this SEIS describes specific projects that would bring the CIS and SRC in line with the installation's new mission requirements. While these changes will ultimately result in updates to the LRC, the basic goals of the Fort Bliss RPMP remain as established in the PEIS:

- Improve functional efficiency by locating interrelated activities in proximity to one another and separating incompatible activities from one another.
- Improve morale, recruitment, and retention by providing an attractively built environment, both indoors and out, in work, living, and recreation areas.
- Develop and operate the installation in harmony with the surrounding community.
- Coordinate the on-post natural and cultural environment in a manner consistent with effective military training and adherence to environmental guidance and laws.
- Ensure that facility and land uses can adapt and expand to accommodate new missions, weapons systems, and training.
- Lay out facilities and land uses so as to preserve and enhance areas suitable for ceremonies, distinguished visitors, allied nation liaisons, and other external relations.
- Improve traffic circulation and functional effectiveness by rationalizing and improving the roadway network, reducing intra-cantonment travel, and encouraging pedestrian circulation.
- Eliminate, replace, or upgrade the remaining World War II temporary mobilization facilities.
- Explore and capitalize on opportunities for regional cooperation on infrastructure systems.
- Improve power projection capabilities (the ability to project land forces from the U.S. to augment forward-deployed forces or establish a U.S. presence in a theater of operations) by providing adequate air and rail deployment facilities.

The Fort Bliss CIS is undergoing revision as a result of the Army Transformation and BRAC changes occurring at the installation. It includes 13 general goals:

1. Expand, modernize, and increase the efficiency of Biggs AAF.
2. Construct a Heavy BCT campus.
3. Increase non-DoD revenues.
4. Expand and modernize training lands and capacities.
5. Modernize and update the USASMA campus.
6. Increase quality of life and community support to meet projected population increases.
7. Improve transportation networks.
8. Develop a utility improvement process.
9. Provide high-quality barracks, lodging, and military family housing.
10. Modernize and expand logistical and maintenance support facilities.
11. Reduce long-term energy and operations and maintenance inefficiencies.
12. Improve land utilization and minimize encroachment.

13. Integrate important environmental needs into all planning and construction projects.

2.1.2 Training Area Development Concept

The TADC was developed to provide a process for determining facilities, planning, management, and direction for the short- and long-term development of training areas in the Fort Bliss Training Complex relative to the needs of range complex users. It is a dynamic planning document focused on mission capabilities of the Training Complex in a land use context. It describes the current training activities and capabilities supported by existing land uses in the training areas, as well as potential future projects that will enhance training capabilities. The TADC, which has served as the "range plan" for the installation, is being replaced with the RCMP.

The primary changes to the TADC being considered in this SEIS concern land use designations and training activities in the Tularosa Basin portion of McGregor Range. Land use changes would focus on land use categories by training area and could include addition of the Off-Road Vehicle Maneuver training category in specific training areas, as described in detail in Chapter 3. In addition, the TADC would be amended by the RCMP to include additional live-fire ranges and changes in airspace.

2.1.3 Integrated Cultural Resources Management Plan

The goal of cultural resources management at Fort Bliss is to protect and manage the installation's cultural resources in compliance with various federal laws and regulations that govern cultural resources and in support of the overall Fort Bliss mission of military training and readiness. Compliance with the various laws and regulations are integrated with planning and conducting military training, construction, maintenance, real property, land use decisions, and other undertakings. Management of Fort Bliss' historic properties as required by the National Historic Preservation Act (NHPA) of 1966 (as amended) is governed by the Programmatic Agreement (PA) executed between the Army, the Advisory Council on Historic Preservation (ACHP), and the New Mexico and Texas State Historic Preservation Officers (SHPO). Fort Bliss' ICRMP is being revised to incorporate the PA and will reflect the ROD from this SEIS. The revised ICRMP will set forth how Fort Bliss will manage cultural resources under federal laws and regulations that govern cultural resources other than NHPA and its implementing regulation 36 CFR Part 800.

Section 110 of NHPA requires federal agencies to have a cultural resources program and to identify historic properties that may be under its management. Section 106 of NHPA requires federal agencies to consider what effect its actions may have on historic properties. The implementing regulations (36 CFR Part 800) for Section 106 outline a process to guide federal agencies in addressing what effects their actions may have on historic properties. This regulation also provides the opportunity for federal agencies to develop PAs, Program Comments, or Alternative Procedures to 36 CFR Part 800 to streamline the Section 106 process. Fort Bliss has exercised the option to execute a PA to guide compliance with Section 106. This PA consists of a series of Standard Operating Procedures (SOP), defined by the process outlined in 36 CFR Part 800, that direct Fort Bliss on addressing how its actions may affect historic properties. Following is a summary of the SOPs; the full text of the SOPs can be found in the PA in **Appendix B**.

SOP 1: IDENTIFYING UNDERTAKINGS. This SOP directs how Fort Bliss will determine if an action is an undertaking as defined by 36 CFR Part 800. If the action is determined not to be an undertaking the action will receive no further attention. If it is determined that the action is an undertaking, then it will be further evaluated under SOP 2.

SOP 2: EXEMPTED UNDERTAKINGS. Fort Bliss will determine if the proposed undertaking is exempt from further Section 106 review as defined by the PA. Exempted undertakings have been defined in consultation with the ACHP and the New Mexico and Texas SHPOs. If a proposed action is an exempted undertaking, no further review is required under the PA. If it is not an exempted undertaking, then it is further evaluated under SOP 3.

SOP 3: DEFINING OF AREA OF POTENTIAL EFFECT (APE). Each action will be evaluated to determine its APE. Once this is defined, further evaluation will occur under SOP 4.

SOP 4: IDENTIFYING AND EVALUATING HISTORIC PROPERTIES. Identification, possibly including necessary surveys, will be conducted within the defined APE to determine if historic properties may exist. Those properties identified in the survey process will be evaluated in accordance with the criteria for eligibility for inclusion in the National Register of Historic Places (NRHP). Findings of determinations of eligibility are submitted to the appropriate SHPO for review and concurrence. If it is determined that historic properties (those eligible for inclusion in the NRHP) are present, further evaluation will occur under SOP 5. If no historic properties are present, no further action is required under the PA.

SOP 5: SURVEY STRATEGY FOR CHANGING MISSION ON FORT BLISS AND THE CHANGE IN LAND USE ON TRAINING LANDS. The objective of this SOP is to provide an appropriate program by which archeological survey and site evaluation will be conducted to accommodate the change in the military mission on Fort Bliss. Fort Bliss will implement a survey sampling strategy of 30 percent of all unsurveyed land where land use is to change to allow off-road vehicle maneuvers. Fort Bliss will survey and evaluate historic properties in accordance with SOP 5. Once the 30 percent survey level has been met, the area will be made available for maneuvers. Presently, 57 percent (396,347 acres) of McGregor Range has been surveyed. The additional 30 percent survey required by the PA equals an additional 93,000 acres of unsurveyed land within the alternatives being analyzed. The PA also provides for an additional 10,000 acres/year to be surveyed depending on the availability of funds.

SOP 6: ASSESSING EFFECTS. Fort Bliss will assess effects that undertakings may have on historic properties as directed by this SOP. Assessment of project effects will fulfill 36 CFR Part 800.5. Fort Bliss will document findings of No Historic Properties Affected or No Historic Properties Adversely Affected and no further action on that undertaking is required. If Fort Bliss determines an undertaking will have a finding of Historic Properties Adversely Affected, further evaluation of the undertaking will occur under SOP 7.

SOP 7: RESOLUTION OF ADVERSE EFFECTS. It is Fort Bliss' policy to avoid adverse effects to historic properties under its management, to the extent possible while meeting mission needs. If adverse effects occur, Fort Bliss will apply best management practices to consider all options to avoid or limit impacts to historic properties. If, after applying best management practices, avoidance is not an option, Fort Bliss will address mitigation of the effect as provided for under this SOP. If mitigation is not feasible, the Fort Bliss Historic Preservation Officer (HPO) will document this under SOP 8. The SHPOs' ability to comment on findings of effects is through the NEPA process (SOP 9). Further opportunities for review will occur in the Annual Report (SOP 13).

SOP 8: DOCUMENTING ACCEPTABLE LOSS. This SOP provides for Fort Bliss to accept loss of a historic property without mitigation under rare circumstances, requiring only documentation of how that decision was reached. This decision is conditioned by fulfillment of 36 CFR Part 800 and other SOPs of this PA. Unless these have been met, documenting acceptable loss cannot be undertaken. Prior to implementing this SOP, Fort Bliss must document why treatment of adverse effects cannot be achieved. Use of this SOP should be rare, as other mechanisms for compliance with Section 106 under this PA will reduce the need to make acceptable loss determinations. A cost associated with mitigation is not justification for use of this SOP.

SOP 9: REVIEWING AND MONITORING THROUGH NEPA. The New Mexico and Texas SHPOs, federally recognized Tribes, and interested members of the public (as defined by

NHPA) will participate in the process of reviewing and commenting on Fort Bliss undertakings with the potential to affect historic properties in accordance with the NEPA process. Where no NEPA public review has occurred, and when an action will have an adverse effect on a historic property and mitigation is required, review will occur through the availability of the Record of Historic Properties Consideration. Review of all actions that have No Effect or No Adverse Effect is provided through the Annual Report (SOP 13).

SOP 10: ACCIDENTAL DISCOVERY OF HISTORIC PROPERTIES. This SOP provides the procedures to be followed in the event of accidental discovery of archeological materials during implementation of an action. This can apply to both previously recorded and new sites and to archeological sites in any part of Fort Bliss.

SOP 11: REPORTING DAMAGE TO HISTORIC PROPERTIES: BUILDINGS, SITES, LANDSCAPES, DISTRICTS, OBJECTS, ETC. Routine military training activities at Fort Bliss and the operation and maintenance of Fort Bliss facilities pose a risk of unintentional damage to properties that are or may be eligible for inclusion in the NRHP. SOP 11 provides direction on how Fort Bliss will address reporting and treatment of such damage.

SOP 12: PUBLIC INVOLVEMENT IN THE FORT BLISS CULTURAL RESOURCES MANAGEMENT PROGRAM. This SOP provides guidance for Fort Bliss to involve the general public (as defined by NHPA) in the management of cultural resources under its management.

SOP 13: ANNUAL REPORT. Fort Bliss will provide an annual report on how it has applied SOPs of the PA to the management of cultural resources on Fort Bliss to interested members of the public (as defined by NHPA), the New Mexico and Texas SHPOs, federally recognized Tribes, and the ACHP.

SOP 14: DISPUTE RESOLUTION. It is Fort Bliss policy to address all disputes in a professional manner and with the objective of reaching mutual agreement on dispute resolutions through meaningful consultation with objecting parties. If a dispute occurs between the signatories of the PA, this SOP provides the process for resolution.

SOP 15: MILITARY ACTIVITIES IN ANTICIPATION OF IMMEDIATE DEPLOYMENT, MOBILIZATION, OR ARMED CONFLICT. This SOP provides Fort Bliss the ability to proceed with undertakings required to support mobilization and training required in anticipation of immediate deployment, mobilization, or armed conflict without prior review of these activities by the SHPOs or the ACHP. Fort Bliss cultural resources professionals with appropriate security clearance will conduct an internal review following the guidance of SOP 15 to assure historic properties are appropriately addressed.

Since the initiation of the Fort Bliss cultural resources management program in 1976, inventory, evaluation, and data recovery efforts have focused on the South Training Areas, Doña Ana Range-North Training Areas, and the Main Cantonment Area. Major achievements include:

- Establishing restricted areas, which are defined based upon the density and significance of archaeological sites. Restricted areas are off-limits to all military and public entry and travel, except for through-traffic on existing roads.
- Delineating limited-use areas with dense concentrations of sites for limited use where only roll-through activity is allowed and no digging or bivouac sites are permitted.
- Identifying the William Beaumont General Hospital Historic District (determined eligible for listing in the NRHP), the Fort Bliss Main Post Historic District (listed in the NRHP), and other historic properties on the installation. Fort Bliss currently has eight properties listed in the NRHP.

Since completion of the Mission and Master Plan PEIS in 2000, Fort Bliss cultural resources have been actively managed and many advances have been made, including the following:

- The number of recorded archaeological sites has reached over 17,000.
- Archaeological surveys have been completed on over 300,000 acres at the South Training Areas and Doña Ana Range-North Training Areas.
- Archaeological surveys have been completed on over 395,000 acres of McGregor Range.
- The largest curatorial facility in the region meeting federal standards was established. It is capable of storing more than 35,000 cubic feet of materials.
- Restricted areas and some limited-use areas have been inventoried and the identified sites have been evaluated for NRHP eligibility. Data recovery is nearly completed at the Drop Zones.
- Pre-1956 buildings and structures at the range camps and pre-1963 buildings and structures in the Main Cantonment Area were identified and evaluated for NRHP eligibility.
- On the Main Post, Cold War era (1946-1991) buildings have been identified and evaluated for eligibility for inclusion in the NRHP under the Exceptional Importance criteria (Criterion Consideration G).
- Restricted and limited-use areas boundaries have been reevaluated and in some cases redefined.
- A number of manuals and handbooks for managing cultural resources have been developed.

The following activities are planned for 2006-2010:

- Implement the PA among the ACHP, New Mexico and Texas SHPOs, and Fort Bliss.
- Finalize redrafting of the ICRMP to reflect the PA and the ROD from this SEIS.
- Design a relational database for site data following Spatial Data Standards for Facilities, Infrastructure, and Environment (SDSFIE) data standards and data migration.
- Continue to identify and evaluate sites and mitigate effects under the PA.
- Continue to develop and revise operational manuals as may be required.

Some actions are ongoing and will continue to be a part of the Fort Bliss cultural resources program. These include consultation with the SHPOs, ACHP, and federally recognized Tribes as outlined in the PA; survey and evaluation as outlined in the PA; artifact curation; data maintenance; and review and amendment of the PA as may be required based on its annual review. Additional, specific year-by-year goals are summarized in **Table 2-1**. Actions that will be described in the revised ICRMP for the long term are more general and dependent on what may be accomplished in the near term, as well as on funding.

259 **Table 2-1. Fort Bliss ICRMP Activity Summary**

Management Category	*1976-2000*	*2001-2005*	*2006*	*2007*	*2008*	*2009*	*2010*
Program actions	1976-hired professional Cultural Resources Manager 1977-Withdrawal EIS 1982-Historic Preservation Pan 1982-Restricted areas Late 1980s-Limited-use areas 2000-ICRMP begun	Developed manuals and handbooks Developed management processes 2005-finalized ICRMP Developed SOPs for survey, evaluation, data recovery, and curation	Developed Programmatic Agreement with SHPOs and ACHP Begin ICRMP update to reflect PA Revise Fort Bliss significance standards	Continue manual and handbook development and revision Complete ICRMP update Review and amend PA as may be required	Continue manual and handbook development and revision Review and amend PA as may be required	Continue manual and handbook development and revision Review and amend PA as may be required	Begin review of PA and ICRMP to identify scope of changes required in 2011
Archaeological Sites: identification, evaluation, mitigation	Over 10,000 sites identified 700,000 acres surveyed 6,121 sites evaluated Impacts mitigated at 172 sites	Approximately 7,000 sites identified 73,000 acres surveyed 2,179 sites evaluated Impacts mitigated at 156 sites	30,550 acres surveyed 128 sites to be evaluated Impacts to be mitigated at 27 sites	Survey 10,000 acres Evaluate, as funds available, in highest risk areas Mitigate impacts as funds available/as potentially damaging impacts arise/follow PA	Survey 10,000 acres Evaluate, as funds available, in highest risk areas Mitigate impacts as funds available/as potentially damaging impacts arise/follow PA	Survey 10,000 acres Evaluate, as funds available, in highest risk areas Mitigate impacts as funds available/as potentially damaging impacts arise/follow PA	Survey 10,000 acres Evaluate, as funds available, in highest risk areas Mitigate impacts as funds available/as potentially damaging impacts arise/follow PA

Management Category	*1976-2000*	*2001-2005*	*2006*	*2007*	*2008*	*2009*	*2010*
Architectural/ Landscape resources		Pre-1956 evaluations complete At Main Post, 1946-1989 eligible buildings identified meeting "exceptional importance" Criterion Consideration G	Post-1956 Base Operations facilities Continue with post-1960s Base Operations facilities Evaluate previously inventoried buildings in Main Cantonment Area dating from 1951-1963 Inventory Biggs AAF buildings dating from 1948-1966 Mitigate impacts to Residential Communities Initiative (RCI) buildings	Mitigate impacts to NRHP eligible buildings in Main Cantonment Area Develop context and evaluate NRHP eligibility for Biggs AAF buildings dating from 1948-1966 Mitigate impacts to RCI buildings and William Beaumont General Hospital Historic District (WBGHHD)	Mitigate impacts to NRHP eligible buildings in Main Cantonment Area Mitigate adverse impacts to NRHP eligible buildings at Biggs AAF Mitigate impacts to RCI buildings and WBGHHD and Main Post historic districts	Mitigate impacts to NRHP eligible buildings in Main Cantonment Area Mitigate adverse impacts to NRHP eligible buildings at Biggs AAF Mitigate impacts to RCI buildings and WBGHHD and Main Post historic districts	
BCT support (new ranges, new facilities)		11,485 acres surveyed (with site evaluations and data recovery)	986 acres surveyed (with site evaluations)	Survey/evaluate/ mitigate impacts as needed	Survey/evaluate/ mitigate impacts as needed	Survey/evaluate/ mitigate impacts as needed	Survey/evaluate/ mitigate impacts as needed

EIS = Environmental Impact Statement; ICRMP = Integrated Cultural Resources Management Plan; PA = Programmatic Agreement; SOP = Standard Operating Procedure;

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2.1.4 Integrated Natural Resources Management Plan

AR 200-3, "Natural Resources–Land, Forest, and Wildlife Management," and the Sikes Act as amended in 1997 (PL 105-85) require Army installations to develop and maintain an INRMP. The Fort Bliss INRMP is a tool for achieving the Army's environmental vision statement: "The Army will be a national leader in environmental and natural resource stewardship for present and future generations as an integral part of our mission."

The objective of the Fort Bliss INRMP is to ensure the conservation of Fort Bliss natural resources, as well as compliance with related environmental laws and regulations, while maintaining quality training lands upon which to accomplish training and testing missions. This plan is an integral part of the Fort Bliss mission and master planning activities to maximize both environmental conservation efforts and range use. The INRMP emphasizes an ecosystem management approach to natural resources management.

The Fort Bliss natural resource monitoring program is modeled after the 10-step process outlined by Noss (Ref# 229). The current INRMP developed for Fort Bliss (Ref# 23) identifies data gaps that are essential to filling the void in baseline information. Monitoring existing ecosystems through surveys, identifying sensitive areas (limited-use areas), and fully utilizing technology (e.g., geographic information system [GIS], modeling, remote sensing) while integrating the mission will allow managers to move toward improving the installation's natural resources program. Since the INRMP was published in 2001, Fort Bliss has worked toward implementing the specific management goals and recommendations identified in the plan, including:

- Implementing planning surveys for both flora and fauna, in an effort to better understand the spatial distribution of the resources on the installation.
- Identifying and implementing mitigation measures for raptor interaction with transformers.
- Increasing the quantity and quality of GIS data for the installation.
- Improving the quality of vegetation through riparian and wetland management, forest management (fuel reduction and habitat improvement), and invasive weed monitoring and control.

Table 2-2 summarizes the achievements since the finalization of the Mission and Master Plan PEIS and primarily focuses on the current INRMP and future goals of the natural resource program at Fort Bliss. Fort Bliss' natural resource program is on a 5-year cycle, with the current INRMP at the end of this cycle. The INRMP update will reflect the decisions made pursuant to this SEIS. Future management of natural resources is expected to maintain the existing program. Monitoring and planning surveys will continue contingent on funding levels and the Army's mission. Priority will be given to the Army's mission while maintaining a balance with the environmental vision. Federally protected resources will be addressed with a corresponding level of priority. Status changes in other resources will be identified and addressed as they arise. Overall, the breadth of data will continue to grow, which will improve the tools available for resource management at Fort Bliss.

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Table 2-2. Fort Bliss INRMP Activity Summary

Project	*FY 01*	*FY 02*	*FY 03*	*FY 04*	*FY 05*	*FY 06*	*FY 07*	*FY 08*	*FY 09*	*FY 10*	*Comments*
PLANNING SURVEYS											
Routine survey (trend analysis through remote sensing)	X		X	X	X	X	X	X	X	X	Ongoing effort
Routine survey (fauna)	X		X	X	X	X	X	X	X	X	Ongoing effort, updated herpafauna, raptor surveys (aplomado falcon report), prairie dog reports
Routine survey (Oryx)	X		X	X	X	X	X	X	X	X	Frequency of surveys based on overall program requirements
Routine survey (riparian areas)	X					X					
Routine survey (plant diversity)					X	X	X				Surveys accomplished based on overall program requirements
Routine survey (vegetation communities)					X	X	X	X	X	X	Started 2005, will be ongoing, threatened and endangered plant surveys
Routine survey (succulent communities)			X								Completed with GIS in 2003
Routine survey (determine status of grassland areas in Eolian Ecological Management Unit)			X	X	X	X	X	X	X	X	Grassland studying is not a separate project but part of the vegetation community-transition studies
PLANS IMPLEMENTED											
Complete Endangered Species Management Plan and continue monitoring for listed and other sensitive species	X		X	X	X	X	X	X	X	X	Ongoing effort
Continue monitoring and control of invasive species	X		X	X	X	X	X	X	X	X	Ongoing effort
INRMP (raptor-proofing transformers)			X	X	X	X	X	X	X	X	Ongoing effort
INRMP (forest management)			X	X	X	X	X	X	X	X	Ongoing effort, deer habitat, fire lines

Project	*FY 01*	*FY 02*	*FY 03*	*FY 04*	*FY 05*	*FY 06*	*FY 07*	*FY 08*	*FY 09*	*FY 10*	*Comments*
INRMP (develop and maintain GIS metadata)	X		X	X	X	X	X	X	X	X	Ongoing effort
INRMP to protect wetlands and wildlife waters			X	X	X	X	X	X	X	X	Ongoing effort with projects, but no improvements
PLAN REVIEWS AND UPDATES											
Prepare/update INRMP	X		X	X	X	X	X	X	X	X	The life of the current INRMP expiring
Revise/update the installation Pest Management Plan	X		X	X	X	X	X	X	X	X	
OTHER ACTIONS											
Implement Main Cantonment Area vegetation management for dust suppression, water conservation, and minimize herbicide use	X		X				X	X	X	X	Ongoing effort, implemented with the INRMP (2001)
Monitor condition of selected firing ranges	X		X	X	X	X	X	X	X	X	
ADDITIONAL GOALS (FY 06-FY 10)											
Collaborative relationship with the Fort Bliss ITAM program						X	X	X	X	X	Additional funding due to installation status change should allow for the development of a more robust ITAM program
Continue with routine survey						X	X	X	X	X	
Add more vegetation monitoring plots for satellite image analysis and calibration						X	X	X	X	X	
Update habitat maps						X	X	X	X	X	Emphasis on listed and endemic species of particular conservation concern
Update range Ecological Management Unit acreages						X	X	X	X	X	Update Tables 8.1 & 8.3 from the INRMP

Project	*FY 01*	*FY 02*	*FY 03*	*FY 04*	*FY 05*	*FY 06*	*FY 07*	*FY 08*	*FY 09*	*FY 10*	*Comments*
Create disturbance projections within the Ecological Management Units on ranges corresponding to the alternatives for the troop and off-road vehicle maneuver activities proposed in the SEIS						X	X	X	X	X	Look at areas of heavy impacts and project potential vegetation community transitions
Identify areas for limited-use areas						X	X	X	X	X	Base on vegetation survey updates

Note: X = achieved or planning to achieve in the future dependent upon funding.

GIS = Geographic Information System; INRMP = Integrated Natural Resources Management Plan; ITAM = Integrated Training Area Management

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2.1.5 Integrated Training Area Management

ITAM is part of the Army's Sustainable Range Program and is responsible for maintaining the land to help the Army meet its training requirements. A primary function of ITAM is to establish policies and procedures to achieve optimum, sustainable use of military training and testing lands. Key components of the program include the following (excerpted from AR 350-19):

- Assessing land quality, monitoring land conditions, and recommending land rehabilitation options.
- Integrating training and testing requirements with training land carrying capacity.
- Educating land users to minimize adverse impacts.
- Rehabilitating and maintaining training land.

The Mission and Master Plan PEIS describes ITAM as a means to monitor vegetative cover impacts from mission activities and to provide information about land condition trends. The ITAM program assesses land quality and monitors land condition through vegetation surveys and soil erosion impact surveys, as well as providing input to future range development to mitigate potential erosion problems through appropriate design. It recommends, designs, and implements land rehabilitation and maintenance projects on training lands to repair damage caused by maneuver training. ITAM is an important part of overall environmental resource management programs and plans that integrate with mission requirements, the RPMP, ICRMP, INRMP, and RCMP.

Recent ITAM tasks at Fort Bliss have focused on responding to immediate problems such as erosion on roads and ranges that directly affect access to training locations. AR 350-19 identifies ITAM as a core part of the Sustainable Range Program, which has as its goal "to maximize the capability, availability, and accessibility of ranges and training lands to support doctrinal requirements, mobilization, and deployments under normal and surge conditions." ITAM provides Army range officers with the capability to manage and maintain training and testing land by integrating mission requirements and sound land management practices. Efforts are underway at Fort Bliss to establish transects to monitor vegetative cover, especially in areas where heavy training use is anticipated in the future, as part of implementing a Sustainable Range Program in compliance with AR 350-19. **Table 2-3** lists ITAM efforts planned at Fort Bliss over the next five years.

2.1.6 Environmental Compliance Plans

Fort Bliss maintains a number of plans for complying with various environmental laws and regulations. These plans, along with environmental permits and SOPs, are updated when needed to reflect changes in mission and/or regulatory requirements. Key compliance plans are described in the following subsections.

2.1.6.1 Solid Waste Management Plan

Army solid waste policy is based on the concept of Integrated Solid Waste Management (ISWM) planning. ISWM is designed to minimize the initial input into the waste stream. The Fort Bliss ISWM Plan was most recently updated in December 2003. The Fort Bliss Directorate of Environment (DOE) 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. Since 2000, recycling, selling, and diverting of solid wastes has increased at Fort Bliss. Recyclable materials are sold or reused.

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Table 2-3. ITAM Efforts

Activities	*FY 07*	*FY 08*	*FY 09*	*FY 10*	*FY 11*	*Comments*
LAND REHABILITATION AND MAINTENANCE (LRAM) ACTIVITIES						
PLAN REVIEWS AND UPDATES						
Routine LRAM Project Database	X	X	X	X	X	Ongoing effort to recognize and repair problem areas within the training areas
Routine surveys for damage and potential erosion work	X	X	X	X	X	Ongoing effort to recognize and repair problem areas within the training areas
OTHER ACTIONS						
Routine maintenance of completed projects	X	X	X	X	X	This will occur every year due to various weather conditions and military impacts
Land/soil stabilization, general damage repair	X	X	X	X	X	Ongoing effort to recognize and repair problem areas within the training areas
Check dams	X	X	X	X	X	Ongoing effort
Hardstands (bivouac, heavy equipment transporter sites, staging areas)	X	X	X	X	X	Ongoing effort
Trail repair	X	X	X	X	X	Ongoing effort
Siber stakes, marking off limits zones	X	X	X	X	X	Ongoing effort
Hardened crossings/low water crossings	X	X	X	X	X	Ongoing effort
Project design	X	X	X	X	X	As needed, based on project type; plan to develop a library of applicable designs in house.
Erosion control	X	X	X	X	X	Ongoing effort
Dust control	X	X	X	X	X	Ongoing effort
Training Area range improvement	X	X	X	X	X	Ongoing effort
Seed collection		X	X	X	X	Varying, depending on wet versus dry year
Revegetation		X	X	X	X	As needed; depending on success of revegetation pilot study, may only occur in wet years
ADDITIONAL GOALS (FY 06-FY 11)						
Increase size and capability of LRAM crew	X	X	X			Require at least one full time Range and Training Land Assessment (RTLA) field technician or equipment operator
Purchase LRAM equipment to increase in-house capability	X	X	X	X	X	Depending on funding
GIS ACTIVITIES						
Imagery acquisition - LIDAR	X			X		Every three years
Gully identification/monitoring	X	X	X	X	X	Ongoing

Activities	*FY 07*	*FY 08*	*FY 09*	*FY 10*	*FY 11*	*Comments*
Image processing	X			X		As new data are acquired
Develop and maintain GIS layers	X	X	X	X	X	Ongoing
Develop and maintain metadata	X	X	X	X	X	Ongoing
Image analysis		X	X	X	X	Dependent upon purchase of image analysis software
LRAM/RTLA geodatabase development and maintenance	X	X	X	X	X	Supports LRAM/RTLA database development
GIS support to range staff	X	X	X	X	X	Ongoing
Impact area contaminant study		X	X	X		Dependent upon purchase of image analysis software and availability of imagery
Range Facility Management Support System (RFMSS) maintenance	X	X	X	X	X	Update data as necessary
RTLA ACTIVITIES						
PLAN REVIEWS and UPDATES						
Gully characterization/ mapping	X	X	X	X	X	New effort
Delineate/survey high dust and potential high dust areas	X	X	X	X	X	New effort
Delineate/survey bare ground	X	X	X	X	X	Ongoing
Tank trail characterization/erosion mapping	X	X	X	X	X	Ongoing
LRAM Support	X	X	X	X	X	Ongoing
Delineate/survey grasslands and shrub-invaded grasslands within open maneuver training areas	X	X	X	X	X	Ongoing
Delineate/survey concentrated use sites (bivouac, assembly sites, etc.)		X	X	X	X	New effort
Seed cultivation study		X	X	X	X	New effort
OTHER ACTIONS						
Tank trails evaluation surveys (erosion)		X	X	X	X	New effort
Gully evaluation surveys		X	X	X	X	New effort
LRAM mitigation monitoring		X	X	X	X	New effort
Create/maintain database of LRAM projects and mitigation efforts		X	X	X	X	New effort
Special use plots (survey bare ground)			X	X	X	New effort

Activities	*FY 07*	*FY 08*	*FY 09*	*FY 10*	*FY 11*	*Comments*
Special use plots (survey existing and probable powder (high dust areas)			X	X	X	New effort
Special use plots (survey grasslands and shrub-invaded grasslands in dune-land matrix)			X	X	X	New effort
Special use plots (survey concentrated use areas; monitor/prioritize LRAM mitigation)			X	X	X	New effort

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The landfill on Fort Bliss is operated by contract under the oversight of DPW. The landfill's refuse cell (Type 1) is estimated to reach its capacity in 2008. An application for a new refuse cell on post is being submitted to the State of Texas, and Fort Bliss continues to investigate privatization options both on and off post.

The construction and demolition waste cell had an estimated lifespan of 10 years. Deconstruction is used to reduce construction and demolition waste disposal and increase the amount of waste material recovered for reuse or recycling. DPW no longer allows contractors to use the construction and demolition cell.

The ISWM Plan is updated annually.

2.1.6.2 Storm Water Management Plan

Fort Bliss maintains a Multi-Sector General Storm Water Permit for industrial activities at the post and will apply to the Texas Commission on Environmental Quality (TCEQ) for a Phase II small municipal separate storm sewer system (MS4) general permit when the state has received its programmatic permit. The Main Cantonment Area of Fort Bliss is designated a regulated MS4, based on 2000 census data, under the United States Environmental Protection Agency (USEPA) Storm Water Phase II Rule. The Phase II Rule extends the requirements for National Pollutant Discharge Elimination System (NPDES) permits to storm water discharge from "small" MS4s that serve populations of less than 100,000 in an urbanized area. In addition, the rule regulates construction activities that disturb between 1 and 5 acres of land on all of Fort Bliss.

Under the Fort Bliss Multi-Sector General Storm Water Permit, the Phase II Storm Water Management Plan Team is responsible for developing, implementing, modifying, and providing required reports and inspections associated with Best Management Practices as listed in the plan.

The current Draft Fort Bliss Storm Water Management Plan (SWMP) incorporates specific Texas Pollutant Discharge Elimination System permit rules as they apply to MS4 operations within the Texas portion of Fort Bliss. The Fort Bliss SWMP may be revised substantially once the Phase II MS4 general permit requirements have been issued by TCEQ.

2.1.6.3 Waste Analysis Plan

The Fort Bliss Waste Analysis Plan (2005) 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;" and DoD rules.

Hazardous wastes are generated by various military and civilian activities at Fort Bliss. Prior to being transferred to the permitted storage facility, some wastes are accumulated in 90-day temporary storage areas. The Fort Bliss Hazardous Waste Storage Facility (HWSF) is located at the Building 11614 area of Biggs AAF and is currently managed by DOE and DRMO. DOE inspects containers of waste before the waste is removed from waste accumulation points and taken to the HWSF. Once containers are transferred to the HWSF, DOE 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, DOE characterizes the waste stream based on documented process knowledge, Material Safety Data Sheet (MSDS) information, or by obtaining a chemical analysis of a sample of the waste. Wastes must be identified as hazardous or non-hazardous and characterized to determine proper disposition.

Wastes generated throughout Fort Bliss, including the McGregor, Doña Ana, and Orogrande Range Camps, are brought to the Building 11614 area for classification, labeling, and storage. 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 spill releases. Several times

a month, or more often if needs dictate, wastes are transported to an off-site Treatment, Storage, Disposal Facility (TSDF).

The Waste Analysis Plan is updated annually or more frequently if there is a change in the waste stream.

2.1.6.4 Spill Prevention, Control, and Countermeasures Plan

The purpose of the Spill Prevention, Control, and Countermeasures Plan (SPCCP) (September 2004) is to form a comprehensive federal/state spill prevention program that minimizes the potential for discharges. 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 New Mexico Environment Department (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 USEPA Regional Administrator or Fort Bliss. After review by the USEPA Regional Administrator of the information provided during a spill notification requirement or after on-site review of the plan, the USEPA Regional Administrator may require that the plan be amended if found that it does not meet the requirements of 40 CFR 112 or that an amendment is necessary to prevent and contain discharges from Fort Bliss. In addition, the SPCCP will be amended by the Army when there is a change in a facility's design, construction, operation, or maintenance that materially affects its potential for discharge. A review and evaluation of the SPCCP is conducted at least once every five years.

2.1.6.5 Asbestos Management Plan

The Asbestos Management Plan (AMP) (September 2000) is the mechanism by which the requirements set forth in AR 200-1 and AR 420-70 regarding handling asbestos containing material (ACM) are met. The objective of the AMP is to control the release of asbestos from both friable and non-friable ACM and to minimize, to the extent practicable, releases of asbestos dust and their consequent human exposure. This plan is also intended to control and minimize exposure to airborne asbestos by regulating asbestos disturbance activities in any federally owned building. The AMP prescribes policies, assigns responsibilities, and establishes procedures for the management of Fort Bliss facilities that may contain asbestos materials. The AMP applies to all military, civilian, and contractor personnel who occupy, maintain, renovate, or demolish facilities provided, operated, maintained, or managed by the Army at Fort Bliss, including Army Reserve and National Guard facilities located on Fort Bliss.

The Fort Bliss Garrison Commander is responsible for implementation of the AMP and determines the responsibilities of the various individuals on the Asbestos Management Team (AMT). AR 200-1 provides guidance on the assignment of these responsibilities. The AMT includes representatives from DOE, Fort Bliss Safety Office, Staff Judge Advocate, WBAMC Preventive Medicine, DOC, and DPW.

Many buildings at Fort Bliss were built or renovated between 1940 and 1975 when the use of asbestos was commonplace. The majority of this asbestos was in the form of pipe insulation, most of which has been removed and replaced with non-hazardous materials. Several other types of ACM, such as floor tiles, cement siding, and wall/ceiling coverings, are managed in place throughout Fort Bliss facilities. Prior to any renovation or demolition, asbestos surveys are performed and abatement is conducted as

required. The AMT is notified of any construction activity that may result in a change in ACM status and maintains a current database.

The AMP is updated every five years.

2.1.6.6 Lead Hazard Management Plan

Lead-based paint is regulated at the state level by the Texas Department of State Health Services and at the federal level by the USEPA, 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. Other federal agencies, as well as state and local governments, may also issue regulations and other directives pertaining to housing under their jurisdictions. Regulations generally specify minimum requirements for removing lead-based paint, minimum training and certification requirements for those conducting the work, and certain basic standards as to how work must be done.

The Army policy is to follow the most stringent federal, state, or local lead regulation. Fort Bliss has established a lead hazard management team to ensure communication between its members and residents, tenants, and workers on Fort Bliss. It is Fort Bliss policy to provide a lead-hazard-free living and working environment for soldiers and their families.

Currently, Fort Bliss has 3,070 military housing units with 2,303 of these constructed prior to 1978. In 1998, Fort Bliss conducted a lead-based paint inspection of its housing units. Five major groups of houses built before 1978 were identified. A total of 104 homes had inspections and risk assessments done.

As of July 2005, all housing at Fort Bliss was turned over to a private contractor who is responsible for identifying areas of deteriorated paint and dust accumulation and providing recommendations to the Family Child Care Office for either in-place management measures or lead-based paint abatement. 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 include administrative buildings, warehouses, storage, and water towers. DOE has instituted an 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.

2.1.6.7 Pollution Prevention Plan

Pollution prevention (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. P2 is not limited to hazardous pollutants released to air, water, and land, but also includes activities to reduce the amounts of non-hazardous commercial and household wastes. The basic philosophy is to prevent pollution through source reduction rather than “end-of-pipe” treatment. The goal is to reduce the future release and disposal of hazardous pollutants “to near zero” by significantly reducing the use of products containing hazardous material compounds.

The Fort Bliss Pollution Prevention Plan (July 2005) establishes Fort Bliss’ roadmap for achieving federal, state, Army, and installation P2 goals. It provides the installation’s approach to the P2 process, a summary of the current program, goals, and management actions necessary for identifying and implementing projects to meet P2 goals. As part of the Fort Bliss P2 Program, pollution prevention opportunity assessments (PPOAs) are periodically conducted on various processes across the installation. 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 manages its P2 program as a component of its overall environmental management program. All organizations integrate pollution prevention into their management control. The Fort Bliss P2 Plan is revised every five years or when warranted by a change in function or process at Fort Bliss.

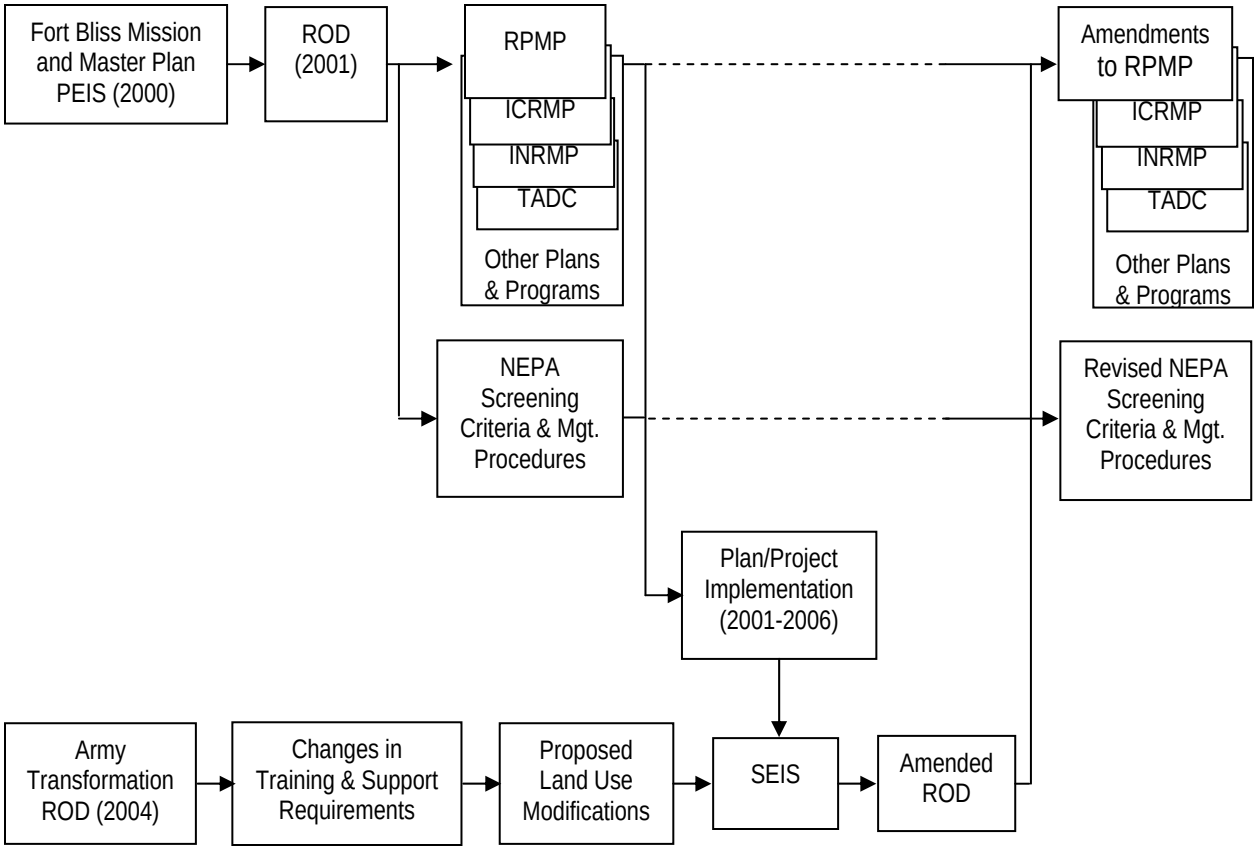
2.2 PROGRAMMATIC ENVIRONMENTAL IMPACT ANALYSIS PROCESS

The ROD for the Mission and Master Plan PEIS, signed in September 2001, announced the Army's decision to implement revisions to the RPMP, ICRMP, INRMP, and TADC and a number of mission support improvements. These plans have provided a mechanism for promoting land use compatibility and avoiding or minimizing adverse environmental impacts from mission support and training activities.

The PEIS introduced and described a land use screening process designed to guide future planning and NEPA compliance for projects and actions that tier from the PEIS. "Tiering" is a procedure provided in CEQ Regulations implementing NEPA that enables general matters to be covered in broader environmental impact statements, such as the PEIS, with subsequent narrower analyses incorporating the broader statement by reference and focusing on the specifics of a particular project or activity. The land use screening measures included in the PEIS help Fort Bliss create a blueprint to respond to future Army missions and community aspirations while providing the capability to train, project, and sustain the Army's evolving force structure.

The PEIS also outlined a screening process for determining the required level of NEPA documentation of future proposed projects, as required by AR 200-2 (currently 32 CFR Part 651), first by defining the projects and types of actions specifically covered in the PEIS itself, and then by providing criteria for evaluating other proposed actions to determine whether they fit within the broad programs analyzed in the PEIS. The process consists of six steps for evaluating proposals to determine the required level of analysis and developing additional documentation if needed. A key step in the process, Step 3, involves determining whether the proposed action has been programmatically evaluated in the PEIS. Programs that have been analyzed were listed in Appendix A of the PEIS. If an action is determined to be adequately addressed through its similarity to the programs described in the PEIS, a REC may be developed, which describes the proposed action and explains why no additional environmental analysis or documentation is required. The REC pulls from the environmental information in the PEIS to support its conclusion for the decision-maker's consideration. Projects that do not meet the criteria for a REC may require preparation of a more extensive environmental assessment (EA) or, in some cases, an EIS. Appendix A of the PEIS provides detailed guidance and procedures for implementing the tiering process and conducting environmental analysis of proposed projects and actions.

The planning and NEPA management process described in the PEIS continues to be used at Fort Bliss. This SEIS tiers from the PEIS by focusing on land use changes proposed to respond to the evolving mission and training requirements imposed by Army Transformation, BRAC, and IGPBS. **Figure 2-1** shows how the findings of the SEIS will be used to amend the RPMP and other components of the Fort Bliss Master Plan and revise the NEPA screening criteria to reflect the selected land use changes. Modified guidelines and criteria are included in an updated Appendix A.



Note: Dashed lines reflect changes that have been made since the PEIS was completed.

Figure 2-1. Relationship of the PEIS and SEIS

2.3 RELATED ENVIRONMENTAL DOCUMENTS

This section briefly describes EISs completed since the Mission and Master Plan PEIS that are relevant to the issues, geographic area, or actions considered in the SEIS. Information from those documents has been incorporated by reference as appropriate.

Army EISs:

- *Proposed Leasing of Lands at Fort Bliss, Texas for the Proposed Siting, Construction, and Operation by the City of El Paso of a Brackish Water Desalination Plant and Support Facilities Final Environmental Impact Statement* (December 2004). This EIS addresses the impacts from a proposal to construct and operate a desalination plant and associated facilities, including wells and disposals sites, in the South Training Areas of Fort Bliss. The ROD was signed in March 2005 approving a site for the desalination plant adjacent to El Paso International Airport (EPIA) in TA 1B. The ROD also approved easements for deep-well injection disposal sites in TA 2B and pipelines across the South Training Areas.

- *Final Programmatic Environmental Impact Statement for Army Transformation* (February 2002). This EIS addresses the Army's proposal to undertake a multiyear, phased, and synchronized transformation affecting doctrine, training, leadership development, organizations, installations, materiel, and soldiers. The consequences anticipated by the analysis include effects on installation land use and airspace use.

Other EISs:

- *Final Resource Management Plan Amendment (RMPA)/EIS for McGregor Range* (January 2006) and Record of Decision (May 2006). Prepared by the Bureau of Land Management (BLM) Las Cruces Field Office, the RMPA/EIS describes management strategies for the withdrawn public lands on McGregor Range. Actions incorporated in the RMPA include establishing two utility right-of-way corridors, creating right-of-way exclusion areas (where rights-of-way would not be allowed), and designating new Areas of Critical Environmental Concern, including the Escondido Pueblo. The document updates existing conditions on McGregor Range and in the surrounding region. It also reflects changes in the mission and uses of Fort Bliss based on the 2000 Mission and Master Plan PEIS and the construction and use of Centennial Range.

- *Draft Programmatic Environmental Impact Statement for DTRA Activities on White Sands Missile Range, New Mexico* (January 2006). Prepared by the Defense Threat Reduction Agency (DTRA), this EIS addresses the agency's proposed tactical activities at White Sands Missile Range. Although it does not overlap with any proposed activities at Fort Bliss, DTRA's proposals are considered in the cumulative impacts analysis in this SEIS.

- *Final Environmental Impact Statement, River Management Alternatives for the Rio Grande Canalization Project* (June 2004). This EIS was prepared by the United States Section International Boundary and Water Commission in cooperation with the U.S. Department of the Interior, Bureau of Reclamation to evaluate long-term river management alternatives for the Rio Grande Canalization Project, a 105.4-mile narrow river corridor that extends from below Percha Dam in Sierra County, New Mexico to the American Dam in El Paso, Texas. This document was considered in the analysis of potential cumulative impacts on water resources.

- *Upper Rio Grande Basin Water Operations Review Draft Environmental Impact Statement* (January 2006). Prepared by the U.S. Army Corps of Engineers, Bureau of Reclamation, and New Mexico Interstate Stream Commission, this EIS considers the effects of adopting an integrated plan for water operations in the Rio Grande basin from its headwaters in Colorado to

Fort Quitman, Texas. This project was considered for the analysis of cumulative impacts on water resources.

2.4 COOPERATING AGENCIES

The BLM, Las Cruces Area Office, is a cooperating agency on this SEIS 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.

Otero County is a coordinating agency on the SEIS and has contributed information on socioeconomics and other topics.

2.5 PUBLIC INVOLVEMENT

2.5.1 Scoping

On November 14, 2005, the U.S. Army published in the Federal Register a Notice of Intent (NOI) to prepare this SEIS. The NOI initiated scoping, during which agencies, organizations, and individuals were invited to submit comments on the scope of the SEIS, environmental issues to be addressed, and alternatives to be considered. The formal scoping period extended through January 6, 2006, although the Army continues to accept inputs throughout the SEIS process.

Public scoping meetings were held in Las Cruces, New Mexico; El Paso, Texas; and Alamogordo, New Mexico on the 12th, 13th, and 14th of December, respectively. Notifications of the scoping meetings were published in the El Paso Times, El Diario, Las Cruces Sun-News, and Alamogordo Daily News on November 27; Hudsputh County Herald on November 25; and Fort Bliss Monitor on December 1, 2005. Notification letters were mailed to agencies and interest groups on December 1, 2005. A press release and public service announcements of the scoping meetings were distributed to local media on December 5, 2005.

During the scoping meetings, the Army presented the purpose and need for the SEIS, described the alternatives identified for detailed analysis, and reviewed the SEIS process and schedule. Public information displays and handouts were available providing information to facilitate public comment. After the presentation, comments were accepted from attendees.

A total of 53 individuals attended the public scoping meetings and 13 provided oral comments. In addition, 13 written comments were received during the scoping period. **Table 2-4** lists the issues identified in those comments and indicates the SEIS sections that address these issues.

Table 2-4. Summary of Public Scoping Issues and SEIS Sections Addressing Those Issues

Issue	***SEIS Section***
Dust generated by increased off-road vehicle maneuvers.	Earth Resources (Sections 4.5 and 5.5) and Air Quality (4.6 and 5.6)
Damage to soils, vegetation, and habitat and impacts on wildlife and sensitive species from off-road vehicle maneuvers on McGregor Range.	Earth Resources (4.5 and 5.5) and Biological Resources (4.8 and 5.8)
Impact of proposed land use changes at McGregor Range on cattle grazing.	Land Use (4.1 and 5.1)
Access to Grapevine Canyon.	Training Area Infrastructure (4.3 and 5.3)
Impacts on cultural resources from off-road vehicle maneuver training.	Cultural Resources (4.9 and 5.9)

Issue	*SEIS Section*
Transportation impacts, including increased congestion due to population increases and effects of off-road vehicle maneuver training on access along Highway 506.	Main Cantonment Area Infrastructure (4.2 and 5.2) and Training Area Infrastructure (4.3 and 5.3)
Impacts on Otero Mesa.	Land Use (4.1 and 5.1)
Increased wind and water erosion due to off-road vehicle maneuvers.	Earth Resources (4.5 and 5.5)
Impacts on recreation use of Fort Bliss lands.	Land Use (4.1 and 5.1)
Impacts on Culp Canyon Wilderness Study Area and Grapevine Canyon.	Land Use (4.1 and 5.1)
Impacts of increased population on public services, education, utility costs, and quality of life.	Socioeconomics (4.13 and 5.13)
Impacts of increased population on water supply.	Water Resources (4.7 and 5.7)
Compatibility with BLM management of McGregor Range.	Land Use (4.1 and 5.1)
Analysis of impacts from future plans for Castner Range.	Scope of the SEIS (1.5) and Cumulative Impacts (5.15)
Cumulative impacts of military training in combination with effects of drought.	Cumulative Impacts (5.15)
Cumulative impacts of Army actions in combination with other plans, uses, and development.	Cumulative Impacts (5.15)

2.5.2 Public Review of the Draft SEIS

The Draft SEIS was distributed to individuals and organizations on the Distribution List and submitted to USEPA on October 6, 2006. A Notice of Availability (NOA) was published by the Army in the Federal Register on October 16 and in the El Paso Times, El Dario, Las Cruces Sun-News, Alamogordo Daily News, Hudsputh County Herald, and Fort Bliss Monitor between October 12 and 15, 2006. Copies of the Draft SEIS were made available for public review at seven libraries in the region and on the Fort Bliss website. Copies of the 2000 Mission and Master Plan PEIS, incorporated by reference, were distributed with all copies of the Draft SEIS.

In addition, the Army made numerous source documents concerning cultural and natural resources available at regional libraries prior to and during the public comment period for the Draft SEIS. The availability of these documents was announced in a letter to interested parties mailed to all addressees on the Distribution List on August 25, 2006.

The public comment period for the Draft SEIS ended December 12, 2006. During the comment period, Fort Bliss conducted two field visits and held three public meetings. Individuals and organizations on the Distribution List were sent letters of notification for the first field visit and the public meetings, and notices were placed in the above-mentioned newspapers. The field visit, conducted on October 28, provided interested members of the public an opportunity to tour the Fort Bliss Training Complex and specifically areas of McGregor Range proposed for off-road vehicle maneuver. A second field visit was conducted on November 20 for selected non-governmental organizations.

The public meetings were held in Las Cruces, New Mexico on November 6, 2006; Alamogordo, New Mexico on November 8, 2006; and El Paso, Texas on November 9, 2006. During each meeting, the Army provided displays and handouts summarizing the Proposed Action and other alternatives and their environmental consequences, and conducted a short presentation. Following the presentation, members of the public were provided the opportunity to make comments on the Draft SEIS. These comments were recorded for the record by a court reporter. Verbatim transcripts of the proceedings are included in Appendix D of the Final SEIS.

A total of nine individuals submitted oral comments at the public meetings. In addition, 15 individuals and organizations submitted written comments during the public comment period. USEPA rated the Draft SEIS as LO, Lack of Objections. All comments, along with responses to the relevant questions and concerns, are provided in Appendix D. Additions and modifications have also been made to the Final SEIS as indicated in the responses to some public comments.

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3.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter describes the alternatives analyzed in detail in the SEIS. The chapter begins with an introduction to the land use categories applied to Fort Bliss lands (Section 3.1), followed by a description of the process used to identify alternatives that meet the purpose and need defined in Chapter 1.0 (Section 3.2). Sections 3.3-3.7 provide detailed descriptions of five alternatives developed in that process. Each of those sections describes land use changes, construction plans, and training and other operations, first, in the Main Cantonment Area and, second, in the Fort Bliss Training Complex.

The intent of the alternatives is to provide land use capable of supporting training for units assigned to Fort Bliss and other requirements resulting from Army Transformation, BRAC, and IGPBS implementation of the ACP. Each alternative provides a level of capability based on an operational analysis (described in Section 3.2) that considers the availability of land, facilities, and infrastructure; training areas able to support specific types of training (e.g., off-road vehicle maneuver); the number of days available for training in a year (training cycle); the dimensions of training areas and maneuver "boxes" required by Heavy BCTs; and live-fire and qualification ranges doctrinally required to support various types and numbers of units.

Section 3.8 briefly describes alternatives considered but not carried forward for full analysis, explaining the reason for their elimination from further consideration. Finally, Section 3.9 compares the five alternatives analyzed in detail.

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3.1 INTRODUCTION TO LAND USE

Fort Bliss, Texas and New Mexico is comprised of a Main Cantonment Area and the Fort Bliss Training Complex. The Main Cantonment Area (**Figure 3.1-1**) is located in Texas adjacent to the City of El Paso. It includes the Main Post, WBAMC, Logan Heights, and Biggs AAF. All four areas have a mixture of land uses, including administrative, industrial, community, and residential areas. 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.

Since the 2001 ROD for the Fort Bliss Mission and Master Plan PEIS, land use in the Main Cantonment Area has been guided by the RPMP (specifically the Long-Range Component). Land use designations in the Main Cantonment Area are established by AR 210-20, Master Planning for Army Installations, which defines the 12 land use categories listed in **Table 3.1-1**.

Table 3.1-1. Army Land Use Categories

I	Airfield
II	Maintenance
III	Service/Industrial
IV	Supply/Storage
V	Administration
VI	Training/Ranges
VII	Troop Housing
VIII	Family Housing
IX	Community Facilities
X	Medical
XI	Outdoor Recreation
XII	Open Space/Reserved/Buffer

The Fort Bliss Training Complex is comprised of three 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 McGregor Range in Otero County, New Mexico. Each segment of the Fort Bliss Training Complex is divided into TAs, as shown on Figure 1-2.

The Fort Bliss Training Complex supports a wide variety of training and testing activities by both on-post units and off-post users. These include 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. Training is conducted at Fort Bliss by Active, Reserve, and National Guard units; other military services; other DoD and law enforcement agencies; and allied services. In the recent past, Fort Bliss has supported qualification and other training by Army Reserve and National Guard units deploying to Southwest Asia.

Since the 2001 ROD for the Fort Bliss Mission and Master Plan PEIS, land use in the Fort Bliss Training Complex has been guided by the TADC. The TADC identifies training area land use categories based on permitted training activities as described in **Table 3.1-2**. The color-coded land use categories listed in **Table 3.1-3** define the land use designations in the Fort Bliss Training Complex shown in **Figure 3.1-2** and throughout this chapter.

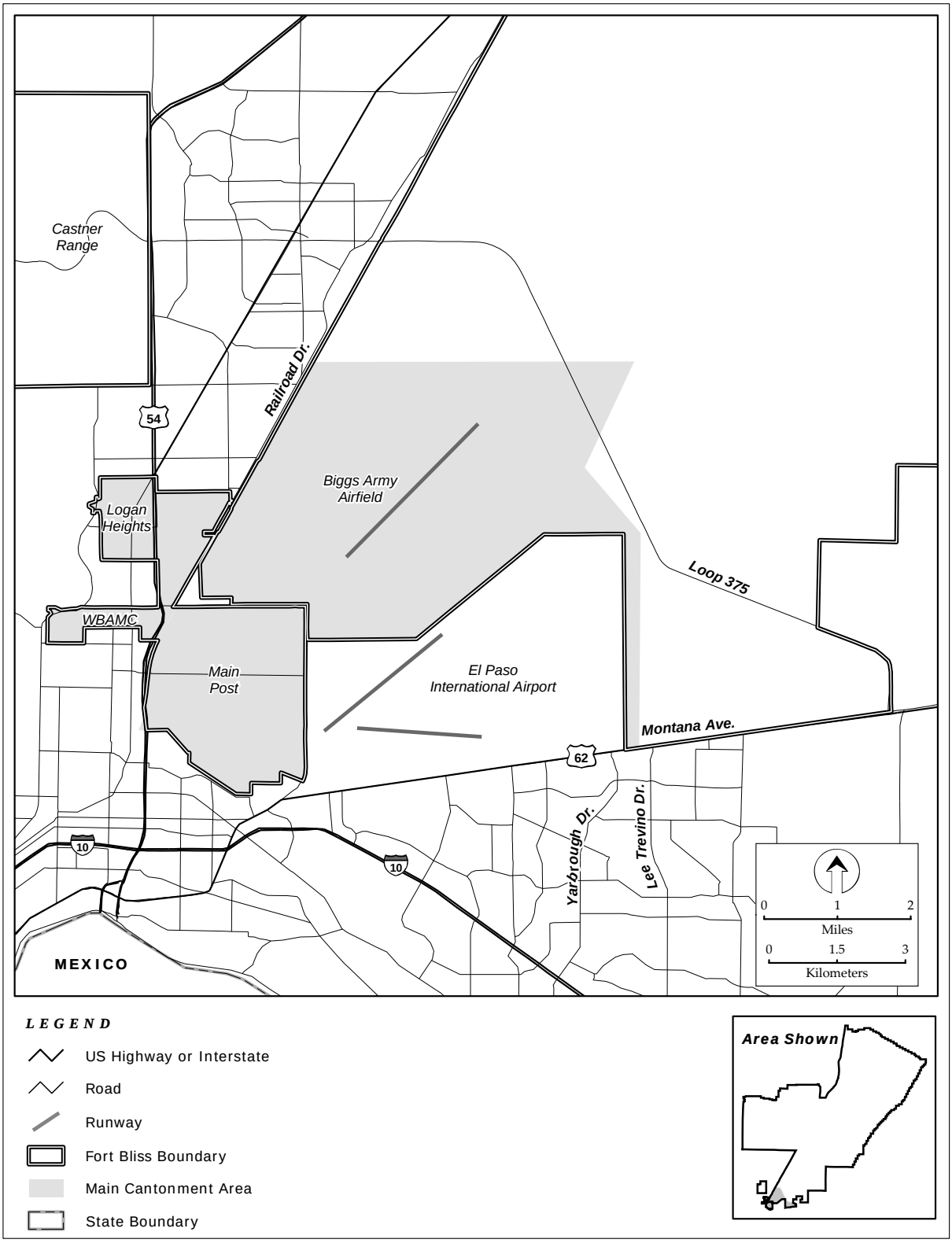

Figure 3.1-1. Fort Bliss Main Cantonment Area

Table 3.1-2. Fort Bliss Training Categories

Training Category/Other Uses	*Activities*
1. Mission Support Facility	Test facilities; landing zones/pads; drop zones; radar facilities; etc.
2. Weapons Firing	Firing areas for short range and HIMAD, surface-to-surface, surface-to-air, and air-to-surface weapons, launch sites; firing points; laser certified ranges; small arms ranges
3. Surface Impact	Live artillery; live fire surface-to-surface missile impact areas; air-to-surface target areas; munitions and missiles
4. SDZ/Safety Footprint	Target debris areas and safety footprint for weapons and laser use
5. Off-Road Vehicle Maneuver	Use of track or wheeled vehicles that is not confined to roads
6. On-Road Vehicle Maneuver	Use of wheeled or tracked vehicles on existing roads
7. Controlled Access FTX Areas	Air Defense training sites; FTX assembly; training; communication, command, and control
8. Dismounted Training	Dismounted training; pyrotechnics
9. Aircraft Operations	Fixed-wing and rotary-wing overflights and air-to-air training
10. Built-up Areas	Range Camps
ENV. Environmental Management	Environmental management activities; conservation efforts conducted on Fort Bliss (i.e., ITAM, INRMP, ICRMP)
PA. Public Access	Areas available for public use for recreation and/or grazing

HIMAD = High-to-Medium Altitude Air Defense; SDZ = Surface Danger Zone; FTX = Field Training Exercise

Currently, the South Training Areas are used primarily for on- and off-road vehicle maneuvers; Doña Ana Range for live-fire training; the North Training Areas for on- and off-road vehicle maneuvers; and McGregor Range for small arms training, on-road ADA and dismounted maneuvers, controlled access field training exercises (FTX), and missile firings with their associated Surface Danger Zones (SDZs). McGregor Range also contains the Centennial Range, an air-to-ground target complex used primarily by the U.S. and allied Air Forces. Figure 3.1-2 indicates areas of the Fort Bliss Training Complex that are open for public access, with permission and on a non-interference basis with military training and other missions.

McGregor Range is co-managed by Fort Bliss and BLM under a Congressional withdrawal for military use. Portions of McGregor Range (TAs 10 through 23 and part of TA 33) are leased for grazing. In addition, McGregor Range includes Culp Canyon Wilderness Study Area (WSA) and the McGregor Black Grama Grassland Area of Critical Environmental Concern (ACEC), which is managed to protect valuable biological resources and to study the ecology of undisturbed grassland.

As Figure 3.1-2 shows, the Fort Bliss Training Complex also includes three support centers: Doña Ana Range Camp, Orogrande Range Camp, and McGregor Range Camp.

Doña Ana Range-North Training Areas and McGregor Range have overlying Restricted Area airspace that is scheduled for military aircraft operations and during some weapons firing. The Doña Ana Range-North Training Areas are overlain by Restricted Area R-5107A and McGregor Range by R-5103 A, B, and C (**Figure 3.1-3**).

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Table 3.1-3. Fort Bliss Training Complex Land Use Categories

Training Area Land Use Category	*Fort Bliss Training Categories (see Table 3.1-2)*											
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*ENV*	*PA*
	Mission Support Facility	Weapons Firing	Surface Impact	SDZ/Safety Footprint	Off-Road Vehicle Maneuver	On-Road Vehicle Maneuver	Controlled Access FTX	Dismounted Training	Aircraft Operations	Built-Up Areas	Environmental Management	Public Access
A		●		●	●	●		●	●		●	❍
A with Mission Facilities	●	●		●	●	●		●	●		●	❍
B					●	●		●	●		●	❍
B with Mission Facilities	●				●	●		●	●		●	❍
C		●		●		●	●	●	●		●	❍
C with Mission Facilities	●	●		●		●	●	●	●		●	❍
D		●		●		●		●	●		●	❍
D with Mission Facilities	●	●		●		●		●	●		●	❍
E				●		●	●	●	●		●	❍
F				●		●		●	●		●	❍
G				●				●	●		●	●
H			●						●			
I	●			●		●			●	●	●	❍

● Training Category occurs in Land Use Category – uses may be concurrent.

❍ Public access in some areas. Fort Bliss Training Complex permit required.

ENV = Environmental Management; PA = Public Access; SDZ = Surface Danger Zone; FTX = Field Training Exercise

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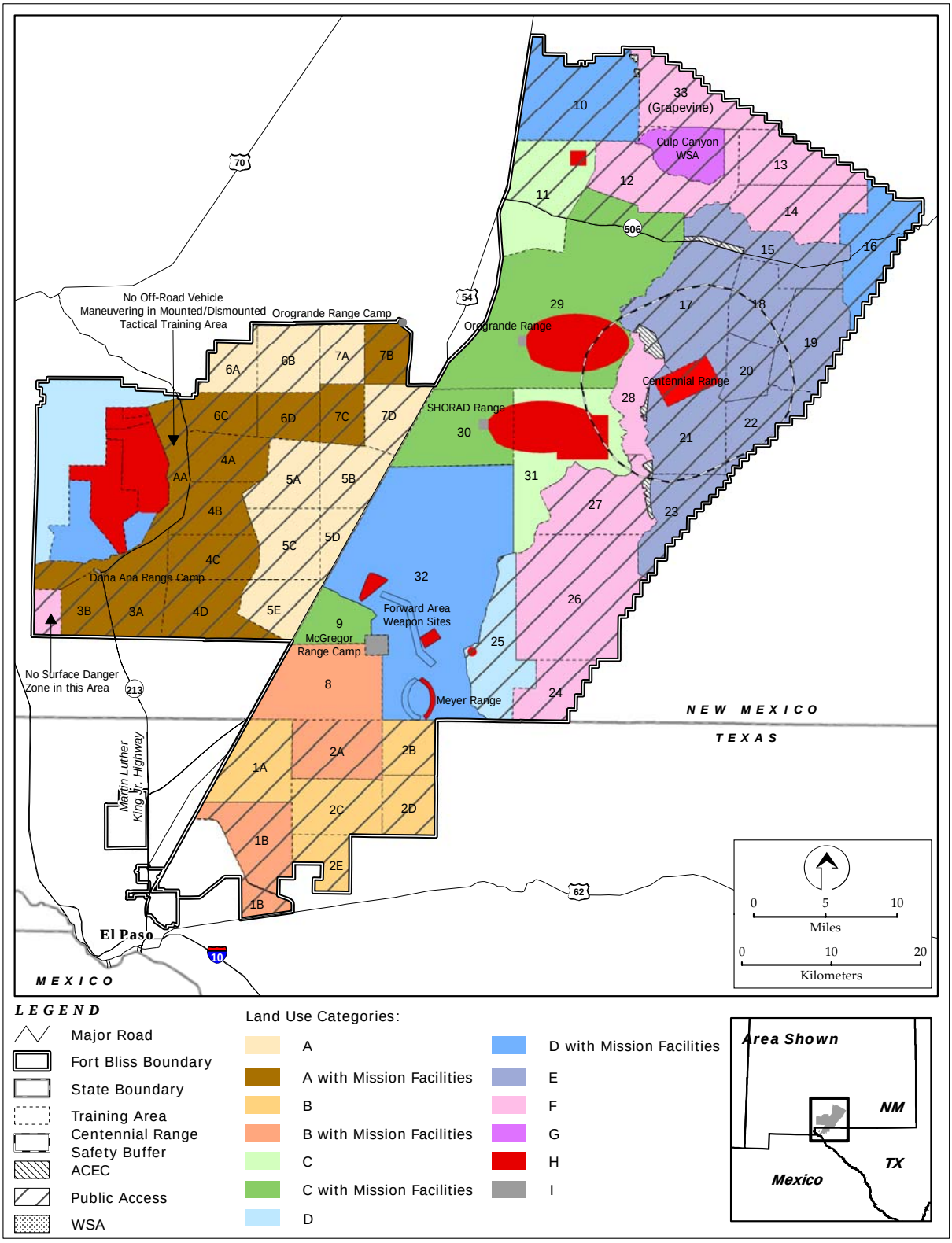

Figure 3.1-2. Fort Bliss Training Complex Current Land Use

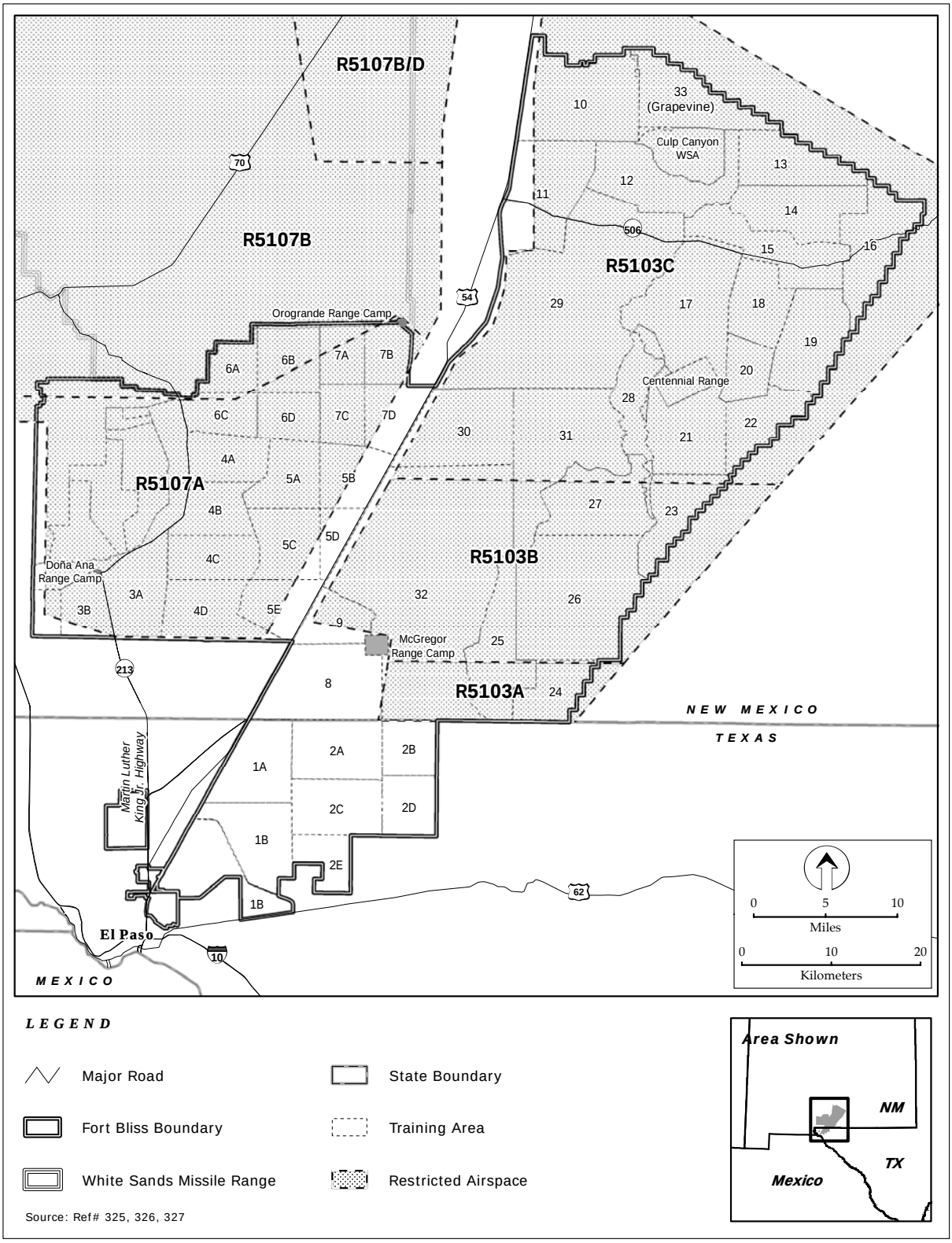

Figure 3.1-3. Restricted Area Airspace at Fort Bliss

Table 3.1-4 presents the estimated level of use that the training areas received in 2004 for off-road vehicle maneuver and for other training uses. Level of use in this table is defined as the estimated percent of days (based on a total of 365 days per year) that training was conducted in that training area. Table 3.1-4 likely over-estimates actual level of use because it presents scheduled days, and not all scheduled times are actually used. In addition, these numbers include potential concurrent training in multiple training categories. Some uses do not require the entire training area or the entire day, but because scheduling and use are monitored at the TA level, there is some double counting of smaller and/or shorter activities. For example, TA 8 is frequently used for smaller exercises that do not need the entire TA and therefore can be scheduled simultaneously, as is reflected in a use level that is over 100 percent.

Table 3.1-4. Estimated Training Area Scheduled Use in 2004

TA	*Percent Scheduled Use*[1]		
	Off-Road Vehicle Maneuver	***Other***[2]	***Total***[3]
South Training Areas			
1A	24%	6%	30%
1B	50%	12%	62%
2A	81%	20%	101%
2B	38%	9%	47%
2C	61%	15%	76%
2D	22%	6%	28%
2E	25%	6%	31%
North Training Areas			
3A	47%	12%	58%
3B	44%	11%	56%
4A	25%	6%	31%
4B	27%	12%	39%
4C	19%	10%	29%
4D	56%	14%	71%
5A	31%	13%	44%
5B	37%	14%	51%
5C	30%	12%	42%
5D	15%	8%	23%
5E	40%	15%	55%
6A	37%	14%	51%
6B	47%	17%	64%
6C	37%	14%	51%
6D	49%	17%	67%
7A	45%	16%	61%
7B	55%	19%	74%
7C	40%	15%	55%
7D	33%	13%	46%
AA	NA	34%	34%
McGregor Range			
8	178%	44%	222%
9	NA	19%	19%
10	NA	17%	17%
11	NA	17%	17%
12	NA	17%	17%
13	NA	17%	17%
14	NA	17%	17%

TA	*Percent Scheduled Use*[1]		
	Off-Road Vehicle Maneuver	***Other***[2]	***Total***[3]
15	NA	19%	19%
16	NA	17%	17%
17	NA	38%	38%
18	NA	21%	21%
19	NA	22%	22%
20	NA	20%	20%
21	NA	38%	38%
22	NA	18%	18%
23	NA	19%	19%
24	NA	49%	49%
25	NA	48%	48%
26	NA	48%	48%
27	NA	39%	39%
28	NA	38%	38%
29	NA	41%	41%
30	NA	37%	37%
31	NA	37%	37%
32	NA	66%	66%
33 (Grapevine)	NA	19%	19%

Notes:
1. Percent of days scheduled out of 365 days per year.
2. Other uses include Weapons Firing, Surface Impact, SDZ/Safety Footprint, On-Road Vehicle Maneuver, Controlled Access FTX, and Dismounted Training. Does not include operations in Centennial Range.
3. Includes concurrent use, so total for TA can be greater than 100 percent.

AA= Assembly Area west of War Highway; NA=Not Authorized
Source: Ref# 389

3.2 IDENTIFICATION OF ALTERNATIVES

The Army Transformation, BRAC, and the associated modifications in the mission of Fort Bliss, as described in Chapter 1.0, are changing the training requirements that Fort Bliss will be supporting. Responding to those changes requires the Army to make some land use modifications in both the Main Cantonment Area and the Fort Bliss Training Complex.

Existing facilities, infrastructure, and land use in the Main Cantonment Area were evaluated to identify alternatives for accommodating the facility and adjacency requirements of the new units and maximizing use of existing resources.

In order to identify feasible and practical alternatives for making the Fort Bliss Training Complex more responsive to the new requirements, an operational analysis was conducted of the training and support needs of units scheduled for stationing at Fort Bliss, as well as other on- and off-post users of the Fort Bliss Training Complex. The operational analysis considered the required number of live-fire ranges and available off-road vehicle maneuver space based on the training requirements described in Section 1.3.5, physical and scheduling factors limiting their availability, and the ability to sustain current training requirements.

Under the concept of sustained global engagement and Forces Command (FORSCOM) Sustained Engagement Strategy, the Heavy BCTs to be stationed at Fort Bliss will rotate from their base of operations to deployment locations on a regular schedule. In accordance with the Army Force Generation model for operational readiness, each BCT will follow a nominal 36-month cycle consisting of a training phase, a ready/deployable phase, and a reset phase. The cycle starts with a 3-month reset phase, followed by 10 months of training to standard for a new mission. This is followed by a 23-month ready/deployable phase during which the BCT maintains proficiency through continued training. The BCT may deploy during that phase; deployments are typically for 12 months. The 36-month cycle for a single BCT results in one deployment in three years. Consequently, if four BCTs are stationed at Fort Bliss, at least one would be deployed and a maximum of three would be training at home station in a given year.

The operational analysis identified the number and types of live-fire and qualification ranges required to train the units to be stationed at Fort Bliss, based on TC 25-8. Although some of the required ranges already exist on Fort Bliss, it was determined that others would have to be constructed. Locations for those additional ranges were identified to maximize synergies with existing facilities. The following criteria were used in siting the additional ranges:

- Accommodate simultaneous training by multiple units.
- Maximize efficiency of range use.
- Minimize conflicts with other ranges.
- Maximize range availability.
- Overlay on existing ranges where possible.
- Enable key live-fire ranges to be used in combination with off-road vehicle maneuver areas.

These criteria suggest that ranges should be grouped into complexes, both for efficiency and to minimize impact on maneuver areas, with care taken in their arrangement so as to avoid conflict. Small arms individual qualification ranges should be clustered around the range camps for the same reasons.

In meeting off-road vehicle maneuver requirements, the primary objective of the operational analysis was providing the capability to train as many units as possible to full doctrinal standards for realistic training. Effective live training, carried out to a high doctrinal standard, is the cornerstone of operational success.

Department of Army conducted a Future Range Mission Analysis Planning (FRMAP) exercise at Fort Bliss in October 2004. The exercise identified areas on Fort Bliss where training could be conducted by

Heavy BCTs using the new organizational structure, training doctrine, and equipment mandated by Army Transformation. The exercise concluded that multiple battalion task force maneuver "boxes" could be placed on the North and South Training Areas. Based on TC 25-1, a battalion-size maneuver box nominally measures 8 km by 31 km (approximately 61,000 acres), which may be adjusted depending on terrain and configuration. Additional boxes could be accommodated if portions of McGregor Range in the Tularosa Basin were made available for off-road maneuver training. Other portions of McGregor Range, specifically the Sacramento Mountains foothills and Otero Mesa, were considered less suitable due to excessively steep slopes or land use conflicts. **Figure 3.2-1** shows that six battalion-size maneuver boxes fit within the Tularosa Basin portion of the Fort Bliss Training Complex, and six simultaneous battalion-level exercises could occur if the entire area shown were approved for off-road vehicle maneuvers. Six maneuver battalions comprise two Heavy BCTs.

Once the BRAC decision was made to station an Armor Division with four Heavy BCTs and the other related units at Fort Bliss, alternatives for providing the total maneuver capability needed were identified based on the following criteria:

1. Provide the capability to conduct battalion-level "movement-to-contact" training for the Heavy BCTs stationed at Fort Bliss. The battalion task force is the lowest echelon at which all elements of the combined arms team fight together. This requires multiple battalion maneuver boxes that can be used together in a configuration consistent with training doctrine.

2. Provide a variety of terrain and environments for off-road vehicle maneuvers. Effective and realistic training requires various types of terrain that could be encountered in various regions and environments of the world where Army units may be deployed. Variety in terrain conditions also prevents soldiers from becoming used to training in one type of environment. Fort Bliss not only provides desert conditions and large expanses of flat terrain often encountered in the Middle East, but also has ridges and valleys that replicate terrain conditions in other regions. In addition, the vast distances and rugged terrain provide real-world training for logistical units that must operate in similar overseas areas to support ground maneuver forces.

3. Provide maneuver capacity for a minimum of three Heavy BCTs (assuming one of the four BCTs stationed at Fort Bliss is deployed or ready for deployment at any one time), all other units listed in the BRAC decisions to be stationed at Fort Bliss, and any BCTs training prior to deployment as part of Fort Bliss' Power Projection Platform mobilization mission. Combined, these units are estimated to require a minimum of 528,000 km^2d for defined missions (see Section 1.3.5 for the definition of km^2d), including 328,000 km^2d for three Heavy BCTs and approximately 200,000 km^2d for the other units.

4. Provide adequate capacity to support other missions that use Fort Bliss and the flexibility to accommodate changing missions and training needs in the future.

To apply the first criterion, the nominal battalion maneuver box, adjusted for terrain and other constraints where necessary, was applied using GIS to demonstrate potential areas within the Fort Bliss Training Complex where heavy battalion training could be accommodated (see Figure 3.2-1). Placement of these maneuver boxes merely demonstrates the significant training potential at Fort Bliss, and neither constrains the formulation of any particular training exercise, nor defines the limits of off-road vehicle maneuver on the installation.

To meet the second criterion, training areas with terrain and environments that are different from the North and South Training Areas were identified. The southeast portion of McGregor Range (TAs 24, 26, and 27) has ridges and mesas that run generally in a southeast to northwest direction with valleys of various lengths and widths in between. This type of rugged terrain replicates various terrain conditions in other parts of the world, such as the Middle and Far East, to which units may have to deploy and operate.

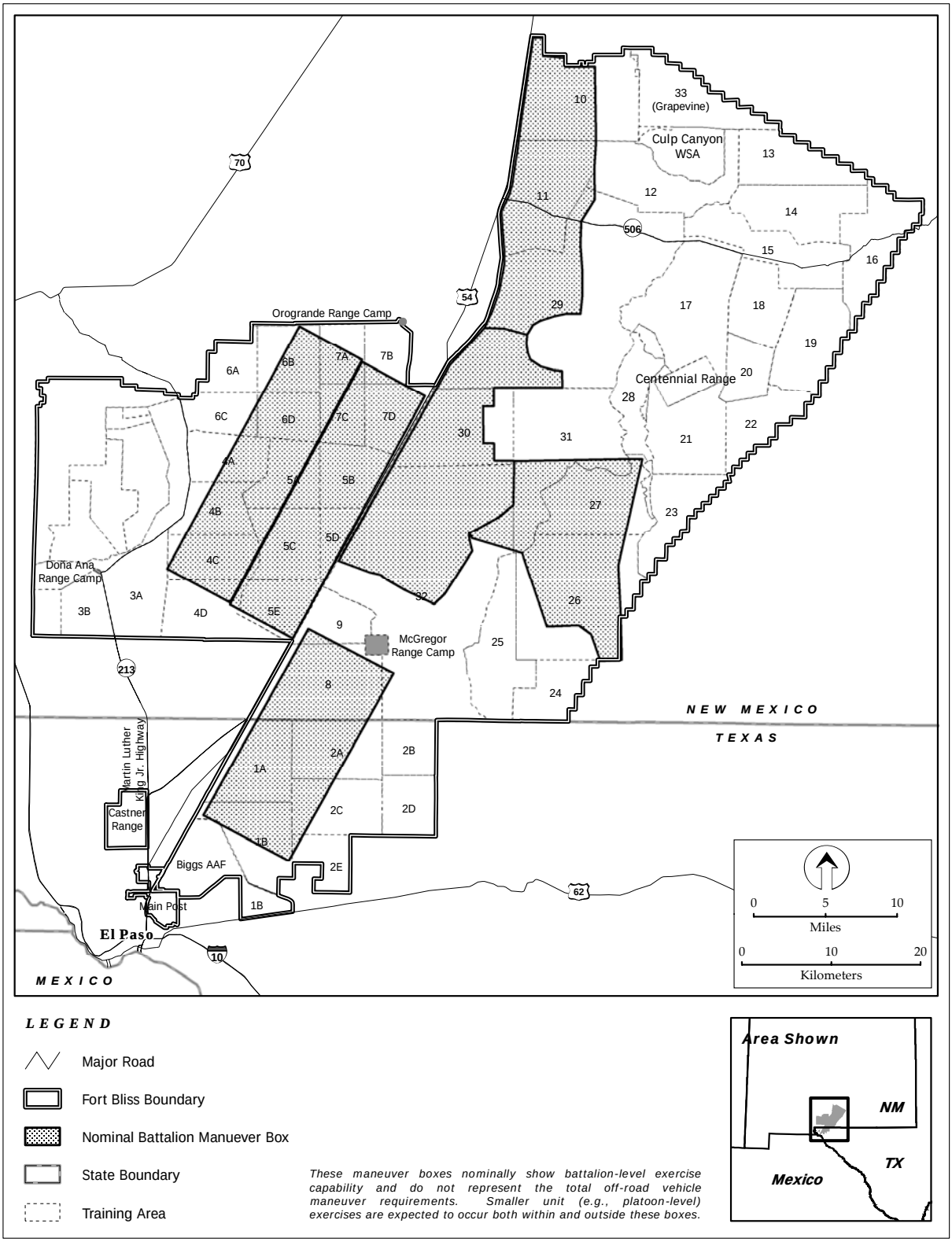

Figure 3.2-1. Nominal Battalion Maneuver Box Capability of the Fort Bliss Training Complex

The application of the third criterion examined the quantity of off-road maneuver area currently available at Fort Bliss, which is limited to the South Training Areas, North Training Areas, and TA 8 on McGregor Range. These areas comprise a total of approximately 1,356 km^2. The Army Training Support Center (ATSC) planning standard for use of maneuver land is 242 training days in a year, allowing time off for range maintenance, holidays, and weekends. This translates into an existing maneuver capacity at Fort Bliss of approximately 328,000 km^2d, which is substantially less than the 528,000 km^2d maneuver requirement of the units identified for stationing at Fort Bliss. Even if the TAs were scheduled 365 days per year, the total capacity, 495,000 km^2d, would not be adequate to meet the defined need. Therefore, additional potential off-road vehicle maneuver area was identified on McGregor Range. Based on a standard of 242 training days per year (excluding weekends and holidays and adjusting for maintenance activities), the minimum additional area needed for off-road vehicle maneuver is approximately 826 km^2 or 204,000 acres, not including other uses such as missile firings.

For the fourth criterion, additional capability was incorporated in some of the alternatives in order to meet both existing needs, including weapons firings, and the potential for future testing and training needs. For example, there were 127 large SDZ and 594 smaller SDZ missile firings in 2004. As another example, the mission of the EBCT being stationed at Fort Bliss is to develop new training doctrine for, and evaluate the integration of, new weapons and systems such as FCS into the active forces. Testing and training for FCS will require a battle space that extends as far as 300 km at the brigade level and 150 km at the battalion level.

For planning purposes, the following assumptions were also incorporated in the operational analysis:

- ADA training and mobilization and deployment of Reserve and National Guard Components would continue.
- Other facilities needed to support units and troops would be constructed in the Main Cantonment Area and at the range camps.
- Fort Bliss could accommodate light units (infantry and special forces) in addition to Heavy BCTs.
- No off-road vehicle maneuver would occur on Otero Mesa or Sacramento Mountains portion of McGregor Range.

To complete the analysis and identify reasonable alternatives, the Fort Bliss Training Complex was divided into seven groupings shown on **Figure 3.2-2**. The South Training Areas, North Training Areas, and TA 8, which are already used for off-road vehicle maneuvers, comprise three of the groupings. McGregor Range is further subdivided into the south Tularosa Basin portion south of Highway 506, the north Tularosa Basin portion north of Highway 506, the southeast TAs (24, 26, and 27) that transition between the Tularosa Basin and Otero Mesa, and the remainder of McGregor Range comprised of Otero Mesa and the Sacramento Mountains foothills.

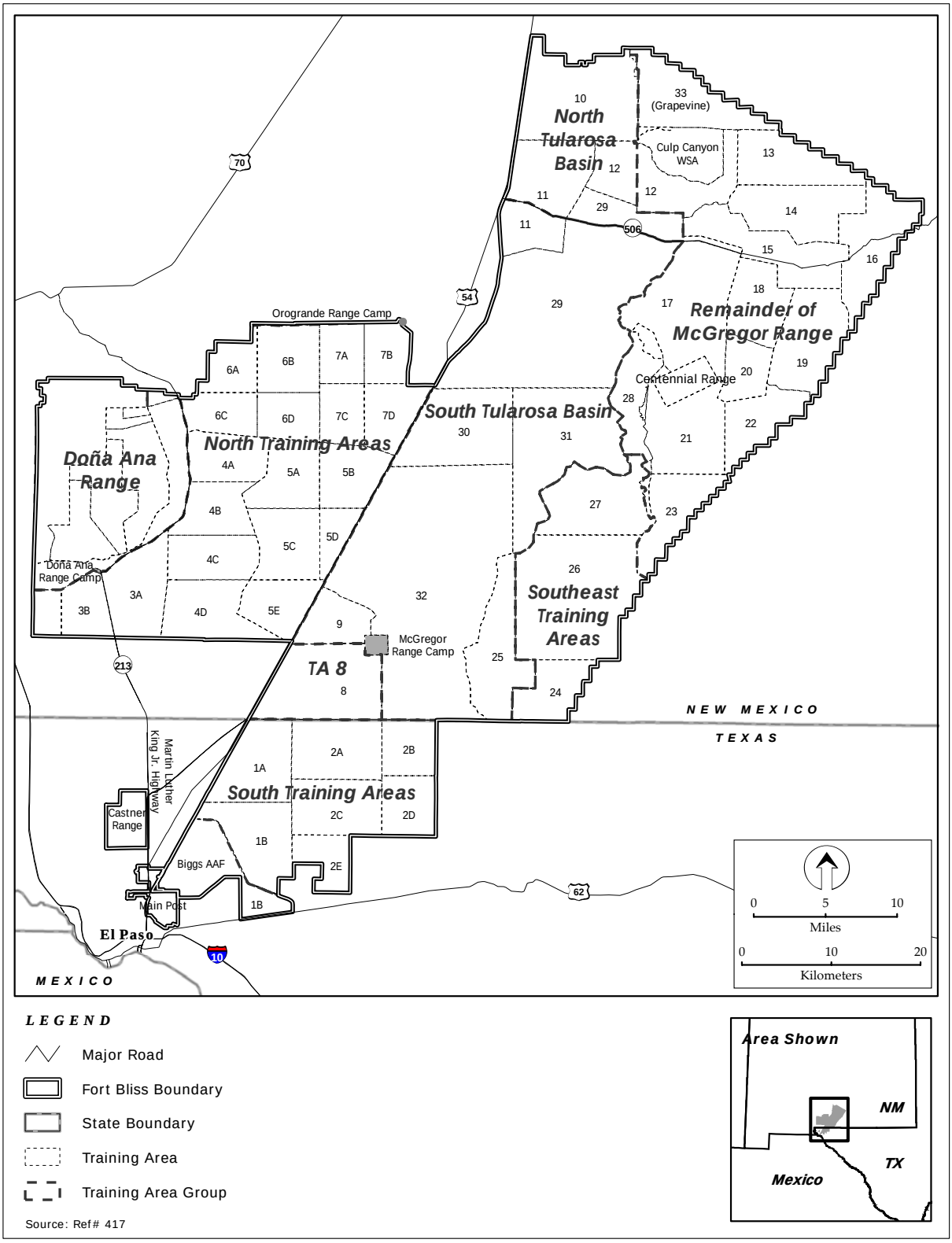

Figure 3.2-2. Groupings of TAs in the Fort Bliss Training Complex

Table 3.2-1 provides the acreage and km^2 in each grouping shown on Figure 3.2-2 and identifies the TAs included in each grouping.

Table 3.2-1. Training Area Groupings

Grouping	*Training Areas*	*Acres*	*Km^2*
South Training Areas	1A, 1B, 2A, 2B, 2C, 2D, 2E	99,813	404.1
North Training Areas	3A, 3B, 4A, 4B, 4C, 4D, 5A, 5B, 5C, 5D, 5E, 6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D, AA[1]	223,476	904.7
TA 8	8	25,925	105.0
McGregor Range, South Tularosa Basin	9, 25, 30, 31, 32, 11 and 29 south of Highway 506	274,020	1,109.4
McGregor Range, North Tularosa Basin	10, 11 and 29 north of Highway 506, west half of 12	65,733	266.1
McGregor Range, Southeast TAs	24, 26, 27	76,636	310.3
Remainder of McGregor Range	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 28, 33, east half of 12	225,157	1,033.0

1. AA is the unnumbered Assembly Area.

The operational analysis resulted in identification of four land use alternatives focused on providing additional off-road vehicle maneuver capability in the Fort Bliss Training Complex, in addition to No Action:

- Alternative 1 would expand the land designated for Off-Road Vehicle Maneuver into the south Tularosa Basin portion of McGregor Range (see Figure 3.2-2), increasing the installation's capability in that training category to approximately 540,000 km^2d. This would meet the currently defined requirement for 528,000 km^2d but leaves little flexibility to accommodate other users (e.g., missile firings) or future demands. The south Tularosa Basin portion of McGregor Range was selected for this expansion because of proximity to McGregor Range Camp and the Meyer Range Complex, the ability to locate additional live-fire and qualification ranges on and adjacent to existing Forward Area Weapons (FAW) sites, and the availability of infrastructure at Orogrande Range and the Wilde Benton airstrip to be incorporated into the development of new range capabilities needed to support the Heavy BCTs.
- Alternative 2 would include the land use changes of Alternative 1 and also expand the land designated for Off-Road Vehicle Maneuver into the north Tularosa Basin portion of McGregor Range (see Figure 3.2-2), increasing Fort Bliss' capability in that training category to approximately 603,000 km^2d. This would meet the currently defined requirement for 528,000 km^2d, incorporate the flexibility to accommodate other users, and provide the ability to absorb up to an additional 75,000 km^2d of off-road vehicle maneuver, which is approximately equivalent to two-thirds of a BCT in training load. The north Tularosa Basin portion of McGregor Range was selected for the additional expansion because it is adjacent to the south Tularosa Basin portion of the range and would provide a continuous maneuver space capable of supporting force-on-force, movement-to-contact exercises at the battalion level. As shown in Figure 3.2-1, this is the only area in the Fort Bliss Training Complex where two battalion maneuver boxes can be arrayed end to end, allowing two battalions to oppose each other in an exercise.
- Alternative 3 would include the land use changes of Alternative 1 and also expand the land designated for Off-Road Vehicle Maneuver into the southeast training areas of McGregor Range

(see Figure 3.2-2), increasing Fort Bliss' capability in that training category to approximately 610,000 km^2d. This alternative provides approximately the same level of capability in km^2d as Alternative 2 but in a different configuration which incorporates terrain that is different from the North and South Training Areas and south Tularosa Basin portion of McGregor Range, and therefore offers more variety in training environments.

- Alternative 4 – Proposed Action would include all the land use changes of Alternatives 1, 2, and 3, increasing Fort Bliss' capability in the Off-Road Vehicle Maneuver training category to approximately 673,000 km^2d. This alternative was selected as the Proposed Action because it provides the most flexibility to accommodate missile firings while managing the ground-based mission and is the only alternative that provides both the force-on-force, movement-to-contact capability of Alternative 2 and the terrain variety of Alternative 3, as well as the additional capacity to accommodate potential future changes in missions, units, and training requirements.

Table 3.2-2 summarizes the area designated for Off-Road Vehicle Maneuver under each alternative and the off-road vehicle training capability of each alternative in km^2d, not including other uses such as missile firings.

Table 3.2-2. Off-Road Vehicle Maneuver Training Capability by Alternative

Alternative	*Off-Road Vehicle Maneuver Training Areas*	*Km^2d[1]*
No Action	South Training Areas North Training Areas TA 8	328,000
Alternative 1	South Training Areas North Training Areas South Tularosa Basin portion of McGregor Range (TAs 8, 9, 25, 30, 31, 32, and 11 and 29 south of Highway 506)	539,700
Alternative 2	South Training Areas North Training Areas North and south Tularosa Basin portions of McGregor Range (TAs 8, 9, 10, 11, 25, 29, 30, 31, 32, and western half of 12)	602,800
Alternative 3	South Training Areas North Training Areas South and southeast Tularosa Basin portions of McGregor Range (TAs 8, 9, 10, 24, 25, 26, 27, 30, 31, 32, and 11 and 29 south of Highway 506)	609,600
Alternative 4 – Proposed Action	South Training Areas North Training Areas Tularosa Basin portion of McGregor Range (TAs 8, 9, 10, 11, 24, 25, 26, 27, 29, 30, 31, 32, and western half of 12)	672,700

1. Based on 242 training days per year. Does not include other uses such as missile firings.

The following sections describe proposed land use in the Main Cantonment Area and Fort Bliss Training Complex for each alternative, including No Action, and identify reasonably foreseeable construction, personnel, operations, and training associated with the land use alternatives.

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3.3 NO ACTION ALTERNATIVE

Under the No Action Alternative, land use on Fort Bliss would remain as established in the 2001 ROD for the Mission and Master Plan PEIS, as modified through incremental projects and changes evaluated in accordance with the NEPA screening criteria and management process described in the PEIS and in Chapter 2 above. Temporary stationing of the 4th BCT, 1st CAV at Fort Bliss was approved to take place in FY 2006 and assessed in a REC (Ref# 153). Construction of permanent facilities and infrastructure for the BCT was assessed in a second REC (Ref# 427). Comprised of tanks and other tracked fighting vehicles, this unit is similar to the 3rd ACR that was located at Fort Bliss up until 1995 when it was moved to Fort Carson, Colorado. Therefore, the No Action Alternative includes changes in land use, facilities, and training associated with the location of one Heavy BCT at Fort Bliss. These changes have been evaluated for compliance with NEPA. The primary changes include the following:

- Development of approximately 500 acres of previously disturbed land for a temporary and a permanent complex on the Biggs AAF portion of the Main Cantonment Area to accommodate approximately 3,800 assigned personnel and 1,400 pieces of equipment, including M1 tanks, Bradley fighting vehicles, mortar carriers, and various wheeled vehicles.
- Upgrades to several existing firing ranges and development of new firing ranges on Doña Ana Range and McGregor Range within current land use designations and/or on existing range footprints.
- Increase in off-road vehicle maneuvers in TAs currently approved for that use.
- Upgrades and new construction at McGregor, Doña Ana, and Orogrande Range Camps to accommodate mobilization requirements.
- Other incremental land use changes that have occurred since the 2000 PEIS.

The No Action Alternative is addressed in this SEIS as required by CEQ Regulations, but it is not a reasonable alternative because it does not satisfy the requirements of the BRAC decision.

3.3.1 MAIN CANTONMENT AREA

Figure 3.3-1 shows the land use plan for the Main Cantonment Area as reflected in the RPMP adopted in the 2001 ROD for the Mission and Master Plan PEIS. This plan defines land use in the 12 categories established by AR 210-20 and listed in Table 3.1-1. These categories provide a general framework for organizing and siting development to maintain or achieve efficient and compatible functional relationships. Some modifications have been made to land use in the Main Cantonment Area, consistent with AR 210-20, to accommodate incremental mission requirements and evaluated in accordance with the NEPA screening criteria and management process established in the PEIS. The main modification is the change in land use in the area between Biggs AAF and EPIA to accommodate a multi-use complex to house the 4th BCT, 1st CAV, initially in a temporary area while the permanent area is being constructed. This project was reviewed in a REC (Ref# 153). The complex includes administrative and headquarters space, barracks, dining, storage, vehicle maintenance shops, and open paved yards for vehicles.

Several other projects are planned for the Main Cantonment Area, including renovation and upgrades to existing facilities to reconfigure barracks, classroom facilities, administrative space, and mission support facilities to meet current needs; construction of new facilities; and development of family housing through the RCI. **Table 3.3-1** lists projects currently programmed for the Main Cantonment Area in the Five-Year Defense Plan and sample long-range projects expected under the No Action Alternative. These projects are consistent with the RPMP and the overall analysis of the Mission and Master Plan PEIS. Plans for these projects are evolving and may change depending on design requirements, funding, and other factors. The following paragraphs describe the main development plans in each part of the Main Cantonment Area.

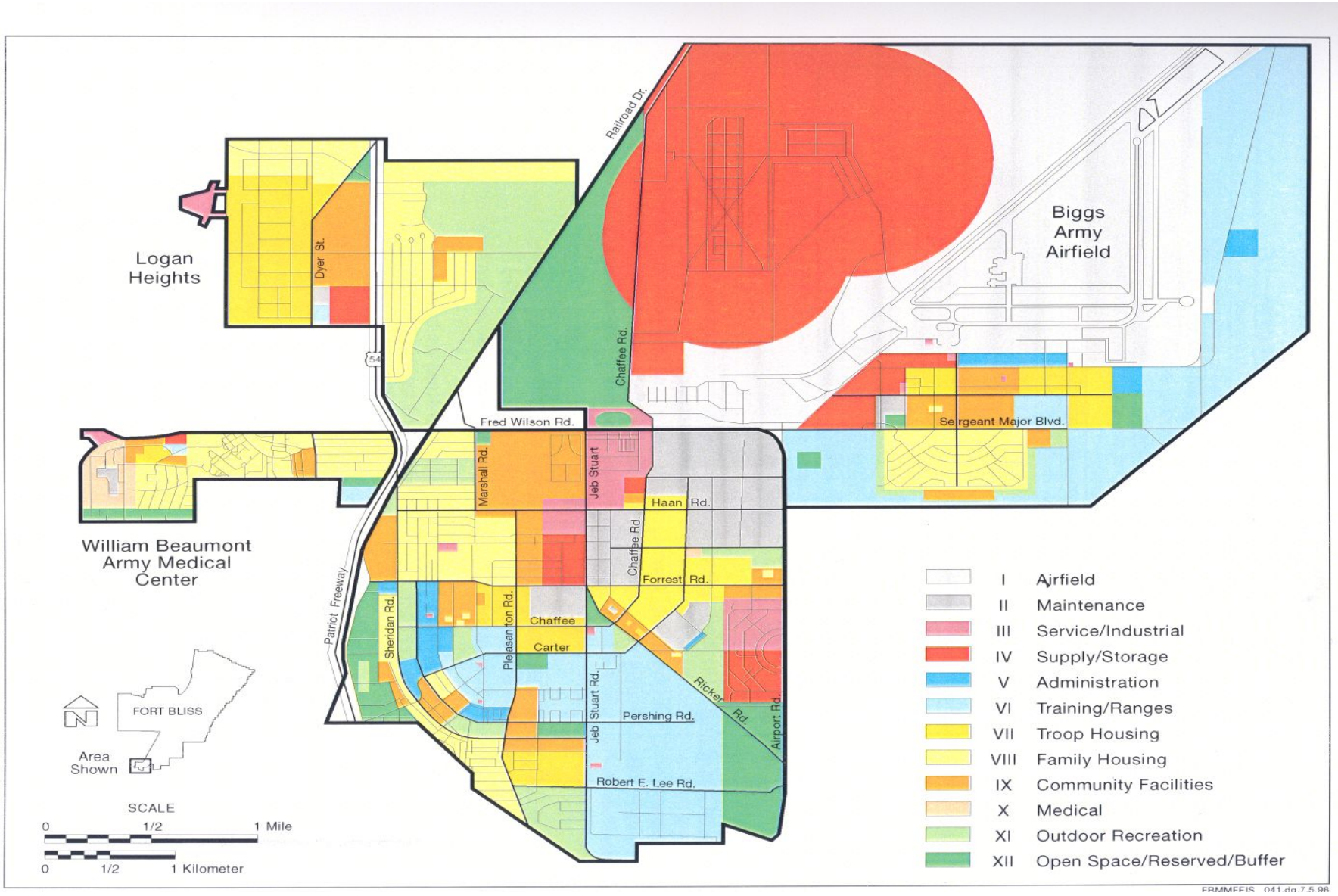

Figure 3.3-1. Current Main Cantonment Area Land Use Plan

Table 3.3-1. Main Cantonment Area Projects – No Action Alternative

Project	*Renovation*	*Demolition*	*New/Add*
5-Year Defense Plan (FY2007-2011)			
RCI housing (859 units net increase)	X	X	X
Heavy BCT Complex and Infrastructure	X	X	X
Expand Logan Heights Youth Center		X	X
North Overpass, US 54			X
South Overpass, US 54			X
Tactical Equipment Shops (6)	X		X
Tactical Vehicle Overpass			X
Physical Fitness Facility			X
Chapel, Biggs AAF			X
Criminal Investigation Division Command Building			X
Brigade HQ			X
Battery HQ			X
Fire/Military Police Station			X
Staging and Marshalling Area			X
General Instruction Facility			X
Brigade Set, Doña Ana Range Camp			X
Brigade Set, Orogrande Range Camp			X
Sample Long-Range Sustainment, Restoration, and Modernization Projects			
Airfield Upgrades	X	X	X
Road Construction and Repair	X	X	X
Barracks Renewal	X	X	X
HQ and Administration Facilities	X	X	X
Warehousing	X	X	X
Recreational Facilities			X
Gate Upgrades	X		X
Pavements			X
Railroad Extensions			X
Maintenance Facilities			X
Depot Facilities			X
Unaccompanied Housing			X
Community Facilities			X

Source: Ref# 3, 164, 433

Main Post. A number of renovations, additions, and new construction projects are programmed for the Main Post. These projects are similar to and consistent with the land use and type of development described in the PEIS and adopted in the RPMP. They include administrative; industrial and mission support; service; and morale, welfare, and recreation facilities.

WBAMC. Recent projects occurring on the WBAMC parcel include a new Bio/Safety Laboratory, renovation of the Emergency Department, and a new multi-level parking garage. An area of about 90 acres in the middle of the WBAMC parcel is being developed for Enhanced Use Leasing (EUL). This project will include a mix of commercial (offices and retail), residential, and possibly research and development space. Construction of up to 1,010 residential units is part of the EUL. This development has been assessed in a REC (Ref# 99).

Logan Heights. Land use at Logan Heights has historically been primarily family housing. As projected in the PEIS, much of the old, substandard housing in Logan Heights has been demolished. The

area is planned for development of future military family housing under the RCI (see below). The only other project currently programmed for the area is an expansion of the Youth Center.

Biggs AAF. Approximately 500 acres of previously disturbed, open land between Biggs AAF and EPIA is being developed to support the first Heavy BCT. During 2005, temporary facilities for the 4th BCT, 1st CAV were moved onto 300 acres immediately east of Biggs AAF. This involved surface clearing and grading, pouring concrete pads, extending utility lines, and installing equipment and over 600 temporary structures. Some existing facilities in the Aero Vista housing area of Biggs AAF are being used for troop housing. Permanent BCT facilities are being constructed on a 200-acre site adjacent to the temporary area, west of Loop 375. These include about 1,320,000 square feet (SF) of facility space and 2,039,000 SF of new pavement. WBAMC is also constructing temporary medical and dental facilities on Biggs AAF to support the BCT.

Traffic Management. Some road segments will be improved within the Main Cantonment Area to alleviate traffic congestion, provide access to new facilities, and provide tank vehicle access to the training areas. Entry gates to the Main Cantonment Area are being upgraded to meet new anti-terrorism and force protection standards and to accommodate additional traffic. Two U.S. Highway (US) 54 overpasses will be constructed to provide safer access to the Doña Ana Range-North Training Areas. In addition, Texas Department of Transportation (TXDOT) traffic management projects include construction of a new vehicle overpass between the Main Post and Biggs AAF, as well as the Inner Loop and Northeast Parkway (see Section 4.2 for descriptions of those projects).

Residential Community Initiative. RCI is a program to demolish 1,215 substandard housing units, build 1,850 new homes, rehabilitate 206 historical homes, and renovate 1,331 other existing homes for military families on Fort Bliss. This ongoing initiative was assessed in a REC (Ref# 223) and is projected to continue through 2010. It will integrate new swimming pools, community centers, parks, walking trails, bike paths, and playgrounds in the residential areas. With the possible construction of another 224 homes, the end-state will achieve up to 3,611 homes for military families on post to meet current needs of Fort Bliss, including the BCT. The new housing and paved driveways and roadways will occupy about 500 acres of land distributed over multiple parcels in the Main Cantonment Area. Some of the new housing will be located where old housing has been demolished.

Overall, the construction planned for the Main Cantonment Area over the next five years under this alternative is estimated to involve approximately 1,500 acres, with approximately 1,000 acres directly affected by ground disturbance and construction activities and approximately 330 acres of additional impervious surface.

3.3.2 FORT BLISS TRAINING COMPLEX

Land use designations in the Fort Bliss Training Complex under the No Action Alternative (see Figure 3.1-2) are based on the TADC and described in the Mission and Master Plan PEIS. Land use in two training areas, TAs 1B and 16, has been modified to include the Mission Support Facility training category (see Table 3.1-2) to allow for development of mission facilities and infrastructure improvements.

Range upgrades and enhancements have been completed or are underway to support the BCT, including upgrades to existing ranges and development of new weapons firing ranges and training facilities. Seven ranges are being developed in areas of Doña Ana and McGregor Ranges that are approved for weapons firing and ordnance impact in the TADC. A REC was prepared for these ranges (Ref# 148), in accordance with the criteria and procedures described in the PEIS. In addition, ongoing maintenance and repair activities will continue at Doña Ana, Orogrande, and McGregor Range Camps, existing firing ranges, and on range roads.

At 242 training days per year, the No Action Alternative provides a total of approximately 328,000 km^2d/year. With the addition of one BCT, the training requirement under the No Action Alternative is estimated at approximately 218,000 km^2d/year. For analysis purposes, **Table 3.3-2** presents a range of

potential off-road vehicle maneuver and other uses in each grouping of TAs listed in Table 3.2-1 and shown on Figure 3.2-2. Unlike Table 3.1-4, these projections do not double count for concurrent use and represent estimated actual versus scheduled time. The lower end of the range reflects the requirements of one BCT in combination with the mobilization mission. The upper end of the range represents the full capability of Fort Bliss lands approved for the Off-Road Vehicle Maneuver training category, based on 242 training days per year. The utilization levels reflect the percent of days in the year out of a total of 365. The Fort Bliss Training Complex would also continue to support other training, including weapons firings, dismounted training, on-road vehicle maneuvers, air operations, and field training exercises like Roving Sands, consistent with land use designations in the TADC.

Table 3.3-2. Estimated Training Area Use – No Action Alternative

Grouping	*Training Areas*[1]	*Percent of Use*[2]	
		Off-Road Vehicle Maneuver[3]	*Other Uses*[4]
South Training Areas	1A, 1B, 2A, 2B, 2C, 2D, 2E	50-66%	5-10%
North Training Areas	3A, 3B, 4A, 4B, 4C, 4D, 5A, 5B, 5C, 5D, 5E, 6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D, AA[5]	50-66%	10-20%
TA 8	8	50-66%	10-20%
McGregor Range, South Tularosa Basin	9, 25, 30, 31, 32, 11 and 29 south of Highway 506	0	20-66%
McGregor Range, North Tularosa Basin	10, 11 and 29 north of Highway 506, west half of 12	0	20-66%
McGregor Range, Southeast TAs	24, 26, 27	0	20-66%
Remainder of McGregor Range	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 28, 33, east half of 12	0	20-66%[6]

1. See Figure 3.1-2
2. Percent of days out of a total of 365. Does not account for concurrent, non-exclusive use of the training area.
3. Ranges from the training requirements of one Heavy BCT plus mobilization mission, up to standard full military use at 242 training days per year.
4. Other uses include Weapons Firing, Surface Impact, SDZ/Safety Footprint, On-Road Vehicle Maneuver, Controlled Access FTX, and Dismounted Training.
5. AA is the unnumbered Assembly Area.
6. Does not include Centennial Range, which is used on an intermittent basis.

The No Action Alternative does not provide sufficient area designated for Off-Road Vehicle Maneuver to accommodate the units identified by BRAC to be relocated to Fort Bliss and continue to support other users of the Fort Bliss Training Complex. If all training areas were scheduled 365 days of the year, they would only meet the training requirements of the four Heavy BCTs (with one deployed) and be insufficient to accommodate other users and the mobilization mission. In addition to forcing troops to train on weekends and holidays, this would not leave sufficient time to perform road maintenance or conduct environmental and other activities required to sustain the land base. Even with 365 training days per year, there would not be sufficient capacity to accommodate off-post users or to sustain the installation's mobilization mission. Therefore, this alternative would result in degraded training that does not meet doctrinal standards.

The following subsections describe land use and ongoing improvements in the three segments of the Fort Bliss Training Complex.

3.3.2.1 South Training Areas

Under the No Action Alternative, land use in most of the South Training Areas will remain as defined in the PEIS (see Figure 3.1-2). The one exception is in TA 1B, which has been changed to include the training category of Mission Support Facility in addition to On- and Off-Road Vehicle Maneuver, Dismounted Training, and Aircraft Operations. Mission support facilities will be developed in the southern portion of TA 1B near Loop 375 for the Army National Guard and Reserve Joint Training Center. Construction for the center will involve approximately 275,000 SF of facilities and 918,000 SF of pavement (Ref# 490). The City of El Paso, El Paso Water Utilities (EPWU) is constructing a desalination plant and supporting facilities north of Montana Boulevard adjacent to EPIA and along Loop 375 (Ref# 222).

3.3.2.2 Doña Ana Range-North Training Areas

Under the No Action Alternative, land use in the Doña Ana Range-North Training Areas will remain as defined in the TADC and Mission and Master Plan PEIS/ROD. The Doña Ana Range Complex contains live-fire ranges for small arms and crew-served weapons qualification (M1 tanks and Bradley fighting vehicles). Upgrades and enhancements have been made or are underway at Doña Ana firing ranges, including development of a Multi-Purpose Machine Gun (MPMG) range, a Combat Pistol Qualification (CPQC) range, an Infantry Platoon Battle Course (IPBC), and an Urban Assault Course (UAC) (Ref# 148). They are being developed within current land use designations and/or on existing range footprints.

3.3.2.3 McGregor Range

Under the No Action Alternative, land use in McGregor Range will remain the same as defined in the TADC and Mission and Master Plan PEIS/ROD, with the change previously made to TA 16 to include the Mission Support Facility training category. Off-Road Vehicle Maneuver will be limited to TA 8. Vehicle maneuvers will continue to be conducted on roads as described in the PEIS. Dismounted training will continue to be permitted throughout McGregor Range, except in impact areas. Range upgrades and enhancements have been completed or are under way within the Tularosa Basin portion of McGregor Range. Most of these are upgrades to existing ranges within the Meyer Range complex and FAW sites. A Demolition Range and two Live-Fire Shoothouses are being developed in TAs 29 and 32, consistent with the land use designations for those TAs (Ref# 148).

Improvements within McGregor Range Camp will be made to support the increased range use, and new barracks are being built to increase the range camp's troop support capability from approximately 3,000 beds to approximately 5,000 beds.

3.4 ALTERNATIVE 1

Under Alternative 1, land use in the Main Cantonment Area and the Fort Bliss Training Complex would be modified to accommodate facilities and infrastructure, personnel, equipment, operations, and training associated with a Heavy Armor Division, including four Heavy BCTs (three in addition to the No Action Alternative), a CAB, and other units as described in Section 1.3.1. The primary land use changes include the following:

- Addition of the Off-Road Vehicle Maneuver training category, as well as Mission Support Facility, Weapons Firing, and SDZ/Safety Footprint, in TAs 9, 11, 25, 29, 30, 31, and 32 in the Tularosa Basin portion of McGregor Range south of Highway 506. This would add approximately 216,000 acres (875 km^2) of Off-Road Vehicle Maneuver area in the Fort Bliss Training Complex, for a total of approximately 551,000 acres (2,230 km^2).
- Addition of the Mission Support Facility category to TA 1A in the South Training Areas.
- Expansion of the Main Cantonment Area to the north and east and development of additional facilities to accommodate a net increase of approximately 22,000 personnel and 9,000 dependents living on post; 1,440 additional tracked vehicles, 3,600 additional wheeled vehicles, 110 helicopters, and other equipment; and operations associated with the new units.
- Establishment of a new range complex in TA 29 near the Wilde Benton airstrip and Orogrande Range, called the Orogrande Range Complex.
- Construction of new live-fire and qualification ranges at Doña Ana and McGregor Ranges.

In accordance with the recommendations of the BRAC Commission, the ADA School, 6th ADA Brigade, and 31st ADA Brigade would relocate out of Fort Bliss to Fort Sill. In addition, the 108th ADA Brigade may relocate to Fort Bragg. However, it is assumed that the ADA Brigades would continue to conduct live-fire training on the Fort Bliss Training Complex.

3.4.1 MAIN CANTONMENT AREA

Alternative 1 would extend the Main Cantonment Area to the north and east, in order to accommodate the facility requirements of three additional Heavy BCTs, a CAB, and the other units and support requirements. It would also apply a new approach to land use within the Main Cantonment Area. Instead of identifying specific areas for each of the 12 land use categories listed in Table 3.1-1, the entire Main Cantonment Area would be designated for mixed-use land use. Within this land use, siting and development of facilities would follow Army land use compatibility criteria. This move to a single mixed-use land use designation supports the Army's Transformation to a modular force by enabling each BCT's facilities to be planned as an integrated enclave, thereby improving the layout of related functions and increasing the unit's operational efficiency. It also provides greater flexibility to respond to evolving mission and facility requirements in the future. **Figure 3.4-1** shows the expanded Main Cantonment Area and the main factors and constraints that will influence facility siting, including existing infrastructure such as the Biggs AAF airfield and associated Accident Potential Zones (see Section 4.11), explosive safety quantity distance areas, SDZs, easements and outleases such as the desalination plant operated by EPWU, and traffic access points (gates).

Development in the Main Cantonment Area under Alternative 1 would focus on facilities to support the new Heavy Armor Division. Section 1.3 describes the sequence of units scheduled to arrive at Fort Bliss over the next four years. The overall land use concept for this expansion is to develop mission enclaves for each of the BCTs in and around Biggs AAF and out to Loop 375 and beyond, and to renovate and upgrade existing facilities on the Main Post for reuse. The size of the Main Cantonment Area would be expanded from approximately 15,194 acres to 23,632 acres.

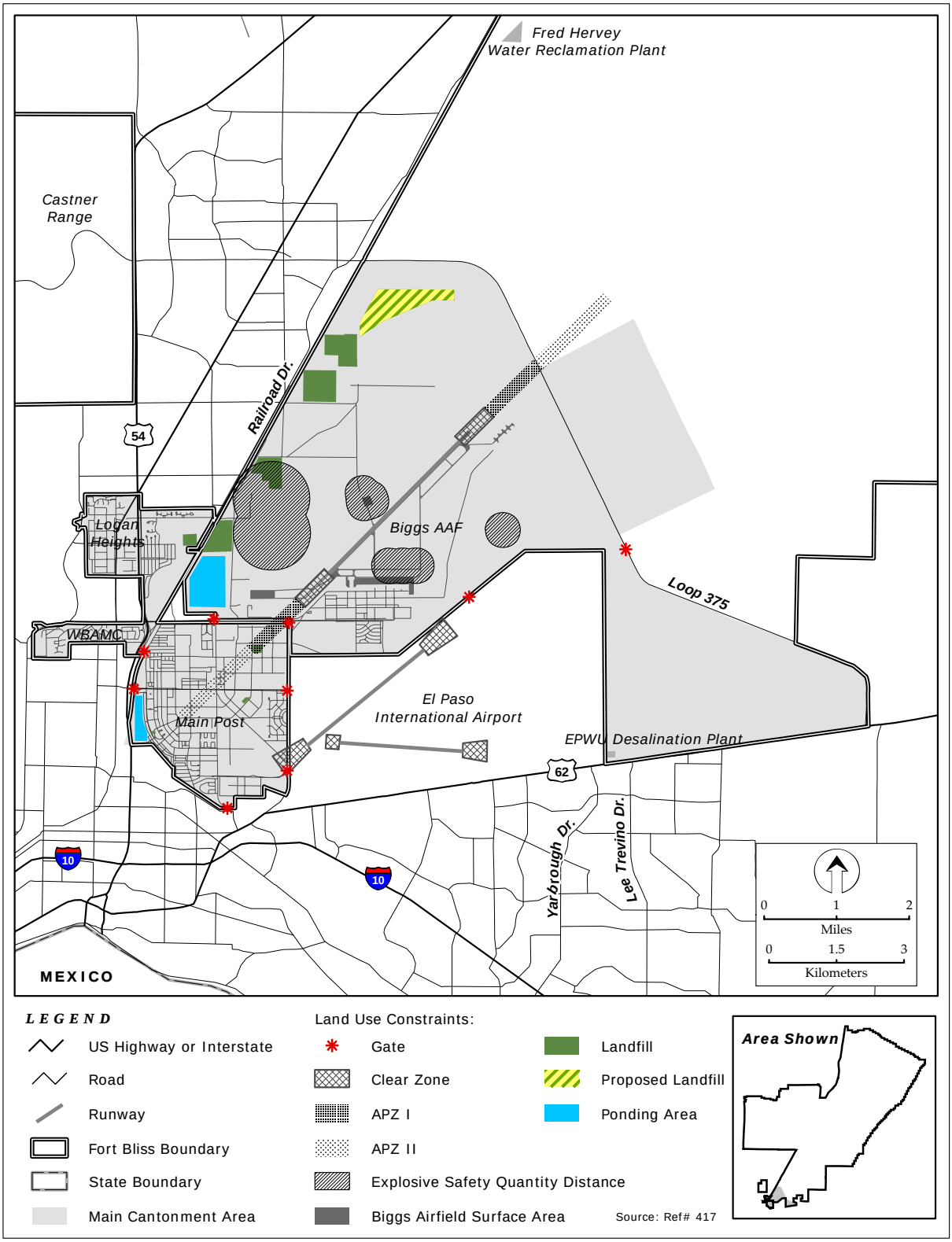

Figure 3.4-1. Main Cantonment Area Land Use – Alternative 1

Over the next four years, about 4,000 acres of land in the Main Cantonment Area would experience some level of development or redevelopment. Over half of that (approximately 2,100 acres) would convert open space into developed land. The uses would be varied, including administrative, barracks/housing, troop training, industrial, commercial, and community functions. Development would disturb an estimated 3,400 acres and increase impervious surfaces by about 1,300 acres, with most of this in the east part of Biggs AAF. Some areas would not be developable due to safety constraints around the airfield and munitions storage facilities and for environmental and other reasons. A certain amount of land would remain open to support large-scale deployment and for soldier training areas. Most of the construction activity is expected to take place between 2007 and 2011. As much as half of it could be concentrated in 2008.

Alternative 1 construction would include all the projects listed for the No Action Alternative (see Table 3.3-1). **Table 3.4-1** lists additional construction programmed for the Main Cantonment Area for Alternative 1. Several projects involve renovating, upgrading, or converting existing facilities for reuse. An estimated 2,000,000 SF may be available for reuse and could reduce the total estimated physical development under Alternative 1 by about 10 percent.

Main Post. Some of the facility requirements are expected to be met by reconfiguring existing facilities that would be vacated by troops scheduled to leave Fort Bliss. For example, the Artillery (Fires) Brigade and EAB functions would be located on the Main Post. The main facilities there would be new and upgraded tactical equipment shops, motor pools, and barracks. The Armor Division Headquarters could be located on the Main Post or Biggs AAF. In addition, Garrison Command functions such as fire stations, law enforcement, engineering, and grounds and facility maintenance would be expanded to meet the needs of the new Armor Division.

WBAMC. Additional facilities would be constructed to support the increase in military population, including a dental clinic and an addition and alterations to the hospital.

Biggs AAF. The majority of the new construction would occur on/adjacent to Biggs AAF and in the expansion area between EPIA and Loop 375. In addition to construction for the 4th BCT, 1st CAV that is described for the No Action Alternative, construction for three more Heavy BCTs would occur in this area. As part of the modularity concept, each BCT is conceived as a unit with similar facility requirements.

The master planning concept for this expansion is to create a new "tactical campus" where the BCT sites would be clustered. Between Biggs AAF and the Main Cantonment Area expansion, there are large areas of open space suitable for new development. Proximity to the South Training Areas is desirable because it would reduce travel distance for training brigades and minimize intrusion of BCT vehicular activity in the rest of the Main Cantonment Area. Final siting decisions would consider access, utility connections, and other constraints. Each brigade would be housed in existing temporary BCT facilities while permanent facilities are being constructed. Infrastructure would be extended to each of the BCT enclaves as they are developed.

The total facility allowance for a Heavy BCT is 1,320,000 SF, comprised of about 35 percent headquarters and administrative facilities, almost 50 percent troop housing and dining, and the remainder for vehicular maintenance and storage. Each unit is also allocated 2,039,250 SF of pavement for vehicle parking and equipment. A site area of about 300 acres accommodates these allowances.

Some mission facilities, such as a new fueling area and wash racks, are expected to be constructed on the east side of Loop 375. A tank vehicle roadway and new vehicle crossings would link directly between the BCT enclaves around Biggs AAF and the fueling area and training areas.

91 **Table 3.4-1. Main Cantonment Area Projects – Alternative 1**

Project	*Renovation*	*Demolition*	*New/Add*
Army Reserves/National Guard Center			X
Gates/Overpasses Loop 375			X
Division HQ Complex			X
Sustainment Brigade Complex			X
Fuel Storage and Fueling Facility			X
Ammunition Storage Facilities (2)			X
Central Issue Facility			X
Centralized Vehicle Wash Facility			X
Deployment Storage Facility			X
Fire/Military Police Station – Biggs			X
Community Services Center			X
Dental Clinic			X
Shopping Center Expansion	X	X	X
Soldier Service Center			X
Mini Malls and Shoppettes, Biggs AAF			X
Youth Center Expansion, Logan Heights	X		X
Widen Haan Road		X	X
Upgrade and Repair Main Post Facilities and Roads	X	X	X
Tactical Equipment Shops (6)	X		X
Upgrade FIRES Tactical Shops and Motor Pools (3)	X		X
Heavy BCT Complex and Infrastructure			X
CAB Facilities and Infrastructure		X	X
Child and Youth Services School Age Sites (2)			X
Child and Youth Services Child Development Centers (3)	X		X
Headquarters Building Reconfiguration	X		
Explosive Ordnance Disposal Facility			X
Battle Command Training Center			X
Alert Holding Area			X
Communications Facility			X
Barracks			X
Hospital Addition			X
Consolidated Medical Center			X
Modernize Officers' Club	X		
Junior Enlisted Club			X
Library Replacement			X
Multi-Purpose Sports Fields			X
Physical Fitness Facility			X
Community Activities Center			X
Youth Activity Center			X
Chapel Center			X
Chapel Family Life Center			X
Heavy BCT Complex and Infrastructure			X
RCI Housing			X
Close Combat Tactical Trainer Facility			X
Training Support Center Upgrade	X		
General Services Maintenance Facility			X
Two Four-Field Softball Complexes			X
Defense Reutilization and Marketing Office Facility			X

The CAB is expected to arrive in 2009. The most likely location for this brigade is along the south side of the east-west taxiway at Biggs AAF. Using this site would require removal of about 400,000 SF of pavement and facilities and construction of about 1,310,000 SF of new facilities and 5,100,000 SF of new pavement.

In addition to the BCT and CAB enclaves, some supporting/sustainment functions would also be located on Biggs AAF, including medical facilities, ammunition storage, maintenance areas, and staging areas.

Community Facilities. Additional community support facilities include youth development centers, recreational facilities, sports fields, chapels, day care centers, libraries, and commercial facilities needed to support the increased post population. They would be distributed among multiple parts of the Main Cantonment Area, including the Main Post and Biggs AAF. An estimated 100 acres are needed for up to 1,500,000 SF of new commercial and community buildings.

Traffic Management. New gates would be constructed to provide access off Loop 375 to the BCT enclaves. A new gate between Biggs AAF and EPIA is also proposed. Figure 3.4-1 shows the approximate locations of the new gates. The new vehicle overpass (constructed by TXDOT) described under the No Action Alternative would provide access to tank trails along the perimeter of Biggs AAF and connect to the South Training Areas. Other improvements include widening roads and constructing tank trails.

Military Family Housing. The additional military personnel and dependents associated with the new units would increase the demand for military family housing. Approximately 1,750 additional military family housing units, over and above those described for the No Action Alternative, would be developed by RCI in the expanded Main Cantonment Area east of EPIA.

Alternative 1 includes potential construction of a new on-post landfill in the expanded Main Cantonment Area (see Figure 3.4-1). The current landfill is anticipated to reach capacity before 2008. The new landfill would comprise approximately 200 acres and have an estimated life of approximately 63 years (Ref# 478). If it is not constructed, refuse from Fort Bliss would be taken off post for disposal.

3.4.2 FORT BLISS TRAINING COMPLEX

Land use changes in the Fort Bliss Training Complex under Alternative 1 would include reconfiguration of the South Training Areas to accommodate the expanded Main Cantonment Area and other mission facilities, addition of the Off-Road Vehicle Maneuver training category to TAs in the Tularosa Basin portion of McGregor Range south of Highway 506, and development of additional tactical and firing ranges. **Figure 3.4-2** shows land use designations in the Fort Bliss Training Complex for Alternative 1.

This alternative includes development of several new and upgraded live-fire and qualification ranges. The locations for these facilities were selected to maximize the use of existing range capabilities and the functional integration of both existing and new ranges, and considering their supportability from the existing range camps. Thus, many of the new facilities are proposed to be located on Doña Ana Range and in the southern part of TA 32 near Meyer Range, the FAW sites, and McGregor Range Camp. These areas do not provide adequate space for all the required facilities, so a new range complex is proposed in TA 29 near the existing Orogrande Range. This location was selected because of the existing infrastructure and the proximity to Wilde Benton airstrip, which provides needed aviation capability related to some of the training facilities. In addition, this location allows for a battalion maneuver box to be located between it and the facilities in the southern portion of TA 32 (see Figure 3.2-1), which could then be used in conjunction with either set of ranges.

Once the proposed development has been completed, the Fort Bliss Training Complex would have four main centers of training activity. One would be the South Training Areas, which would be developed with more mission support facilities. This would be supported primarily from the Main Cantonment

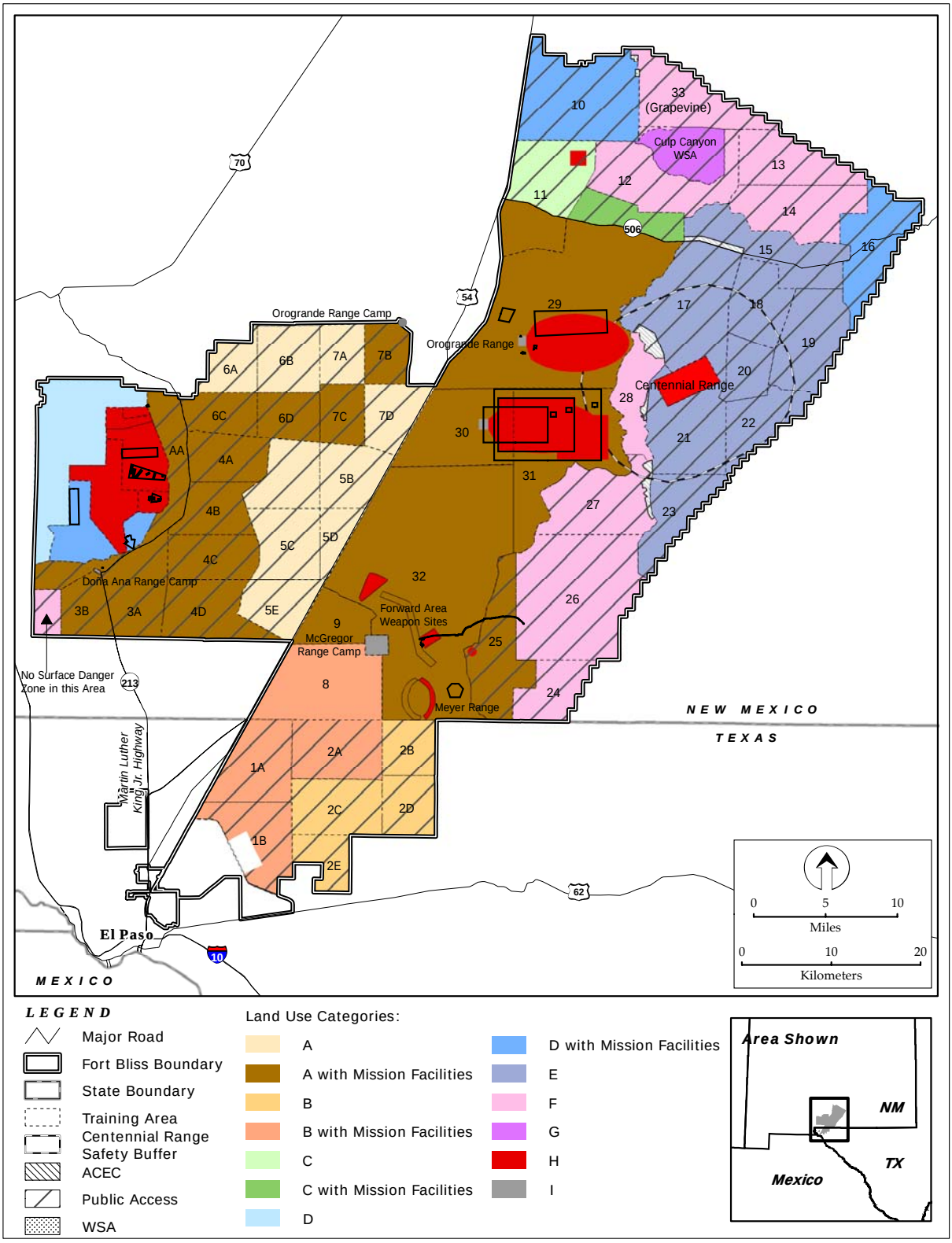

Figure 3.4-2. Fort Bliss Training Complex Land Use – Alternative 1

Area. The second would be the Doña Ana Range-North Training Areas and expanded ranges and facilities there. That segment would be supported primarily from Doña Ana Range Camp.

A third would include Meyer Range and the FAW sites in southern McGregor Range and would be supported from McGregor Range Camp. The fourth would be the new Orogrande Range Complex in TA 29. It would be supported primarily from Orogrande Range Camp.

With the addition of 875 km^2 of area designated for Off-Road Vehicle Maneuver on McGregor Range, the capacity of the Fort Bliss Training Complex would be increased to approximately 540,000 km^2d per year. Based on the requirements in TC 25-1, as described in Section 1.3.5, more than 80 percent of the off-road vehicle training time conducted by a BCT is in platoon- and company-level exercises. While these exercises collectively take up the most time in the course of a year, they generally require less maneuver area per exercise. Therefore, it is expected that most of the platoon- and company-level training would likely be conducted in areas closest to the Main Cantonment Area, specifically the South Training Areas and TAs 8 and 9 of McGregor Range, followed by the North Training Areas. Alternative 1 minimally meets the maneuver requirements of the units locating at Fort Bliss, so it is expected that all TAs available for off-road vehicle maneuver would be fully used for vehicle maneuver training under this alternative. **Table 3.4-2** presents the estimated level of use in various TAs under Alternative 1. The percent of use reflects the days in the year that the TAs would be used out of a total of 365. Standard full military use is 242 days, which is 66 percent of the time.

Table 3.4-2. Estimated Training Area Use – Alternative 1

Grouping	***Training Areas***[1]	***Percent of Use***[2]	
		Off-Road Vehicle Maneuver[3]	***Other Uses***[4]
South Training Areas	1A, 1B, 2A, 2B, 2C, 2D, 2E	65-66%	5-20%
North Training Areas	3A, 3B, 4A, 4B, 4C, 4D, 5A, 5B, 5C, 5D, 5E, 6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D, AA[5]	65-66%	5-20%
TA 8	8	65-66%	5-20%
McGregor Range, South Tularosa Basin	9, 25, 30, 31, 32, 11 and 29 south of Highway 506	60-66%	5-30%
McGregor Range, North Tularosa Basin	10, 11 and 29 north of Highway 506, west half of 12	0	15-66%
McGregor Range, Southeast TAs	24, 26, 27	0	40-66%
Remainder of McGregor Range	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 28, 33, east half of 12	0	15-66%[6]

1. See Figure 3.4-2
2. Percent of days out of a total of 365. Does not account for concurrent, non-exclusive use of the training area.
3. Ranges from the training requirements of four Heavy BCTs, other BRAC units, and mobilization mission, up to standard full military use at 242 training days per year.
4. Other uses include Weapons Firing, Surface Impact, SDZ/Safety Footprint, On-Road Vehicle Maneuver, 5. Controlled Access FTX, and Dismounted Training.
5. AA is the unnumbered Assembly Area.
6. Does not include Centennial Range, which is used on an intermittent basis.

The demand for off-road vehicle maneuver training would leave approximately 13 days per year for missile firings on McGregor Range. For comparison, a total of 76 days for large missile firings and 100 days for small missile firings were used in 2004. Therefore, missile firings and other uses would have to be scheduled around the BCT training. Large missile firings which have historically scheduled up to two

days for a single event would need to be scheduled more efficiently. Small missiles (e.g., Stingers) have smaller SDZs, and the SDZs associated with firings at FAW 10 extend into the southeast TAs of McGregor Range, allowing for other, concurrent use of portions of the south Tularosa Basin outside the SDZ. Therefore, other uses in the southeast TAs would likely be higher than other areas of McGregor Range, as reflected in Table 3.4-2. Even so, it is unlikely that the historical volume of missile firings would be accommodated, and it is highly likely that additional days beyond the standard 242 days per year would need to be scheduled on the Fort Bliss Training Complex in order to accommodate all users.

The following subsections describe proposed land use and construction in the three segments of the Fort Bliss Training Complex under this alternative.

3.4.2.1 South Training Areas

Land Use. Land use in most of the South Training Areas would remain the same as under the No Action Alternative, with two changes:

- The western boundary of TA 1B would be modified to accommodate the expansion of the Main Cantonment Area, which would encompass the BCT complex, National Guard and Reserve Joint Training Complex, and new RCI housing. Land use in TA 1B would continue to be Category B with Mission Facilities. Bulk fuel storage, vehicle fueling and wash racks, and other facilities supporting the BCTs could be located in that training area.
- Land use in TA 1A would be changed to category B with Mission Facilities.

Figure 3.4-3 shows land use in the South Training Areas under Alternative 1.

Construction. A Tank Crew Proficiency Course is planned to be located in the South Training Areas. There is no live fire associated with this course. Roads in the training areas would be constructed or improved.

3.4.2.2 Doña Ana Range-North Training Areas

Land Use. Under Alternative 1, land use in the Doña Ana Range-North Training Areas would be the same as the No Action Alternative, except the Assembly Area west of War Highway would be extended north to the installation boundary and designated for Off-Road Vehicle Maneuver to allow units to approach the Doña Ana Ranges tactically. **Figure 3.4-4** shows land use in the Doña Ana Range-North Training Areas under Alternative 1.

Construction. New and upgraded live-fire ranges would be constructed on Doña Ana Range, consistent with existing land use designations, to accommodate the training needs associated with the additional BCTs and to upgrade and modernize training capabilities (**Table 3.4-3**). These ranges would be similar to the existing facilities at Doña Ana Range. About 35 miles of roads within the Main Supply Route network and other roads in the training areas would be upgraded or constructed, and other auxiliary facilities and improvements would be made. War Highway may be widened to support increased movement of heavy equipment transporters. Additional facilities and living quarters would be constructed at Orogrande Range Camp. The range camp historically supported more than 1,100 personnel during training operations (Ref# 302) but currently only has quarters for 350 that are fit for occupancy. Additional quarters for approximately 1,350 personnel would be constructed, and the range camp would provide infrastructure to support up to 3,800 daytime soldiers during BCT-level exercises.

The existing airstrip at Orogrande Range Camp would be hardened to support helicopter operations by the CAB. Fuel and maintenance facilities would be constructed to enable the CAB to use the airstrip as a staging area and Forward Area Refuel Point (FARP) for training operations on McGregor Range (see Section 3.4.2.3). The FARP would include bermed areas for fuel bladders with the capacity to contain 110 percent of the fuel in the event of a breach in the bladder.

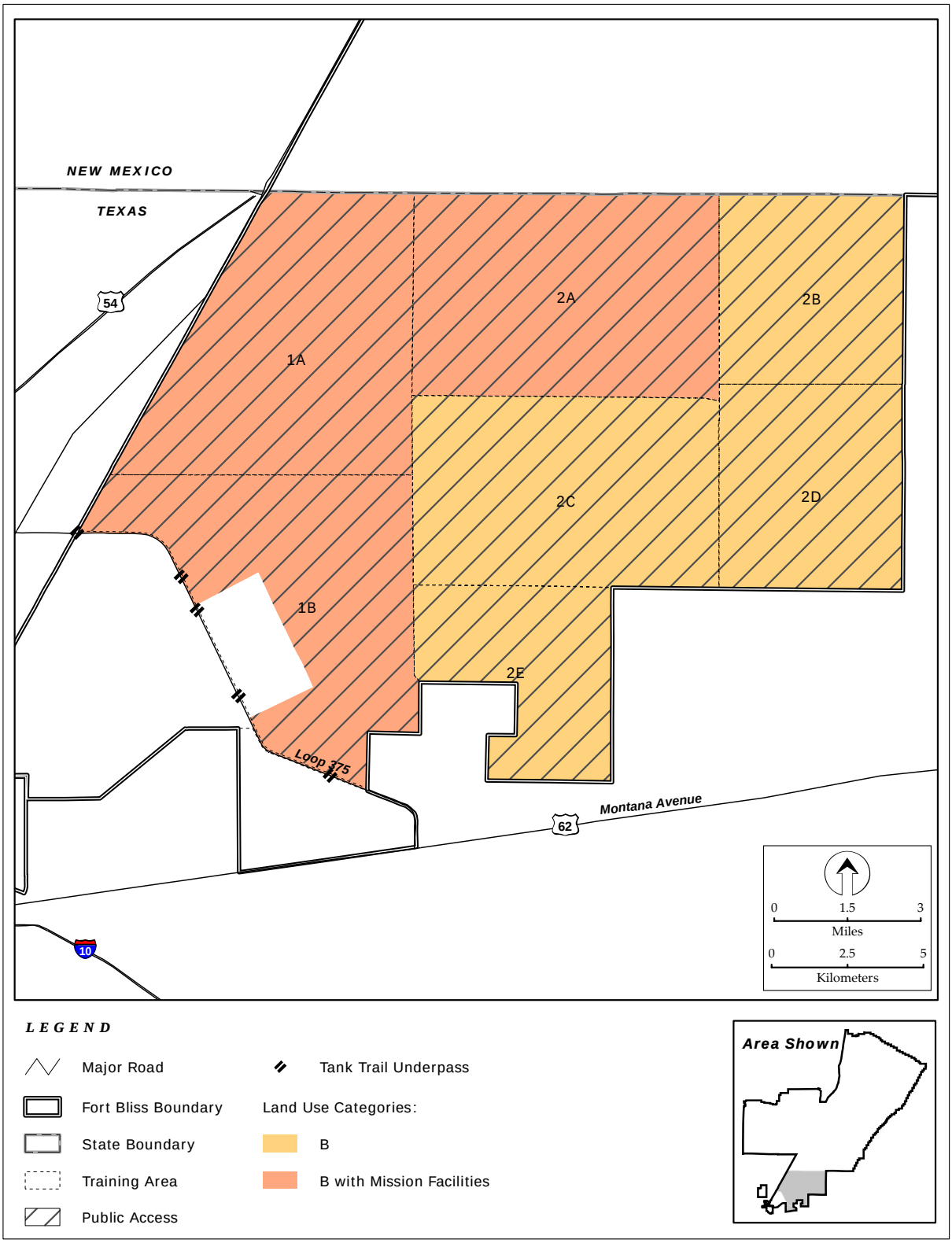

Figure 3.4-3. Training Area Land Use in the South Training Areas – Alternative 1

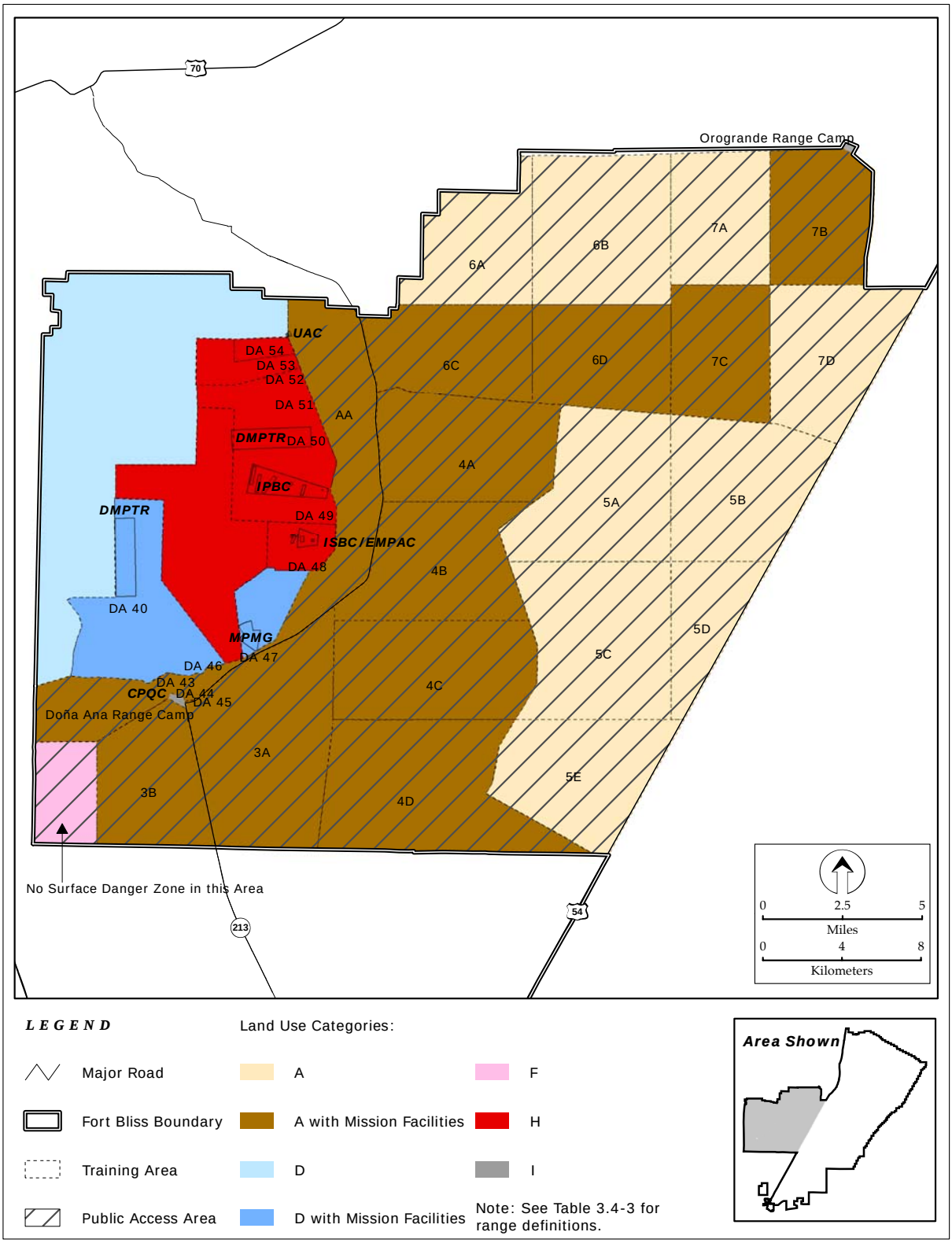

Figure 3.4-4. Training Area Land Use in the Doña Ana Range-North Training Areas — Alternative 1

Table 3.4-3. Doña Ana Range Construction – Alternative 1

Proposed Facility	*Location*	*Approximate Size*	*Purpose*
Digital Multi-Purpose Training Range (DMPTR)	DA 40	1 km by 4 km	Train and test crews and dismounted infantry squads on the skills necessary to detect, identify, engage and defeat stationary infantry and armor targets in a tactical array with live-fire, sub-caliber, and/or laser training devices.
Infantry Squad Battle Course (ISBC)	DA 48	1 km by 1 km	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.
Engineer Multi-Purpose Assault Course (EMPAC)	DA 48	Collocated with Infantry Squad Battle Course	Train and test combat engineer units to conduct unexploded ordnance clearance, demolition, breaching, urban entry, improvised explosive device clearance, route clearing, and squad fire and maneuver.
DMPTR	DA 50	1 km by 4 km	Train and test crews and dismounted infantry squads on the skills necessary to detect, identify, engage and defeat stationary infantry and armor targets in a tactical array with live-fire, sub-caliber, and/or laser training devices.

3.4.2.3 McGregor Range

Land Use. **Figure 3.4-5** shows land use on McGregor Range under Alternative 1. As it shows, changes would occur in the following training areas:

- TA 9 would be changed from land use category C with Mission Facilities to land use category A with Mission Facilities. This would add the training category of Off-Road Vehicle Maneuver to this training area.
- TAs 11 and 29 south of Highway 506, TA 30, and TA 31 would be changed from land use category C or C with Mission Facilities to land use category A with Mission Facilities to add the training categories of Off-Road Vehicle Maneuver, and in some cases Mission Support Facility, to those training areas.
- TAs 25 and 32 would be changed from land use category D or D with Mission Facilities to A with Mission Facilities to add the training category of Off-Road Vehicle Maneuver to these training areas, as well as Mission Support Facility in TA 25 (the other TAs already include the Mission Support Facility category).

In addition, dismounted training would be permitted in the McGregor Range ACEC.

Construction. Several new facilities would be constructed on McGregor Range in the Meyer Range/FAW area and new Orogrande Range Complex, and a new Digital Air Ground Integration Range (DAGIR) would be developed in the area of the old Short Range Air Defense System (SHORAD) Range (**Table 3.4-4**).

At 96 km^2, the DAGIR would be the largest new range constructed on the Fort Bliss Training Complex. It would consist of target arrays with service roads, range support buildings, parking area, range tower, convoy live-fire route, urban centers, and an area for service rocket training. Most of the target arrays, the convoy live fire route, and the urban facilities would be concentrated in a 9 km-by-6 km area within the range. The DAGIR would support aerial target engagements with onboard weapons, aerial reconnaissance, joint tactical engagements, door gunnery training, convoy operations, and training against targets located in an urban environment. Urban village centers and adjacent rural areas would be

configured to permit simultaneous, integrated operations by aircrews and ground-based forces. It would be used for both day and night training and may be used to fire rocket flares for night illumination.

McGregor Range Camp would be expanded to meet the needs of the additional brigades. New facilities would include command and control, operational facilities, roads, parking, staging, ammunition storage, communication lines, utilities, and vehicle and ammunition staging areas. About 22 miles of roads within the Main Supply Route network and other roads in the training areas would be upgraded or constructed, and control towers, assembly areas, latrines, and utilities would be provided.

Table 3.4-4. McGregor Range Construction – Alternative 1

Proposed Facility	*Location*	*Approximate Size*	*Purpose*
Convoy Live Fire Course/Entry Control Point	FAW 10 Area	300 m by 10 km	Train tactics, techniques, and procedures for organizing and protecting convoys, detecting and neutralizing improvised explosive devices, organizing and defending forward operating bases and forward arming and refueling points, and defending against mortar, rocket, and suicide bombs.
Combined Arms Collective Training Facility	Orogrande Range Complex	1.5 km by 1.5 km	Train and tests skills and unit cohesiveness necessary to conduct clearing, breaching, offensive and defensive operations in a small city and urban setting. Designed to conduct multi-echelon, full spectrum operations training up to battalion task force level. Supports blank fire, Multi-Integrated Laser Engagement System/Tactical Engagement System, Special Effects Small-Arms Marking System, situational training exercises, and field training exercises.
Digital Multi-Purpose Range Complex	Orogrande Range Complex	2.5 km by 8 km	Train and test armor, infantry, and aviation platoons on skills necessary to detect, identify, engage and defeat stationary and moving infantry and armor targets in a tactical array. Company Combined Arms Live Fire Exercises may also be conducted on this facility. Accommodates training with sub-caliber and/or laser training devices.
Urban Assault Course (2)	FAW 10 Area; Orogrande Range Complex	120 m by 150 m	Train individual soldiers, squads, and platoons on tasks necessary to operate within a built-up/urban area.
Digital Air Ground Integration Range	SHORAD	8 km by 12 km	Support air/ground integration training dictated by current operational environment and accomplish effective, relevant crew qualification. Attack helicopters and other air assets conduct hover engagements and diving attacks using HELLFIRE missiles, 2.75 inch rockets, and the 30 mm chain gun. Designed to train combined arms platoon and company size units to engage infantry and armor targets utilizing overhead aviation support.

Proposed Facility	*Location*	*Approximate Size*	*Purpose*
Zero M-16/Machine Gun Range	Orogrande Range Complex	25 m by 100 m	Train individual soldiers on skills necessary to align the sights and practice basic marksmanship against stationary targets and zeroing M16 and M4 rifles and crew-served machine guns.
Modified Record Fire (MRF) Range	Orogrande Range Complex	3 m by 320 m	Train and test individual soldiers on the skills necessary to identify, engage, and defeat stationary infantry targets for day/night qualification requirements with the M16 and M4 rifles.
Combat Pistol Qualification Course	Orogrande Range Complex	31 m by 120 m	Train and test soldiers on the skills necessary to detect, identify, engage, and defeat stationary targets in a tactical array using the 9 mm, .38 caliber, or .45 caliber pistols.
Hand Grenade Familiarization Range	Meyer Range	25 m by 50 m	Train and test individual soldiers in the employment of live fragmentation hand grenades.
Multi-Purpose Machine Gun Range	Orogrande Range Complex	8 m by 1 km	Train and test soldiers on the skills necessary to zero M249 SAW, M60 MG, M240B MG, and M2 MG weapon systems. Soldiers learn to detect, identify, engage, and defeat stationary infantry targets in a tactical array.
Upgrade Davis Dome Airstrip	Meyer Range/Davis Dome Area		Upgrade Davis Dome airstrip for unmanned aerial vehicle operations.

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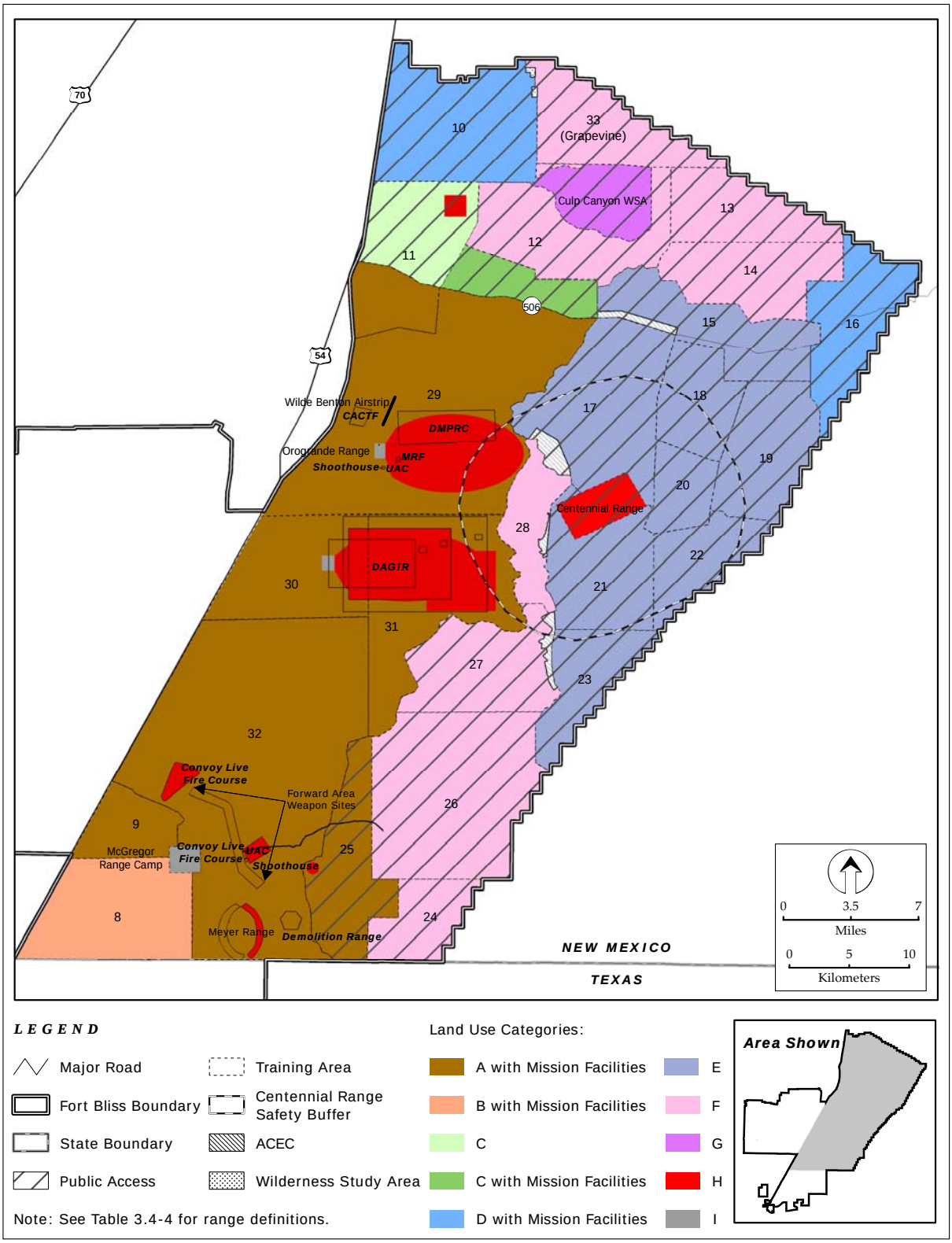

Figure 3.4-5. Training Area Land Use in McGregor Range – Alternative 1

3.5 ALTERNATIVE 2

Alternative 2 would include the land use changes and associated construction and operations described for No Action and Alternative 1 and further modify land use on McGregor Range to include the Off-Road Vehicle Maneuver training category in TAs 10, 11, part of 12, and 29 north of Highway 506. This would add approximately 280,000 acres (1,135 km^2) of area designated for Off-Road Vehicle Maneuver to land in the Fort Bliss Training Complex currently approved for that use, for a total of over 615,000 acres (2,491 km^2).

In addition, the analysis of this alternative considers the impacts associated with locating a second CAB at Biggs AAF. Although there are currently no plans for moving a second CAB to Fort Bliss, there is sufficient infrastructure and ramp space available along the Biggs AAF flightline to accommodate two CABs.

3.5.1 MAIN CANTONMENT AREA

Alternative 2 would include the land use changes and construction described for the No Action Alternative and Alternative 1. In addition, facilities would be constructed on Biggs AAF for a second CAB. This is estimated to involve approximately 1,310,000 SF of additional facilities over and above Alternative 1. The 5.1 million SF of pavement constructed for the first CAB would provide adequate ramp space for the second CAB. Other supporting facilities, including community services and housing, may also be developed.

3.5.2 FORT BLISS TRAINING COMPLEX

Figure 3.5-1 shows land use in the Fort Bliss Training Complex under Alternative 2. Land use in the South Training Areas and Doña Ana Range-North Training Areas would be the same under Alternative 2 as under Alternative 1. The following changes would be made to the land use of the training areas on McGregor Range:

- As under Alternative 1, TA 9 would be changed from land use category C with Mission Facilities to land use category A with Mission Facilities. This would add the training category of Off-Road Vehicle Maneuver to this training area.
- Land use in TA 10 would be changed from category D with Mission Facilities to category A with Mission Facilities to add Off-Road Vehicle Maneuver.
- TAs 11, 29, 30, and 31 both south and north of Highway 506 would be changed from land use category C or C with Mission Facilities to land use category A with Mission Facilities to add the training categories of Off-Road Vehicle Maneuver, and in some cases Mission Support Facility, to those training areas.
- Land Use in the western portion of TA 12 would change from category F to category A with Mission Facilities, adding the training categories of Off-Road Vehicle Maneuver, Mission Support Facility, and Weapons Firing to this area.
- As under Alternative 1, TAs 25 and 32 would be changed from land use category D or D with Mission Facilities to A with Mission Facilities to add the training category of Off-Road Vehicle Maneuver to those training areas, as well as Mission Support Facility in TA 25.

Enabling off-road vehicle maneuvers in the north Tularosa Basin portion of McGregor Range would provide the capability to perform movement-to-contact, force-on-force training not otherwise available on the Fort Bliss Training Complex, in addition to increasing maneuver capacity. With the addition of approximately 1,135 km^2 of area designated for Off-Road Vehicle Maneuver on McGregor Range, total off-road vehicle maneuver training capability would be increased to approximately 603,000 km^2d.

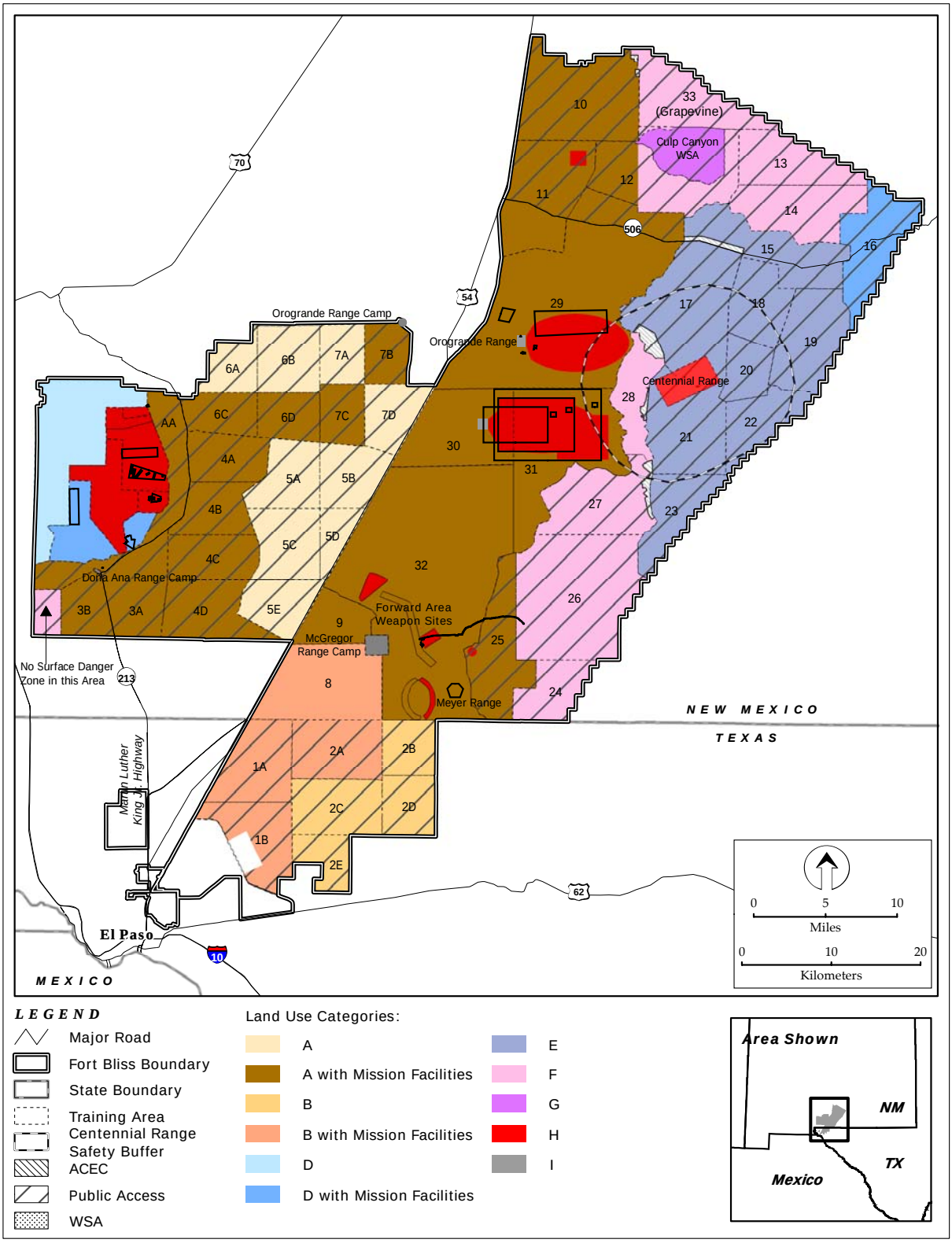

Figure 3.5-1. Fort Bliss Training Complex Land Use – Alternative 2

As noted for Alternative 1, most platoon- and company-level training would likely occur in the TAs closest to the Main Cantonment Area, in the North and South Training Areas and TAs 8 and 9 of McGregor Range.

Those areas would therefore be expected to experience somewhat heavier use than TAs 29, 30, 31, and 32. Maneuver and live-fire range training are frequently combined, so it can be expected that more of the off-road vehicle maneuvers would be concentrated around and near the range complexes and range camps than in more remote training areas.

Thus, the entire south Tularosa Basin portion of McGregor Range can be expected to experience relatively constant use near McGregor Range Camp and the Orogrande Range Complex, compared to the more remote TAs in the north Tularosa Basin portion of the range. As training demand increases, however, utilization levels would also increase in the northern TAs.

Table 3.5-1 presents the estimated level of use in various TAs under Alternative 2, considering both currently defined requirements and full capability. The percent of use reflects the days in the year that the TAs would be used out of a total of 365. Full military use assumes 242 training days per year, which is 66 percent of 365 days. These estimates are based on general expectations of training preferences. Actual use would vary depending on numerous influences, such as demand from on-post and off-post units, deployment schedules, competition from other uses such as missile firings and dismounted training, changes in training doctrine, and other factors.

Table 3.5-1. Estimated Training Area Use – Alternative 2

Grouping	*Training Areas*[1]	*Percent of Use*[2]	
		Off-Road Vehicle Maneuver[3]	*Other Uses*[4]
South Training Areas	1A, 1B, 2A, 2B, 2C, 2D, 2E	65-66%	5-20%
North Training Areas	3A, 3B, 4A, 4B, 4C, 4D, 5A, 5B, 5C, 5D, 5E, 6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D, AA[5]	65-66%	5-20%
TA 8	8	65-66%	5-20%
McGregor Range, South Tularosa Basin	9, 25, 30, 31, 32, 11 and 29 south of Highway 506	55-66%	10-30%
McGregor Range, North Tularosa Basin	10, 11 and 29 north of Highway 506, west half of 12	25-45%	20-30%
McGregor Range, Southeast TAs	24, 26, 27	0	45-66%
Remainder of McGregor Range	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 28, 33, east half of 12	0	20-66%[6]

1. See Figure 3.5-1.
2. Percent of days out of a total of 365. Does not account for concurrent, non-exclusive use of the training area.
3. Ranges from the training requirements of four Heavy BCTs, other BRAC units, and mobilization mission, up to standard full military use at 242 training days per year.
4. Other uses include Weapons Firing, Surface Impact, SDZ/Safety Footprint, On-Road Vehicle Maneuver, Controlled Access FTX, and Dismounted Training.
5. AA is the unnumbered Assembly Area.
6. Does not include Centennial Range, which is used on an intermittent basis.

Use of the training areas north of Highway 506 would require tanks and other military vehicles to cross the highway. Sections of the highway would be hardened to support heavy tracked vehicles, and these hardened sections would become crossing locations for military convoys. Highway 506 could be temporarily closed to public through traffic at the crossing points during training exercises. Military

vehicles in a convoy move in "march units" of about 20-25 vehicles, with a gap of approximately 5 minutes between units. Therefore, the length of time that traveling on Highway 506 may be detained would typically be 15 minutes or less before they would be cleared to pass during the gap between march unit crossings. Soldiers would provide traffic control to ensure safety during any crossings of Highway 506. Fort Bliss would notify the Otero County Administrator of any closures of Highway 506.

The demand for vehicle maneuver training would leave about 42 days of the standard 242 days for large missile firings and other uses. For comparison, large missile firings alone used 76 days in 2004. Therefore, these other uses would have to be scheduled around the BCT training or outside the standard 242 days. Small missile firings would be less constrained because of the ability to limit the extent of the SDZ to a portion of TA 32 and the southeast TAs.

It is reasonable to assume that conducting off-road vehicle maneuver training in the TAs north of Highway 506 and in the vicinity of the new ranges in the Orogrande Range Complex, which are relatively remote from the Main Cantonment Area, could create a need for additional support facilities in those areas and at Orogrande Range Camp. 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 training areas.

3.6 ALTERNATIVE 3

Alternative 3 would include the land use changes and associated construction and operations described for the No Action Alternative and Alternative 1 and further modify land use on McGregor Range to include the Off-Road Vehicle Maneuver training category in TAs 24, 26, and 27. These changes, including those indicated for Alternative 1, would add approximately 287,000 acres (1,163 km^2) of area designated for Off-Road Vehicle Maneuver to land in the Fort Bliss Training Complex currently approved for that use, for a total of over 622,000 acres (2,519 km^2). In addition, land use in all TAs that include Off-Road Vehicle Maneuver would be modified to also include Mission Support Facility, Weapons Firing, and SDZ/Safety Footprint.

3.6.1 MAIN CANTONMENT AREA

In the Main Cantonment Area, Alternative 3 would include the land use changes and construction described for the No Action Alternative and Alternatives 1 and 2, including development for a second CAB at Biggs AAF and additional supporting facilities such as community services and housing.

3.6.2 FORT BLISS TRAINING COMPLEX

Figure 3.6-1 shows land use in the Fort Bliss Training Complex under Alternative 3. This alternative includes the following land use changes:

- The land use of all TAs in the South Training Areas would be changed from categories B and B with Mission Facilities to category A with Mission Facilities, adding the training categories of Weapons Firing and SDZ/Safety Footprint, and in some cases Mission Support Facility, to those TAs. Any firing ranges developed in the TAs would be located in accordance with safety criteria.
- The Mission Support Facility category would be also added to TAs 5A, 5B, 5C, 5D, 5E, 6A, 6B, 7A, and 7D in the North Training Areas.
- As under Alternatives 1 and 2, TA 9 would be changed from land use category C with Mission Facilities to land use category A with Mission Facilities.
- As under Alternative 1, TAs 11 and 29 south of Highway 506, TA 30, and TA 31 would be changed from land use category C or C with Mission Facilities to land use category A with Mission Facilities.
- Also as under Alternative 1, TAs 25 and 32 would be changed from land use category D or D with Mission Facilities to A with Mission Facilities.
- TAs 24, 26, and 27 would be changed from category F to category A with Mission Facilities.

Enabling off-road vehicle maneuver training in the southeast TAs would provide more varied training opportunities than available in other parts of the Fort Bliss Training Complex, in addition to increasing maneuver capacity. With the addition of approximately 1,163 km^2 of area designated for Off-Road Vehicle Maneuver on McGregor Range, total off-road vehicle maneuver training capability would be increased to approximately 610,000 km^2d. As noted for Alternatives 1 and 2, most platoon- and company-level training would likely occur in the TAs closest to the Main Cantonment Area, in the North and South Training Areas and TAs 8 and 9 of McGregor Range. TAs 29, 30, 31, and 32 would also likely receive relatively high use due to the proximity of McGregor Range Camp and the Orogrande Range Complex. The more remote southeast training areas of McGregor Range (TAs 24, 26, and 27) would likely receive less use, although as training demand increases, utilization levels would also increase in those TAs.

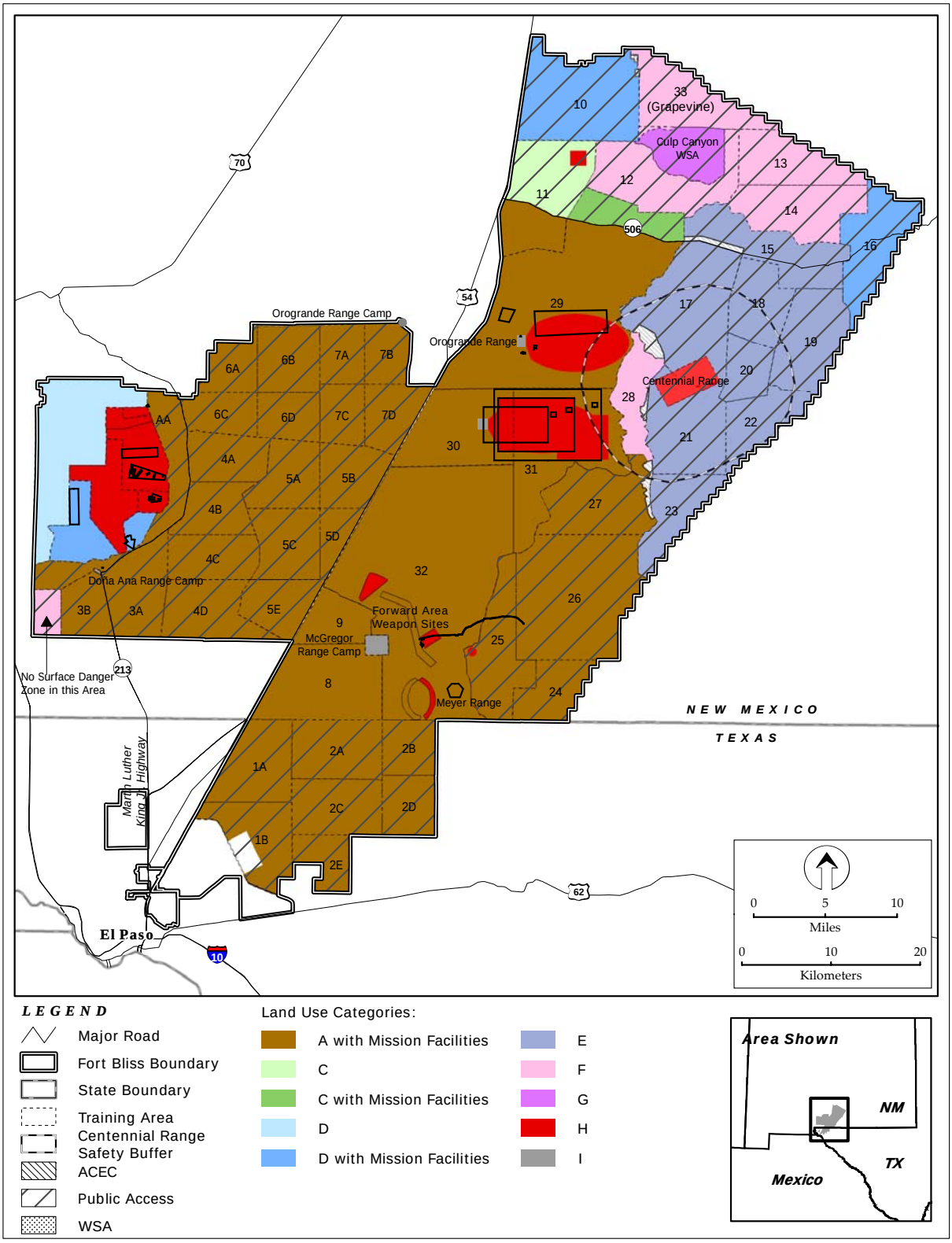

Figure 3.6-1. Fort Bliss Training Complex Land Use – Alternative 3

Table 3.6-1 presents the range in level of use in various TAs under Alternative 3, considering both currently defined requirements and full capability. The percent of use reflects the days in the year that the TAs would be used out of a total of 365. Standard full military use assumes 242 training days per year, which is 66 percent of 365 days. As noted for Alternative 2, these estimates are based on general expectations of training preferences. Actual use would vary depending on numerous influences, such as demand from on-post and off-post units, deployment schedules, competition from other uses such as missile firings and dismounted training, changes in training doctrine, and other factors.

Table 3.6-1. Estimated Training Area Use – Alternative 3

Grouping	*Training Areas*[1]	*Percent of Use*[2]	
		Off-Road Vehicle Maneuver[3]	*Other Uses*[4]
South Training Areas	1A, 1B, 2A, 2B, 2C, 2D, 2E	65-66%	5-20%
North Training Areas	3A, 3B, 4A, 4B, 4C, 4D, 5A, 5B, 5C, 5D, 5E, 6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D, AA[5]	65-66%	5-20%
TA 8	8	65-66%	5-20%
McGregor Range, South Tularosa Basin	9, 25, 30, 31, 32, 11 and 29 south of Highway 506	55-66%	10-30%
McGregor Range, North Tularosa Basin	10, 11 and 29 north of Highway 506, west half of 12	0	20-66%
McGregor Range, Southeast TAs	24, 26, 27	20-40%	35-45%
Remainder of McGregor Range	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 28, 33, east half of 12	0	20-66%[6]

1. See Figure 3.6-1.
2. Percent of days out of a total of 365. Does not account for concurrent, non-exclusive use of the training area.
3. Ranges from the training requirements of four Heavy BCTs, other BRAC units, and mobilization mission, up to standard full military use at 242 training days per year.
4. Other uses include Weapons Firing, Surface Impact, SDZ/Safety Footprint, On-Road Vehicle Maneuver, Controlled Access FTX, and Dismounted Training.
5. AA is the unnumbered Assembly Area.
6. Does not include Centennial Range, which is used on an intermittent basis.

The demand for vehicle maneuver training would leave about 42 days of the standard 242 days for missile firings and other uses. These other uses would have to be scheduled around the BCT training or outside the standard 242 days.

It is reasonable to assume that conducting off-road vehicle maneuver training in TAs 24, 26, and 27, which are relatively remote from the Main Cantonment Area, could create a need for additional support facilities at McGregor Range Camp.

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3.7 ALTERNATIVE 4 – PROPOSED ACTION

Alternative 4, the Proposed Action, would include all the land use changes of Alternatives 1, 2, and 3, adding a total of approximately 352,000 acres (1,424 km^2) designated for Off-Road Vehicle Maneuver to land in the Fort Bliss Training Complex already approved for that use, for a total capability of almost 687,000 acres (2,780 km^2). In addition, land use in all TAs that include Off-Road Vehicle Maneuver would be modified to also include Mission Support Facility, Weapons Firing, and SDZ/Safety Footprint.

For this SEIS, the Proposed Action considers the possibility that two additional BCTs could be located at Fort Bliss some time in the future. The Army does not currently have plans to station more units at Fort Bliss other than those identified in Chapter 1, but the possibility of additional units coming to Fort Bliss is a reasonably foreseeable consequence of providing the proposed increased training capability at the installation. Therefore, the personnel, equipment, and facilities development associated with a total of six BCTs have been incorporated in the analysis of the Proposed Action, assuming that two of the BCTs would likely be deployed at any given time, and only four would be training at Fort Bliss. Training by other units stationed at Fort Bliss and in support of the mobilization mission would also continue.

3.7.1 MAIN CANTONMENT AREA

Under Alternative 4, development in the Main Cantonment Area would include all facilities listed for the No Action Alternative and Alternatives 1, 2, and 3. In addition, for analysis purposes, it is assumed that the facilities and infrastructure associated with two additional BCTs would be developed some time in the future beyond 2010, after the currently planned construction has been completed.

Because there are currently no plans for two additional BCTs at Fort Bliss, no specific projects have been identified for this expansion. For analysis purposes, the additional future construction is assumed to be east of Loop 375 and comparable to the development currently planned for each BCT. This would involve an area of approximately 600 acres, 2.6 million SF of facilities, and 4 million SF of pavement. Additional family housing and community support facilities might also be constructed, likely in the same general area as the currently planned RCI development.

3.7.2 FORT BLISS TRAINING COMPLEX

Alternative 4 would include all the land use changes, range enhancements, and utilization projected for Alternatives 1, 2, and 3. **Figure 3.7-1** presents land use in the Fort Bliss Training Complex for the Proposed Action.

With the addition of a total of 1,424 km^2 of area designated for Off-Road Vehicle Maneuver on McGregor Range to land already approved for that use, the Fort Bliss Training Complex would provide the capability for almost 673,000 km^2d, based on 242 training days per year. As noted for Alternative 1, most platoon-level training would likely occur in the TAs closest to the Main Cantonment Area, in the North and South Training Areas and TAs 8 and 9 of McGregor Range. TAs 29, 30, 31, and 32 can also be expected to experience relatively constant use because of the proximity of McGregor Range Camp and the Orogrande Range Complex. The more remote TAs in the north Tularosa Basin portion of the range and in the southeast TAs would likely experience relatively less use, although as training demand increases, utilization levels would also increase in those TAs. In particular, if two additional BCTs were to be stationed at Fort Bliss, the need for off-road vehicle maneuver training could bring the use of all the TAs approved for that training category closer to full capability.

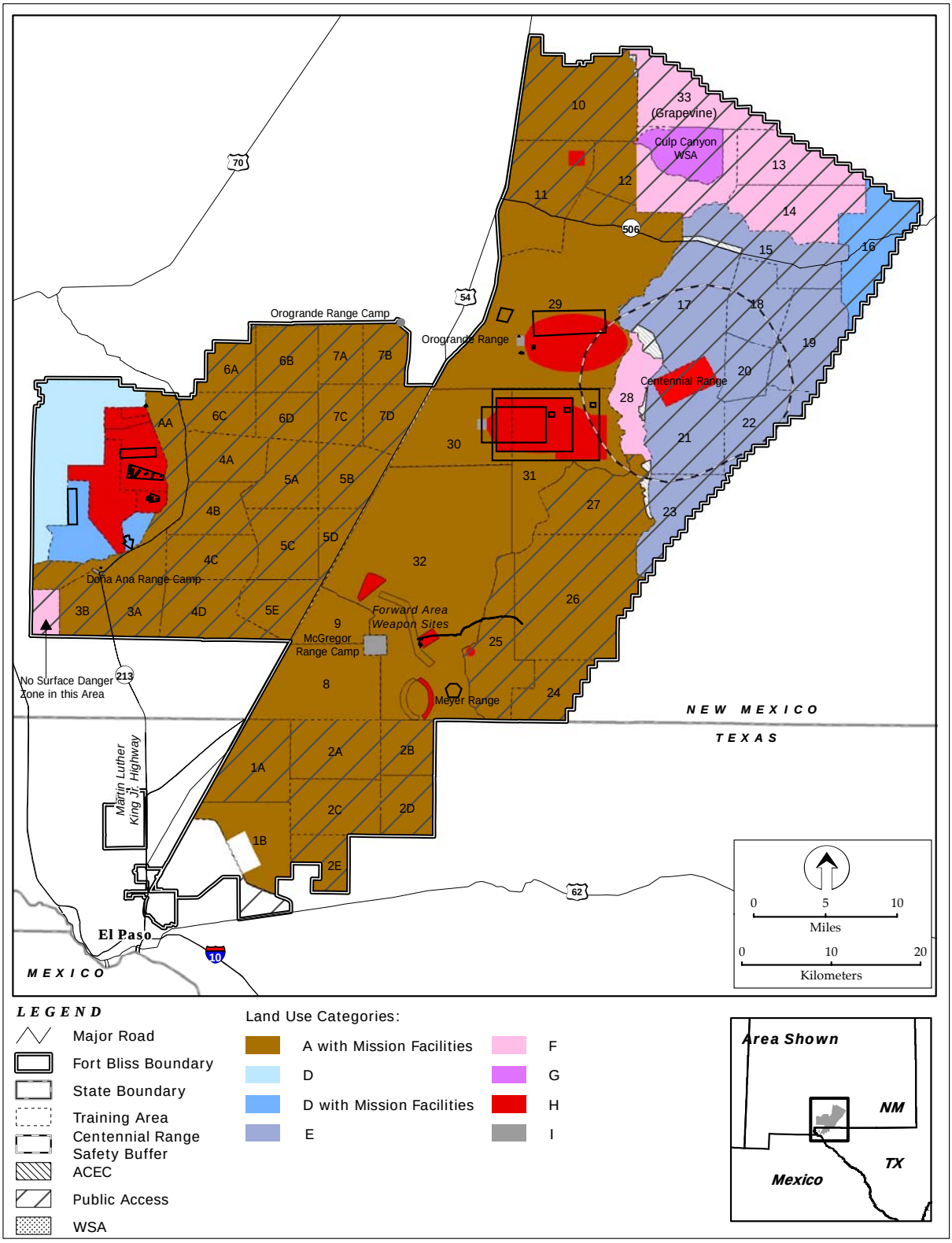

Figure 3.7-1. Fort Bliss Training Complex Land Use – Alternative 4 (Proposed Action)

Table 3.7-1 presents the range in level of use in various TAs under Alternative 4, considering both currently defined requirements and full capability. The percent of use reflects the days in the year that the TAs would be used out of a total of 365. Standard full military use assumes 242 training days per year, which is 66 percent of 365 days. As noted for Alternatives 2 and 3, these estimates are based on general expectations of training preferences. Actual use would vary depending on numerous influences, such as demand from on-post and off-post units, deployment schedules, competition from other uses such as missile firings and dismounted training, changes in training doctrine, and other factors.

Table 3.7-1. Estimated Training Area Use – Proposed Action

Grouping	*Training Areas*[1]	*Percent of Use*[2]	
		Off-Road Vehicle Maneuver[3]	*Other Uses*[4]
South Training Areas	1A, 1B, 2A, 2B, 2C, 2D, 2E	65-66%	5-20%
North Training Areas	3A, 3B, 4A, 4B, 4C, 4D, 5A, 5B, 5C, 5D, 5E, 6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D, AA[5]	65-66%	10-20%
TA 8	8	65-66%	10-20%
McGregor Range, South Tularosa Basin	9, 25, 30, 31, 32, 11 and 29 south of Highway 506	50-66%	15-30%
McGregor Range, North Tularosa Basin	10, 11 and 29 north of Highway 506, west half of 12	20-50%	25-45%
McGregor Range, Southeast TAs	24, 26, 27	20-50%	40-45%
Remainder of McGregor Range	13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 28, 33, east half of 12	0	25-66%[6]

1. See Figure 3.7-1.
2. Percent of days out of a total of 365. Does not account for concurrent, non-exclusive use of the training area.
3. Ranges from the training requirements of four Heavy BCTs, other BRAC units, and mobilization mission, up to six Heavy BCTs or standard full military use at 242 training days per year.
4. Other uses include Weapons Firing, Surface Impact, SDZ/Safety Footprint, On-Road Vehicle Maneuver, Controlled Access FTX, and Dismounted Training.
5. AA is the unnumbered Assembly Area.
6. Does not include Centennial Range, which is used on an intermittent basis.

The off-road vehicle training demand of just the four Heavy BCTs, other BRAC units, and mobilization mission would leave about 60 days for large missile firings and other uses. In addition to providing additional off-road vehicle maneuver capability, capacity, and variety, the Proposed Action would maximize opportunities for both large and small missile firings and other uses.

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3.8 ALTERNATIVES CONSIDERED BUT NOT CARRIED FORWARD FOR FULL ANALYSIS

This section briefly summarizes alternatives that were considered and eliminated from the scope and decision-making of this document.

3.8.1 OFF-ROAD VEHICLE MANEUVER ON OTERO MESA

This alternative was eliminated from further consideration in this SEIS because of constraints posed by the Centennial Range and potential impacts on public use of Otero Mesa, including grazing and recreation. From a training perspective, Otero Mesa would not offer appreciably different terrain conditions from the Tularosa Basin area of McGregor Range. The additional capability that would be provided by opening the training areas in the Tularosa Basin portion of the range to off-road vehicle maneuver would be adequate to meet current and currently foreseeable training requirements without also expanding off-road vehicle maneuver training to Otero Mesa. Furthermore, during times that Centennial Range is in use, the associated safety buffer would present a barrier to ground maneuvers and substantially reduce the availability of some or all of TAs 17, 18, 19, 20, 21, 22, and 28.

3.8.2 OFF-ROAD VEHICLE MANEUVER IN SACRAMENTO MOUNTAINS

This alternative was eliminated from further consideration in this SEIS because of the terrain conditions in the Sacramento Mountains. The slopes are generally too steep to support off-road vehicle maneuver training by heavy tracked vehicles.

3.8.3 OFF-ROAD VEHICLE MANEUVER ON OFF-POST LAND

Use of off-post land for maneuver training, through acquisition, withdrawal, or other means, was not considered reasonable, given the availability of land in the Fort Bliss Training Complex. In addition, the time required to obtain access to sufficient off-post areas would not support the BRAC relocation schedule of the Heavy BCTs and other units coming to Fort Bliss. Although meeting a large proportion of the additional off-road vehicle maneuver training requirement through acquisition of additional land is not considered reasonable, the Army continues to consider smaller land exchanges to improve the utility and efficiency of the Fort Bliss Training Complex. For example, Fort Bliss is discussing a land exchange in the South Training Areas to prevent encroachment and ensure that areas adjacent to maneuver training are not developed with incompatible land uses.

3.8.4 NO INCREASE IN MANEUVER CAPABILITY TO SUPPORT BRAC AND IGPBS CHANGES

The No Action Alternative analyzed in this SEIS does not include the stationing changes mandated by the BRAC and IGPBS decisions that were not previously assessed under NEPA. It includes development and training for one Heavy BCT because those actions have been previously assessed. An alternative that would bring the four Heavy BCTs and other BRAC-mandated units to Fort Bliss without making any land use changes to accommodate them was eliminated from consideration as unreasonable because it would not be able to meet the minimum infrastructure or training requirements of those units. As described in Section 1.3.5, Army training requirements for these units generate a need for approximately 528,000 km^2d of off-road vehicle maneuver capability. The areas of Fort Bliss currently approved for off-road vehicle maneuver in the South Training Areas, North Training Areas, and TA 8 provide a total of about 328,000 km^2d of standard full military use (242 days per year). Even if they were scheduled 365 days per year, the total capacity, less than 495,000 km^2d, would fall short of the need. This alternative was therefore determined to be unreasonable because it would not meet the Army's needs.

3.8.5 CONDUCTING OFF-ROAD VEHICLE MANEUVERS AT WHITE SANDS MISSILE RANGE

This alternative is not considered reasonable. White Sands Missile Range (WSMR) has no area approved for off-road vehicle maneuver training. The installation's priority mission is Research, Development, Test, and Evaluation. Training of the magnitude and intensity needed to support units at Fort Bliss would interfere with that mission.

3.9 COMPARISON OF ALTERNATIVES

Table 3.9-1 presents key attributes of the five alternatives in comparative form. The environmental consequences of the five alternatives are summarized in comparative form in **Table 3.9-2**.

Table 3.9-1. Key Attributes of the Alternatives

Attribute	*No Action Alternative*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 – Proposed Action*
Military personnel[1]	13,800	30,000	32,700	32,700	40,300
Total personnel[2]	30,000	47,500	50,200	50,200	57,800
Military dependents	22,800	49,500	54,000	54,000	66,500
Primary additional equipment	900 wheeled and 360 tracked vehicles	3,900 wheeled and 1,640 tracked vehicles; 110 helicopters	4,460 wheeled and 1,640 tracked vehicles; 220 helicopters	4,460 wheeled and 1,640 tracked vehicles; 220 helicopters	6,260 wheeled and 2,360 tracked vehicles; 220 helicopters
Area of additional development in Main Cantonment Area	1,500 acres	4,000 acres	4,300 acres	4,300 acres	4,900 acres
Additional building construction in Main Cantonment Area	6.5 million SF	21.9 million SF	23.2 million SF	23.2 million SF	25.8 million SF
Area of disturbance for construction in Main Cantonment Area	1,000 acres	3,400 acres	3,700 acres	3,700 acres	4,300 acres
Additional impervious surface in Main Cantonment Area	330 acres	1,300 acres	1,450 acres	1,450 acres	1,600 acres
Additional Off-Road Vehicle Maneuver area	0	216,000 acres (875 km^2)	280,000 acres (1,135 km^2)	287,000 acres (1,163 km^2)	352,000 acres (1,424 km^2)
Total Off-Road Vehicle Maneuver area	335,000 acres (1,356 km^2)	551,000 acres (2,230 km^2)	615,000 acres (2,491 km^2)	622,000 acres (2,519 km^2)	687,000 acres (2,780 km^2)
Total Annual Off-Road Vehicle Maneuver training capability (military standard)	328,000 km^2days	540,000 km^2days	603,000 km^2days	610,000 km^2days	673,000 km^2days

Note: All numbers are approximate.

1. Active duty, permanent party U.S. military assigned to Fort Bliss.
2. includes non-U.S. military, civilian employees, students, and temporary duty personnel.

SF = Square foot; km^2 = square kilometers

6 **Table 3.9-2. Summary Comparison of the Environmental Consequences of the Alternatives**

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
Land Use	No change in land use designations on Fort Bliss or in non-military use of training areas. Off-post areas adjacent to North and South Training Areas could be exposed to increased noise and dust. Development for one Heavy BCT will make Biggs AAF appear more urbanized.	Main Cantonment Area land use changed to mixed use designation. Major new development on about 4,000 acres of the Main Cantonment Area. Change in land use designation of south Tularosa Basin portion of McGregor Range and more visible development of ranges. Non-military uses not expected to be greatly affected. Additional personnel and related population increase would increase development in the City of El Paso. Open space would be converted to more urban use. Rural communities in El Paso and Doña Ana Counties likely to become more developed.	Main Cantonment Area effects similar to Alternative 1. Development for a second CAB consistent with existing land use and visual character of Biggs AAF. Off-road vehicle maneuvers on McGregor Range north of Highway 506 would affect visual character of landscape and, depending on level of use, may eventually affect productivity of the land to support grazing.	Main Cantonment Area effects same as Alternatives 1 and 2. Off-road vehicle maneuvers in southeast training areas of McGregor Range would affect visual character of landscape.	Same as Alternatives 1, 2, and 3 combined. In addition, Main Cantonment Area could become more developed, and population growth associated with the potential stationing of two additional BCTs could further increase development and urbanization of surrounding off-post communities.
Main Cantonment Area Infrastructure	Increased traffic in vicinity of Main Cantonment Area not expected to significantly affect level of service on roadways. Utilities and energy demand well within the capacity of service providers.	Increased traffic in vicinity of Main Cantonment Area would reduce level of service on some roadways, but only one segment of U.S. Highway (US) 54 would degrade to unacceptable level by 2021. Population increase would represent 20 percent of EPWU's demand for potable water. Additional wastewater generation by increased population in combination with baseline population growth in El Paso estimated to exceed existing treatment capacity by approximately 7 percent. If new on-post landfill is constructed, solid waste generation	Same as Alternative 1 with marginal increase in traffic and utilities and energy demand associated with second CAB. Roadway level of service would decline to unacceptable level on two additional roadway segments by 2021. Population increase would represent 22 percent of EPWU's demand for potable water. Increased wastewater generation	Same as Alternative 2.	Same as Alternatives 1, 2, and 3. Level of service on another segment of US 54 would decline to unacceptable level. Population increase would represent 28 percent of EPWU's demand for potable water. Increased wastewater generation in El Paso estimated to exceed existing capacity by approximately 13 percent. Additional

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
		from new family housing and increased off-post population is estimated to shorten life of Clint Landfill by about 1.4 years. If new on-post landfill is not constructed, increase in solid waste is estimated to shorten life of Clint Landfill by about 1.7 years.	in El Paso estimated to exceed existing treatment capacity by approximately 8 percent. Increased solid waste generation estimated to shorten life of Clint Landfill by about 1.6 years if new on-post landfill is constructed and 1.9 years if new on-post landfill is not constructed. Increased capacity needed in natural gas feeders to Main Cantonment Area.		population increase estimated to reduce the life of the Clint Landfill by about 2.2 years if new on-post landfill is constructed and 2.6 years if new on-post landfill is not constructed.
Training Area Infrastructure	Wastewater treatment facilities at Doña Ana and McGregor Range Camps require expansion and upgrading, including lining, to increase capacity. Size of four culverts at Orogrande Range Camp needs to be increased.	Same improvements needed as No Action Alternative. Military convoys to Doña Ana Range-North Training Areas would reduce level of service on Martin Luther King, Jr. Boulevard/New Mexico Highway 213. Military convoy traffic on US 54 not expected to affect level of service. More frequent solid waste collection and delivery of liquefied petroleum gas needed due to increased use of range camps.	Same as Alternative 1. Highway 506 would be occasionally and temporarily closed for military vehicle crossings; delays expected to last 15 minutes or less. Orogrande pipeline in north McGregor Range would need to be protected from damage by heavy tracked vehicles.	Same as Alternative 1.	Same as Alternative 2.

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
Airspace Use and Management	No impact.	Increase in helicopter and unmanned aerial vehicle operations not expected to affect airspace use or management.	Same as Alternative 1. Additional helicopter operations not expected to affect airspace use or management.	Same as Alternative 2.	Same as Alternative 2.
Earth Resource	Minor, temporary increase in soil erosion potential from construction in Main Cantonment Area. Off-road vehicle maneuvers not expected to change soil conditions significantly in North and South Training Areas and TA 8.	Temporary increase in soil erosion from construction in Main Cantonment Area. Significant increase in wind erosion potential in south Tularosa Basin portion of McGregor Range from range construction and off-road vehicle maneuvers. Heavily used areas would be vulnerable to down-wind soil transport. Down-wind vegetation could become covered, leading to further desertification. Vegetation cover in less heavily used areas likely to become patchy.	Same as Alternative 1, with extension of off-road vehicle maneuvers, and resulting increase in soil erosion, into training areas north of Highway 506.	Same as Alternative 1, with extension of off-road vehicle maneuvers, and resulting increase in soil erosion, into TAs 24, 26, and 27 on McGregor Range, which are also susceptible to moderate to severe water erosion.	Same as Alternatives 1, 2, and 3 combined.
Air Quality	Emissions from construction, vehicle combustion, and training not expected to significantly affect air quality.	Higher emissions from construction, vehicle combustion, and training operations than No Action Alternative; resulting air pollutant concentrations not expected to exceed National Ambient Air Quality Standards. Increase in off-road vehicle maneuvers would result in increased fugitive dust generation. Particulate levels at installation boundary would be well below air quality standards.	Similar to Alternative 1 with slight increase in emissions.	Similar to Alternative 2.	Similar to Alternative 1, 2, and 3 with increased emissions and fugitive dust associated with additional BCTs and associated off-road vehicle maneuver training.

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
Water Resources	Additional water demand within existing planned capacity of water purveyors.	Increase in demand for potable water in combination with baseline population growth in El Paso area estimated to consume 97 percent of EPWU's available resources by 2015. Potential short-term increase in pumpage of groundwater from the Hueco Bolson to meet need while EPWU plans for alternative sources are put in place. Tularosa Basin not expected to be adversely affected.	Increase in demand for potable water in combination with baseline population growth in El Paso area estimated to consume 99 percent of EPWU's available resources by 2015.	Same as Alternative 2.	Increase in demand for potable water in combination with baseline population growth in El Paso area estimated to exceed EPWU's available resources by 3 percent, requiring acceleration of EPWU plans to obtain additional supplies.
Biological Resources	No significant impacts expected. Some loss of breeding bird habitat in Main Cantonment Area.	Construction in Main Cantonment Area would reduce breeding bird habitat and likely to affect nests and displace birds. Off-road vehicle maneuvers in south Tularosa Basin portion of McGregor Range would have moderate impact on vegetation and wildlife. Areas affected are dominated by mesquite coppice dunes and other shrubland vegetation communities, which are common on Fort Bliss. Vegetation cover likely to become more patchy with herbaceous species, which could lead to less wildlife density. A small portion of the affected area susceptible to additional coppice dune formation. Impacts on sensitive species not anticipated to jeopardize regional populations.	Similar to Alternative 1 with impacts extended to eastern portion of Main Cantonment Area and areas north of Highway 506.	Same as Alternative 1 for Main Cantonment Area, North and South Training Areas, and south Tularosa Basin portion of McGregor Range. Habitat in southeast training areas of McGregor Range (TAs 24, 26, and 27) dominated by grasslands with higher species richness. Intensive off-road vehicle maneuver training could ultimately change vegetative cover and ecological state of those TAs. Sensitive species not expected to be significantly affected.	Same as Alternatives 1, 2, and 3 combined.

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
Cultural Resources	Significant impacts reduced or mitigated in accordance with Programmatic Agreement and ICRMP.	Significant impacts reduced or mitigated in accordance with Programmatic Agreement and ICRMP. Some loss of archaeological resources in training areas likely but would be managed as provided for in the Programmatic Agreement. Increased risk of uncovering previously unknown cultural resources during construction.	Same as Alternative 1 with potential for loss of archaeological resources in the north Tularosa Basin portion of McGregor Range.	Same as Alternative 1 with potential for loss of archaeological resources in southeast training areas of McGregor Range.	Same as Alternatives 1, 2 and 3 combined.
Noise	Increase in noise from large caliber weapons firing at Doña Ana Range and southern end of McGregor Range.	Expansion of noise contours associated with large caliber weapons firing at Doña Ana Range and McGregor Range, including new Orogrande Range Complex. No significant impact from increased helicopter operations at Biggs AAF. Additional noise from helicopters crossing US 54 from Orogrande Range Camp to McGregor Range. Off-road vehicle maneuvers would generate elevated noise levels near maneuver areas during use. Elevated noise from military vehicle convoys could extend out approximately 2,000 feet from roadways.	Same as Alternative 1.	Same as Alternative 1.	Further expansion of noise contours associated with large caliber weapons firing at Doña Ana and McGregor Ranges.

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
Safety	Negligible increase in chance of Class A mishap.	Minor increase in chance of Class A mishap. Slight potential increased risk of wildfires not significant due to low fuel load in the Tularosa Basin and prevention, detection, and response procedures in Range SOP.	Same as Alternative 1 with slight increased risk of Class A mishaps with second CAB.	Same as Alternatives 1 and 2. Higher risk of wildfires in grasslands of the southeast training areas.	Same as Alternatives 1, 2, and 3. Additional increase in chance of Class A mishap but probability still low. Risk of wildfires highest in southeast training areas.
Hazardous Materials and Items of Special Interest	Minor increase in hazardous waste generation and risk of release of hazardous materials or waste.	Additional increase of hazardous waste generation and risk of release of hazardous materials or waste manageable through existing procedures.	Same as Alternative 1 with slightly higher generation of hazardous waste with second CAB.	Same as Alternative 2.	Same as Alternative 1 with somewhat higher generation of hazardous waste with second CAB and two additional BCTs.
Socioeconomics	Minor increase in population, economic activity, and demand for housing and community services.	Significant increase in population growth in El Paso County. Annual population growth rate estimated to increase from less than 3 percent to more than 4 percent over next five years. Significant beneficial impact on economic activity and tax revenues in the City of El Paso and El Paso County. Short-term significant increase in military construction may create a risk of "boom-bust" effects. Demand for additional housing may out pace ability of local market to respond, resulting in increased housing prices. El Paso school districts, law enforcement and fire protection, and medical services would require	Same as Alternative 1 with potential for additional socioeconomic effects from construction and population increase with second CAB. Additional population could further stress housing market and community services.	Same as Alternative 2.	In addition to impacts described for Alternative 2, potential for extended socioeconomic effects from construction and population increase with two additional BCTs. Additional military construction could reduce or defer risk of "bust" effect. Additional population growth could further stress housing market and community services.

Resource	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4 - Proposed Action*
		substantial personnel increases and new facilities in some cases. Medical service impacts especially significant due to already existing shortfalls in the community. Quality of life in El Paso would be affected by increased urbanization and probable cost of living increases.			
Environmental Justice	No disproportionately high and adverse impacts on minority or low-income populations expected.	Noise from large caliber weapons firing at Doña Ana Range would affect the community of Chaparral, which has a higher percent of low-income population than the average for the region of influence.	Same as Alternative 1	Same as Alternative 1.	Additional areas in Doña Ana, El Paso, and Otero Counties with higher than average low-income population would be affected by large caliber weapons firing at Doña Ana and McGregor Ranges.

7

4.0 AFFECTED ENVIRONMENT

This chapter describes the existing environment of Fort Bliss and the surrounding area in the region of influence (ROI) to form a baseline for analysis of the environmental effects from the alternatives described in Chapter 3. The information is provided in 14 sections addressing the following resources: Land Use, Main Cantonment Area Infrastructure, Training Area Infrastructure, Airspace Use and Management, Earth Resources, Air Quality, Water Resources, Biological Resources, Cultural Resources, Noise, Safety, Hazardous Materials and Items of Special Concern, Socioeconomics, and Environmental Justice.

The ROI varies among resources and defines the geographic extent of potential impacts from the alternatives on the important elements of that resource. Each section in this chapter delineates its ROI and identifies the topics and resources addressed by that section. Relevant information in the Mission and Master Plan PEIS is incorporated by reference and not repeated. In this SEIS, each section focuses on information that is pertinent to the proposed land use changes and on updating conditions that have changed since the Mission and Master Plan PEIS was prepared. In general, the updates provide data from the 2004/2005 timeframe or represent the most recent data available. Recent activities that have been reviewed through the NEPA process, such as relocation of the 4th BCT, 1st CAV to Fort Bliss, are included in the No Action Alternative as part of the baseline for comparison with the action alternatives in Chapter 5. For areas that have not changed since the PEIS, such as geographic setting and climate, the descriptions in the PEIS remain current and are not repeated.

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4.1 LAND USE

This section summarizes the existing land use on Fort Bliss and areas surrounding the installation. It also summarizes the compatibility between Fort Bliss and neighboring areas. The Mission and Master Plan PEIS and TADC (Ref# 3, 174) describe the size, location, and use of the Fort Bliss Main Cantonment Area, ranges, and training areas during the period between 1990 and 1996. These are valid for historic perspective for the installation. The adoption of the RPMP and TADC laid the framework for land use and activities since 2000. The nature of land use on Fort Bliss has not changed substantially since that time. This section focuses on differences in current land use and trends that may be important considerations in the future.

The ROI for land use includes the installation and areas adjacent to Fort Bliss boundaries in El Paso County, Texas, and Doña Ana and Otero Counties, New Mexico. The basic real estate components of Fort Bliss remain the same as described in the Mission and Master Plan PEIS. The Main Cantonment Area, with the heaviest concentration of facilities and mission support activities, is located in El Paso County. Training areas and ranges are located to the north and east of the Main Cantonment Area, extending into Doña Ana and Otero Counties, New Mexico.

The principal segments of the Fort Bliss Training Complex include the South Training Areas in El Paso County, Texas, immediately adjacent to the Main Cantonment Area, and the Doña Ana Range–North Training Areas and McGregor Range, located in south-central New Mexico. Castner Range, a previously used training and weapons firing area, also in El Paso County, is no longer in use. Acreages for these different geographic components are provided in **Table 4.1-1**. Some of these vary slightly from the 2000 PEIS and the BLM's recent Resource Management Plan Amendment for McGregor Range due to minor administrative boundary changes and updated GIS mapping data.

Table 4.1-1. Fort Bliss Installation Components

Component	*Acres*
Main Cantonment Area (including Biggs AAF)	15,194
Doña Ana Range–North Training Areas	297,006
McGregor Range	697,472
South Training Areas	99,813
Castner Range	7,040
Castner Recreation Area	14
Total	1,116,539

Source: Ref# 3

The following subsections describe installation land use in the Main Cantonment Area and Fort Bliss Training Complex, land use in surrounding areas of Texas and New Mexico that may be affected by the Proposed Action and other alternatives, and the visual characteristics of the installation.

4.1.1 Fort Bliss Existing Land Use

4.1.1.1 Main Cantonment Area

The current Long Range Component of the RPMP describes the layout of land uses in the Main Cantonment Area using the Army's standard land use categories (see Figure 3.3-1). These include: airfield, maintenance, service/industrial, supply/storage, administration, training/ranges, troop housing, family housing, community facilities, medical, outdoor recreation, and open space.

Overall land use on the Main Cantonment Area has remained fairly consistent over the last decade. Construction and demolition has resulted in replacement and improvement in facilities. These have provided greater efficiency, comfort, safety, and security for mission and support operations. One of the primary areas of redevelopment has been military family housing. Many substandard units have been

demolished to provide sites for new housing. Some of those sites are still vacant and available for redevelopment under the ongoing Residential Community Initiative.

Main Post. Many large warehouse buildings on the Main Post have been renovated in order to meet mission functions. The Main Post is currently adding new housing along Jeb Stuart Road in previously open space.

Biggs Army Airfield. A new rail terminal facility has been constructed to the northwest of the runway area. Aero Vista housing has been demolished and is being replaced and expanded.

Logan Heights. Logan Heights, separated from the Main Post by US 54 and the Southern Pacific railroad, is primarily used for family housing and community facilities and recreation. Most of the troop housing on the west side of Dyer Street has been demolished. The north end of this area has new family housing. The eastern portion of Logan Heights has two golf courses and family housing. Many of the housing units are being renovated or replaced to meet Army standards.

William Beaumont Army Medical Center. WBAMC provides a full-range of medical services to military personnel, retirees, and dependents. The easternmost parcel has been developed with family housing. About 92 acres is being planned for Enhanced Use Leasing, to include some demolition, preservation of some historic buildings, and development of housing and commercial uses.

Castner Range. This 7,040-acre parcel continues to be largely unused. A new Border Patrol facility is being constructed and is functioning on a small parcel located off Hondo Pass Drive. Previous use for extensive military training resulted in accumulation of unexploded ordnance (UXO) throughout most of the range. Currently, the Army has no plans for future use or disposition of this parcel.

4.1.1.2 Fort Bliss Training Complex

The Fort Bliss Training Complex supports a variety of activities, some requiring a large land and airspace arena such as missile and rocket firing, aircraft operations, and aerial gunnery training. Other activities take place at smaller sites and ranges that are equipped or set aside for specific activities such as training in use of weapons and firearms, mortar and artillery, demolition, and urban tactics. Activities performed in the training areas include soldiers on foot (dismounted training), vehicles traveling on roads, and vehicles maneuvering off road.

Military and non-military facilities and areas within each segment of the Fort Bliss Training Complex are described in the following sections and shown on **Figures 4.1-1, 4.1-2,** and **4.1-3.** Current military land use is discussed in more detail in Section 3.1 and shown on Figure 3.1-2.

Non-military land uses of the Fort Bliss Training Complex include public recreation and hunting in some areas, grazing on some portions of McGregor Range, and infrastructure development on easements and rights-of way (ROW). **Figure 4.1-4** shows areas on the installation that are open to public access and for hunting.

South Training Areas

Military Land Use. The South Training Areas continue to be used primarily for tracked vehicle maneuvers. Being adjacent to the Main Cantonment Area, this part of the Fort Bliss Training Complex is easily accessible and convenient for training units. The South Training Areas support weapons firing in TA 2D and a drop zone in TA 2A.

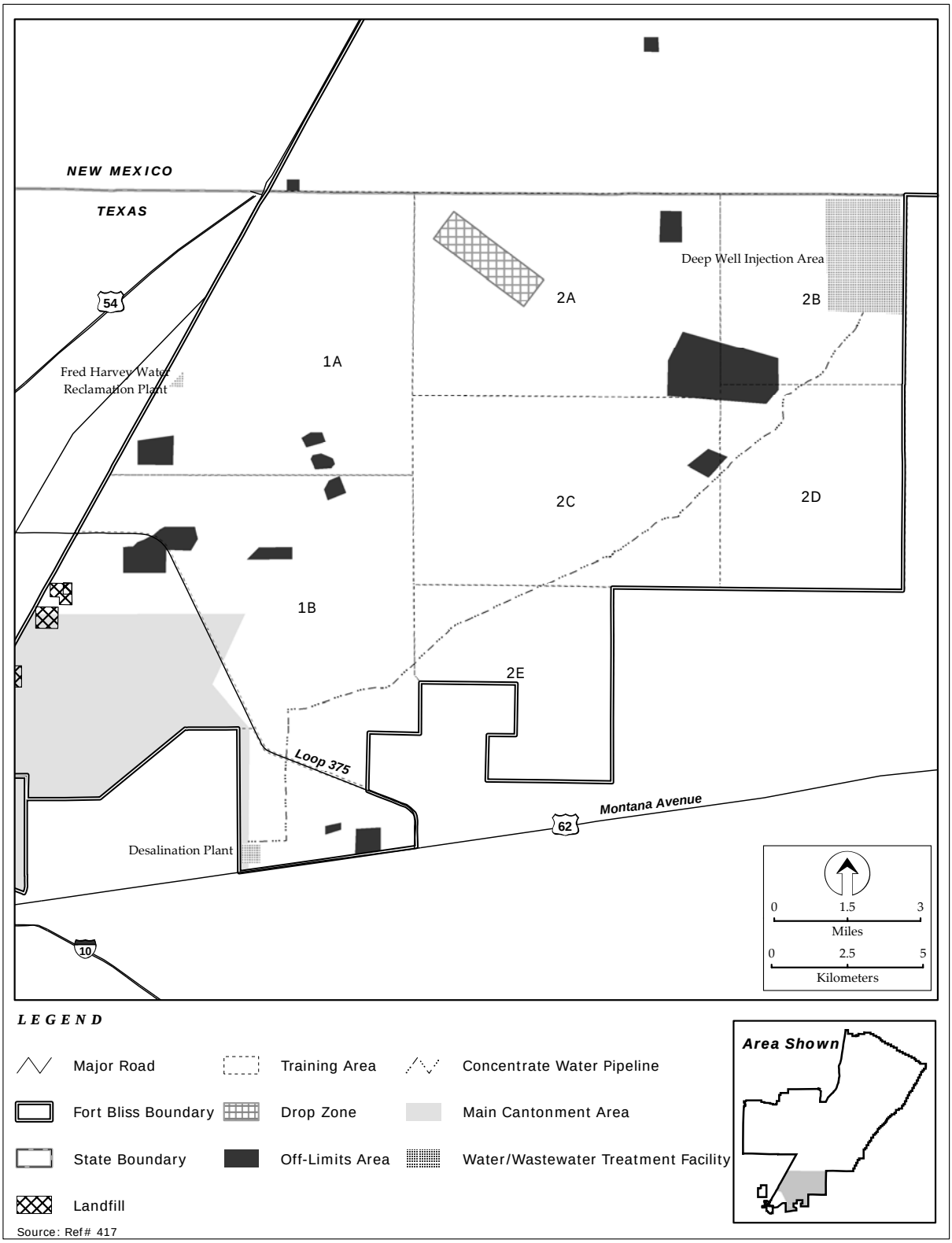

Figure 4.1-1. Land Use and Mission Facilities in the South Training Areas

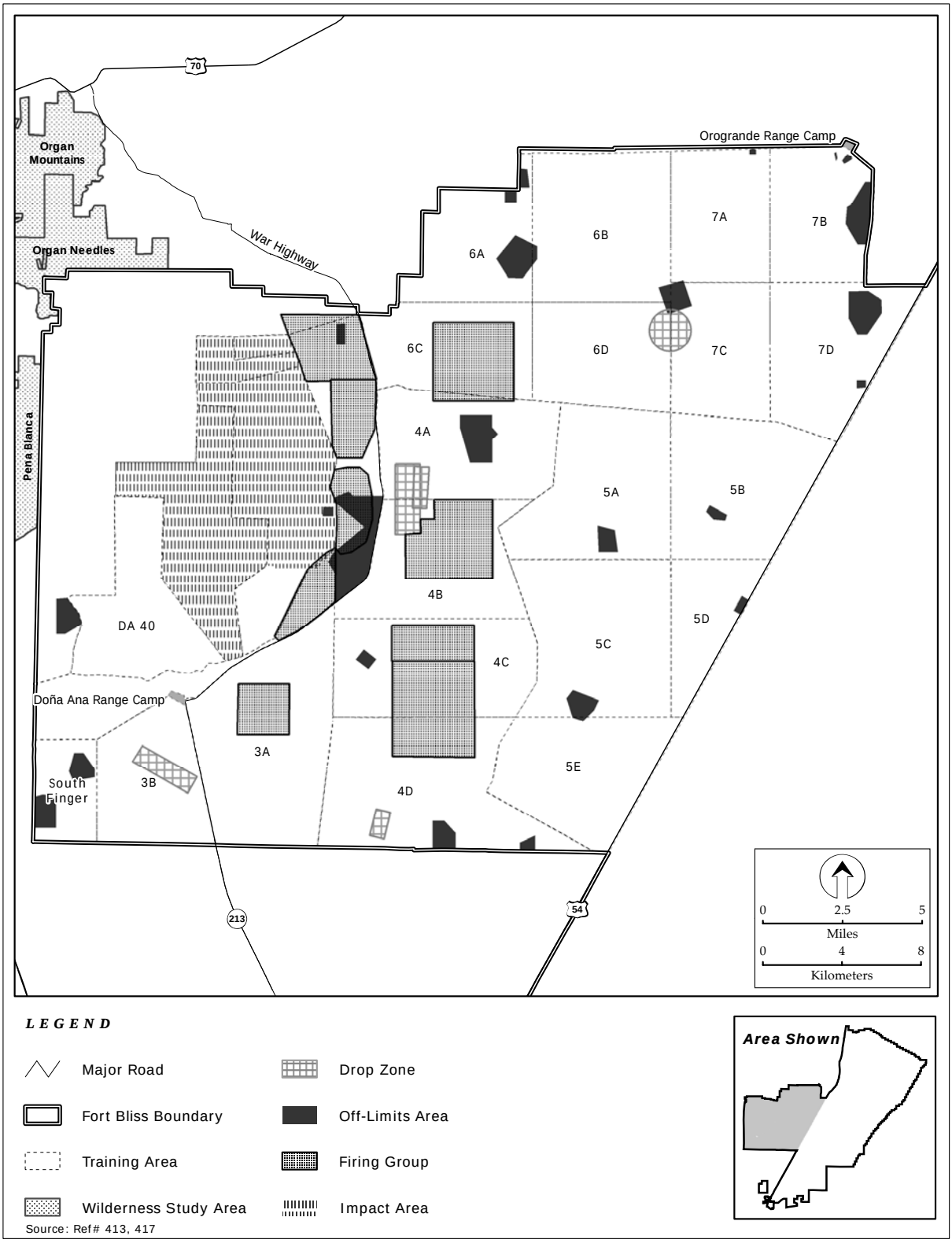

Figure 4.1-2. Land Use and Mission Facilities on Doña Ana Range-North Training Areas

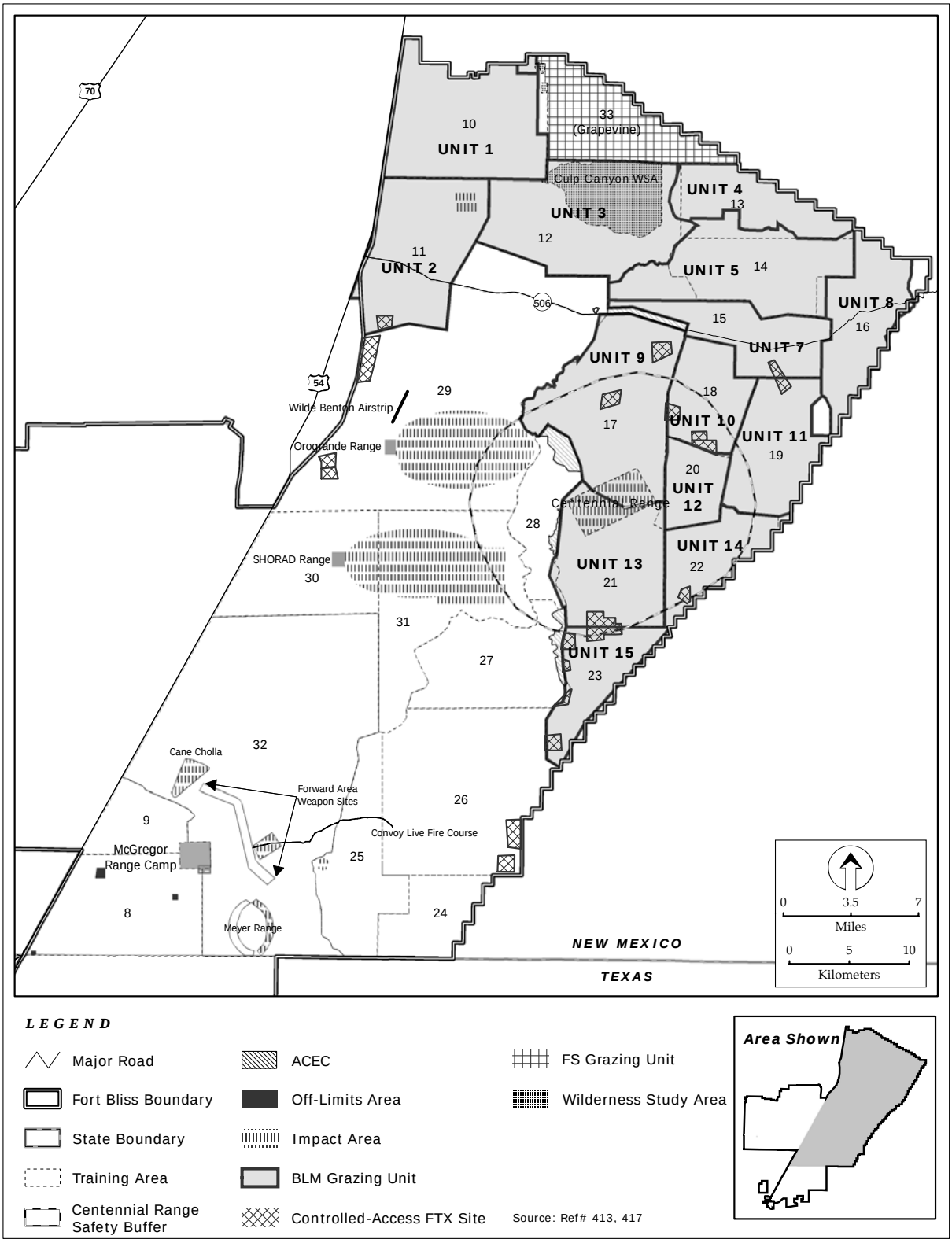

Figure 4.1-3. Land Use and Mission Facilities on McGregor Range

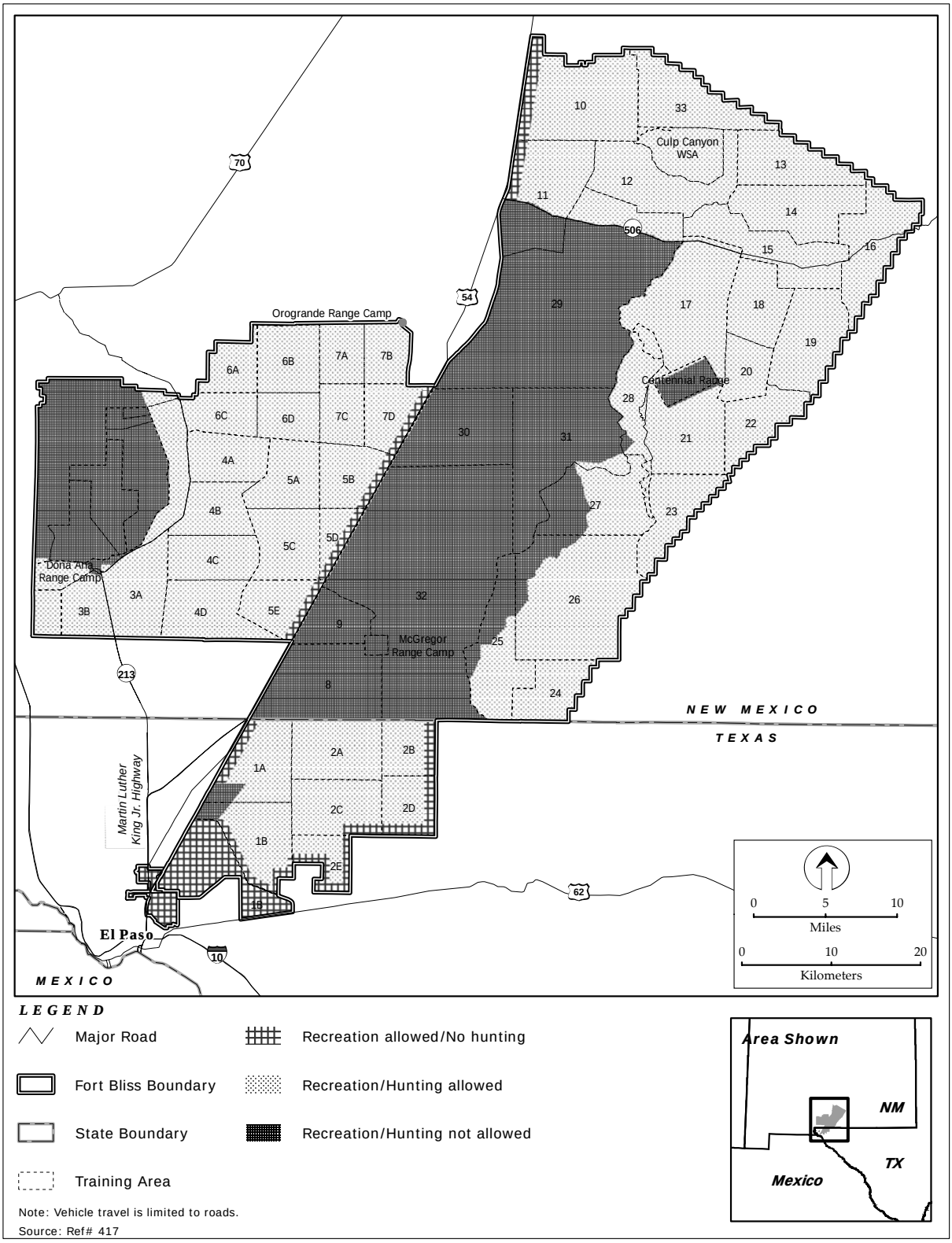

Figure 4.1-4. Public Access Areas on Fort Bliss

Non-Military Land Use. The primary non-military land use in the South Training Areas is a new brackish-water desalination plant and water wells being constructed and operated by the El Paso Water Utilities in TA 1B, associated deep-well injection area in the far northeast corner of TA 2B, and connecting pipeline across TAs 2C, 2D, and 2E (Ref# 222). Some public recreational use occurs in the South Training Areas due to the proximity and accessibility to residential areas of El Paso. Three gas pipelines traverse the South Training Areas.

Doña Ana Range-North Training Areas

Military Land Use. Figure 4.1-2 shows the military uses of the 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 soldier training. The impact area is located in the foothills of the Organ Mountains. DA 40 supports aerial operations and weapons firing. Helicopter operations tend to concentrate in the southwest part of the range, around DA 40, 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.

Non-Military Land Use. Seven utility easements cross portions of the Doña Ana Range-North Training Areas, including six above-ground electric lines and two underground gas pipelines. War Highway (NM 213) is a public access road that serves as the primary link between El Paso and White Sands Missile Range. Limited recreation occurs in the North Training Areas, primarily for bird hunting. Level of use by the public is low and only permitted when the training areas are not being used for military activities.

Adjacent to Doña Ana Range, on BLM land in the Organ Mountains, are three Wilderness Study Areas: Peña Blanco to the west and Organ Mountains and Organ Needles to the northwest.

McGregor Range

Military Land Use. McGregor Range continues to be comanaged by the Army and BLM. Figure 4.1-3 shows military facilities and uses on McGregor Range. 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 FAW 10 and 20. 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 personnel 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. This U.S. Air Force facility occupies about 5,200 acres and is used for air-to-ground target training.

Non-Military Land Use. Non-military uses have been allowed on McGregor Range to the extent they do not conflict with military uses or pose safety risks to the public. The primary non-military land uses on McGregor Range are grazing and recreation, including hunting.

BLM has recently completed an updated RMPA and EIS for McGregor Range. The following paragraphs provide an updated status of non-military uses presented in the plan (Ref# 21):

- BLM continues to manage public road access and ROWs. Highway 506 provides access to the southeastern portion of Otero County and to Dell City, Texas, as well as to a few communities in the south part of the Sacramento Mountains. It functions as an emergency egress for residents in

the area (see Section 4.3.3.1). Smaller range roads provide the only ingress to some grazing allotments in the north part of McGregor on U.S. Forest Service land and in the Culp Canyon WSA. The amended plan includes two ROW corridors, one along the western boundary of McGregor Range parallel to US 54, and one following the existing power transmission ROW. These corridors would be used to consolidate future utility and ROW requirements.

- The RMPA redefines areas where watershed management and habitat management plans will be prepared.
- Grazing continues in up to 14 active grazing units (see Figure 4.1-3). The number of units available for grazing, season of use, and livestock use on each grazing unit varies each year depending on ecological conditions. Reduced grazing levels in some allotments on McGregor Range in recent years, as shown in **Table 4.1-2**, reflect drought conditions and low flows from the Sacramento Mountains and Carrizo Springs. In the early 1990s, about 12 units were grazed, and only six were grazed in 2001. Drought further reduced gazing levels in 2002. There has been a 22 percent reduction in the number of animal unit months contracted each year.

Table 4.1-2. Animal Unit Months (AUMs) for Grazing Units on McGregor Range

Grazing Unit	*Animal Unit Months Contracted*						
	1996	*1997*	*1998*	*1999*	*2000*	*2001*	*2002*
1	1,802	1,802	2,252	1,782	1,808	0	1,126
2	1,351	1,802	0	1,336	1,356	0	0
3	0	0	1,802	0	1,821	0	0
4	2,240	3,000	3,000	1,801	1,801	0	0
5	3,000	3,000	3,000	1,801	1,801	0	0
7	2,624	2,999	2,999	2,962	2,962	2,962	0
8	1,798	1,798	2,252	2,252	2,281	2,281	0
9	2,702	2,702	2,702	2,702	1,622	1,622	0
10	2,252	2,252	1,801	1,801	2,030	2,031	1,126
11	1,801	1,801	1,801	1,801	1,801	0	0
12	721	901	720	722	722	722	0
13	1,790	1,790	2,252	2,702	2,781	0	1,295
14	1,351	1,351	1,351	1,351,	1,582	1,582	0
15	901	901	901	901	901	0	0

Source: Ref# 3, 239

- Since its construction, the new Centennial Range reduced the available grazing land by 5,200 acres (in units 13 and 9). The associated surface danger zone generally excludes public access to areas within the SDZ south of Highway 506 on weekdays. BLM's range manager and crew coordinate with McGregor Range Control to maintain adequate access opportunities to perform their grazing management tasks. Although there has been a reduction in permitted AUMs in grazing units 13 and 9, given the variation in levels since 2000, it is difficult to determine whether this reflects changes due to Centennial Range. Records indicate an increase in the bid value for grazing in the units on Otero Mesa.
- BLM continues to be responsible for livestock infrastructure, including fences, corrals, and water improvements.
- The RMPA does not alter conditions for energy and mineral production. In general, commercial production is not allowed, but salable minerals may be used by the Army, the state, or the county for local projects on Fort Bliss or roadways. There is no oil and gas development on McGregor Range. BLM will not permit any commercial-scale solar or wind projects on McGregor Range due to the potential to conflict with military use.

There has been no change in recreational use on the range. Public access is allowed in the joint-use areas (see Figure 4.1-4) when not scheduled for conflicting military uses. In general, Otero Mesa is accessible on weekends. Members of the public must acquire a recreational access permit from the Army or BLM on an annual basis. The New Mexico Department of Game and Fish (NMDGF) manages antelope and deer hunts on McGregor Range in the joint-use areas. The number and type of hunts are dependent on game populations. In recent years (2001-2003), deer hunts have been cancelled (Ref# 273). Camping is permitted year-round when there is no conflict with the military mission. Off-highway vehicle use by the public is limited to existing roads and trails on McGregor Range. Fort Bliss is working with NMDGF to schedule deer hunts for the 2007-2008 license year.

The RMPA identifies the need to develop a joint transportation and access plan with the Army to manage road construction and management. Also, the need was identified for a Public Recreation map that shows roads, trails, features of interest, and off-limits or hazardous areas such as impact areas and areas with UXO contamination.

4.1.2 Land Use in Surrounding Areas

The Mission and Master Plan PEIS provides an overview of areas surrounding Fort Bliss. This section focuses on major changes in land use in the ROI since the PEIS and/or areas of ongoing concern or that were raised in scoping for the SEIS.

The region surrounding Fort Bliss includes federal lands managed by various agencies, state land, and private land (**Figure 4.1-5**). Most of the surrounding region in Texas is private land, with some state-owned land in Franklin Mountains State Park. DoD land includes WSMR north of the Doña Ana Range–North Training Areas. McGregor Range is largely surrounded by public lands administered by the BLM, U.S. Forest Service (USFS), National Park Service (NPS), U.S. Fish and Wildlife Service (USFWS), and State of New Mexico. Figure 4.1-5 shows special status areas in the region, including White Sands National Monument and San Andres National Wildlife Refuge.

4.1.2.1 Texas

The population in the City and County of El Paso has grown steadily but not dramatically over the last ten to 15 years. The Plan for El Paso Year 2025 guides long-range land use and infrastructure planning. For planning purposes, the City is subdivided into five planning areas (**Figure 4.1-6**): the northwest, northeast, central, east, and lower valley. The central and lower valley areas declined in population between 1990 and 2000, while population in the northwest increased by 28 percent, in the northeast by 7 percent, and in the east by 39 percent. It is expected that population growth in the northwest will slow down when development fills up to the New Mexico border. The east and northeast areas are still considered prime areas for new development into the future. Particularly, the northeast area of El Paso, located between Fort Bliss and the Franklin Mountains, has some residential and commercial use, but it is largely undeveloped at this time.

Two major initiatives are underway that could set the stage for rapid planned development in the northeast area: the master planning for 16,000 acres of public service board property and the development of the Northeast Parkway. The master planned community includes residential areas for up to 62,000 new dwelling units (ranging from low to high density); commercial and industrial corridors and nodes; mixed use with retail, community facilities (including schools), and parks; and natural buffer zone along the mountain edges (Ref# 114).

The Northeast Parkway will link Loop 375 to I-10 around the north end of the Franklin Mountains to Anthony, New Mexico. The plan proposes to extend this route farther west to an outer belt (High Mesa Road) that will connect into Mexico, around the perimeter of the Cuidad de Juárez (Ref# 77, 114).

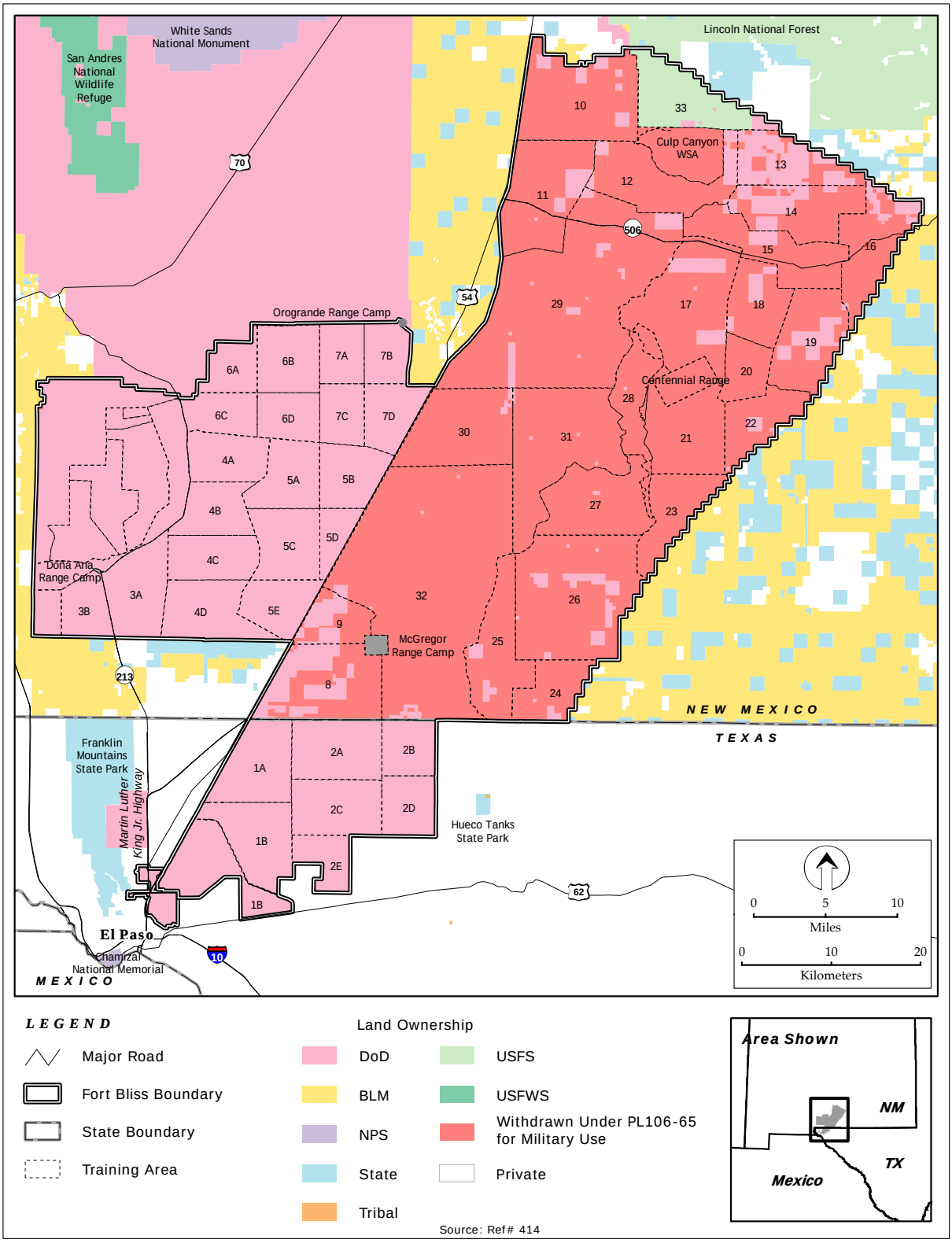

Figure 4.1-5. Land Ownership in the ROI

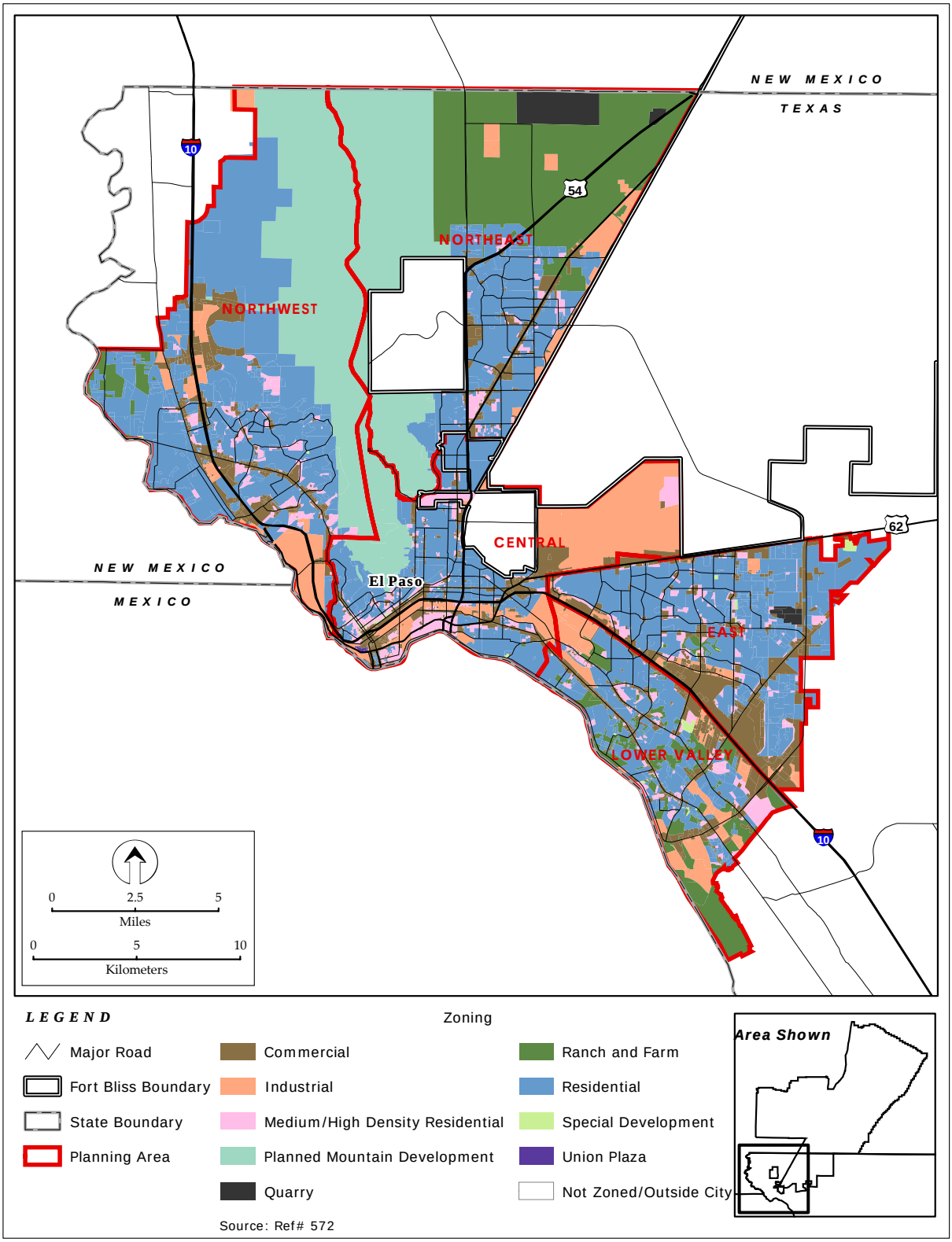

Figure 4.1-6. Zoning in the City of El Paso

Land use immediately surrounding the boundaries of the Main Cantonment Area has not changed significantly over the last decade. Within the City of El Paso, these areas have been developed for a long time and offer little space for new development. One of two areas where there has been some change includes the strip of land along the west side of the South Training Areas, currently zoned for ranches and agriculture. There has been some residential infill and some industrial-type development along the railroad and US 54 corridor. The other area that has changed is to the east where new residential development has grown with a resulting increase in the number of people commuting from this side of the city (Ref# 299). Residential development is extending into unincorporated areas, including areas with limited infrastructure.

4.1.2.2 New Mexico

Doña Ana County

Doña Ana County has been experiencing rapid growth, particularly around Las Cruces, Sunland Park, Anthony, and Santa Teresa. This growth is largely influenced by economic and commercial activity related to El Paso and border economics, the presence of New Mexico State University, and agriculture (Ref# 425).

Doña Ana County prepared an Extraterritorial Zone (ETZ) Comprehensive Plan 2000-2020 to provide a land use framework for almost 343 square miles. Most of this land (65 percent) is owned by the State of New Mexico and BLM. Private land in the valley is predominantly agricultural with urban/developed land located around the City of Las Cruces, the Town of Mesilla, and the Village of Doña Ana.

The community of Chaparral, located in the panhandle area between the Doña Ana Range and the El Paso County border, is mostly within New Mexico, although some development is spilling over into El Paso County and most residents work in El Paso. The community (a census-defined place) includes about 39 square miles with about 2,150 homes. About half of the community lies within Doña Ana County and half within Otero County. Its population was 6,117 in 2000. Residents voted down incorporation in January 2006. Some residential properties are immediately adjacent to the southern boundary of the Doña Ana Range and North Training Areas. A similar situation exists on the southwest edge of the Doña Ana Range where private development is occurring close to the boundary.

To the west of the Doña Ana Range, the western slopes of the Organ Mountains are popular for recreation and serve as a buffer for residential development on the outskirts of Las Cruces, the largest city in Doña Ana County.

Otero County

Overall, land use in Otero County has not changed over the last decade. The City of Alamogordo and other communities have experienced some growth and new development, and highway projects, specifically the widening of US 54 between El Paso and Alamogordo, have improved the connection between the urban areas. The Otero County Comprehensive Plan was drafted in 1998. It is primarily a statement of goals reflecting desired outcomes for the future. Military activities at Holloman Air Force Base, WSMR, and Fort Bliss provide a long-standing presence in the county. Grazing and ranching are a predominant use of private, state, and federal land holdings in the county.

Over the past six years, on average, 132,816 AUMs have been permitted annually in the county and the average number billed (i.e., used) has been 87,314 AUMs (Ref# 554). Key concerns of residents in rural areas surrounding McGregor Range include continued use and access of public lands for grazing and recreation. Access to remote communities (such as Timberon and Piñon) is also a primary concern. During scoping for this SEIS, residents expressed concern that adequate emergency service and fire protection be maintained. Currently, these services use alternative routes coming from Alamogordo through Cloudcroft along US 82, State Route 24, and county and forest roads.

Otero County anticipates growth in the Chaparral area, half of which is in Otero County and half in Doña Ana County, and has initiated a process to develop a Community Economic Action Plan to address the community's infrastructure needs. Because of overlapping jurisdiction with Doña Ana County, meeting the community's future needs will be managed and coordinated to provide maximum return on county investments. The growth is viewed as having a positive impact on Otero County, which has been historically dominated by and reliant on the economy of Alamogordo (Ref# 405).

4.1.3 Visual Resources

Visual resources include the natural and man-made physical features that give a particular landscape its character and value. Features that contribute to the overall impression a viewer receives of an area include landform, vegetation, water, color, adjacent scenery, scarcity, and man-made (cultural) modifications (Ref# 422, 423, 424).

Fort Bliss is located in arid plains of western Texas and southern New Mexico. The installation presents two major settings. The first is the Main Cantonment Area within urban/suburban areas of the City of El Paso and adjacent communities. The second is comprised of the extensive open training areas. These areas are visible when traveling along roadways within Fort Bliss and surrounding areas and from overlooks at higher elevations. The Fort Bliss Training Complex is surrounded mostly by undeveloped areas. The following sections describe the visual environment for these two components of the installation, including overall appearance and visual elements, management goals and guidelines, and visual resource value.

4.1.3.1 Main Cantonment Area and Surroundings

As described in the Mission and Master Plan PEIS, Fort Bliss has developed over time in response to mission and on-post population demands. As a result, it is a composite of open areas that are used for troop training and staging and developed areas with differing visual characteristics and qualities. Fort Bliss continues to use the Installation Design Guide (IDG) in the master planning process (AR 210-20) to guide physical development in the Main Cantonment Area to help maintain consistent style and materials to reflect functions, and to address site planning issues such as access, parking, landscaping, signage, and the visual elements that create a cohesive context.

The IDG for Fort Bliss has developed visual images for different parts of the post reflecting the themes of mission, history, and regional context and based on functional use. The Main Post has a combination of large open training areas surfaced with gravel and rock, with peripheral clusters of functional one- and two-story buildings, and more built-up areas. The built-up areas have a variety of uses, reflected in a range of visual character. Some of the most visually interesting areas are found in the older, historic parts of the post such as the Parade Ground and historic homes on either side of Sheridan and Pershing Roads; old classrooms, barracks, and stables (now used mostly for administrative functions), the red brick housing in the 1400 Area, industrial facilities along the railroad (1300 Area), and the old Warehouses (700 and 800 Areas).

The Main Cantonment Area is evolving mostly with replacement and infill projects, such as new family housing areas on Main Post, renovations to warehouses, and demolition of deteriorated and outdated facilities. Individually, these projects are noticeable, but they fit into the surrounding context using forms and materials that are replicated in buildings with similar functions. Over time, infill is creating an increasingly dense visual context with less open area between pockets of facilities.

The WBAMC area also has a core of historic structures that provide a unique visual quality and scale from the street pattern and well-established landscape of former administrative and housing areas. Juxtaposed to this area are the modern, large-scale WBAMC buildings sited prominently on the slopes of the Franklin Mountains. New housing and mixed commercial development is underway in this area.

At Biggs AAF, the flightline area has not changed substantially in recent years. A new rail depot has been constructed on the north side of the airfield. To the south of the flightline, portions of the family housing area have been demolished. However, the land surrounding the airfield on the east, northeast, and north remains largely open and undeveloped out to Loop 375. The area is essentially flat and has low grassy and scrub vegetation. For travelers on the Loop 375, the view onto the installation presents an open airfield with isolated pockets of industrial-type facilities.

The western half of Logan Heights is being developed for military family housing, following demolition of old barracks and administration buildings, that will maintain most of this area's residential appearance and scale, in context with surrounding neighborhoods. The new Chapin High School is highly visible from US 54.

Along Montana Avenue in the western edge of the South Training Areas, the new desalination plant to be operated by EPWU is under construction. This facility fits into the commercial and industrial context of the development along this arterial.

Urban areas surrounding the Main Cantonment Area are a mixture of residential, commercial, and industrial uses. The area has been developed for several decades, with only minor changes occurring to the visual environment due to new construction. The northeast, east, and lower valley areas of El Paso are undergoing transformation. In these peripheral areas, the dominant pattern is residential tract development with commercial complexes at major roadway intersections.

In this context of transformation, a new concern for city planners is preservation of open space. The City of El Paso is confined by the Rio Grande, Mexican border, New Mexico border, steep slopes and arroyos in the Franklin Mountains, and Fort Bliss. The least constrained boundary is to the east. The city is studying the attributes of its existing open space to plan for adequate open space for water recharge, recreation, and ecological sustainment using "Green Infrastructure" concepts (Ref# 426).

4.1.3.2 Fort Bliss Training Complex and Surrounding Areas

The natural context of the Fort Bliss Training Complex and surrounding areas is semi-arid to arid Chihuahuan Desert, characterized by vistas framed by distant mountain ranges or escarpments, dominated by the overlying blue sky. There has been very little perceptible change in the overall landscape character over the past five years. Isolated manmade features are absorbed within the largeness of the viewshed.

Variations in elevation and precipitation result in a range of vegetative regimes with indistinct boundaries. These create a patchwork of varying textures and patterns in the middle and distant landscape. Broad valley floors and alluvial slopes are bisected by steep-sided but relatively shallow intermittent streams that are noticeable only up close. The mixed hues of reddish brown and gray-colored soils, rocks, and woody vegetation provide the dominant colors of the ground plane.

The cultural landscape is defined by both the natural setting and human modifications. Throughout the area, human-made features are evidence of current and past uses and events. These include roadways (both paved and unpaved), fences, wooden corrals, isolated homesteads, powerlines, watering tanks, windmills, pipelines, antennae, and satellite dishes. Most of these features are noticeable in the foreground, but are either not perceptible or only defined by subtle lines or forms in the middle and distant landscape.

The South Training Areas in El Paso County are comprised primarily of mesquite coppice dunes. Portions of the South Training Areas have bare patches that are highly noticeable in the foreground but do not alter the overall middle and distant visual character. Northeast of the South Training Areas, foothills of the Hueco Mountains rise from the desert floor providing moderate visual interest in the distance. Vegetation on the lower slopes is sparse. The Loop 375 highway corridor to the southwest is defined by chain link fences. In general, when viewed from locations beyond the installation boundary, isolated

342 facilities and equipment in the middle and far distances within the training areas are visually subordinate
343 to the natural landscape.

344 Visual conditions in the Doña Ana Range–North Training Areas have not change noticeably over the last
345 five years. The Organ Mountains have outstanding scenic quality due to dramatic forms of precipitous
346 mountains. Some of the weapons ranges on the west side of War Highway have visible features from the
347 road, but most are hidden by intervening terrain. The remaining areas on the Doña Ana Range–North
348 Training Areas are mostly comprised of mesquite coppice dunes that form a homogenous pattern of dark
349 shrubs against a sandy ground plane. The height of the dunes obstructs a viewer's visual field when
350 moving through them. Some patches are bare and sandy. These areas are visible in the foreground but do
351 not alter the overall middle and distant vistas. Doña Ana Range Camp is visible when traveling along
352 some roadways, but specific qualities of its built environment are not discernible, and it also tends to be
353 unobtrusive in the overall landscape. Other constructed or mobile military structures and equipment are
354 smaller in scale and therefore less visible from roadways. Human-made modifications tend to be most
355 visible to persons on foot or horseback due to closer viewing distances.

356

357 Doña Ana Range-North Training Areas

358

Doña Ana Range-North Training Areas mesquite coppice dunes and dirt roadway

Doña Ana Range, Range 40 arroyo-riparian area and Organ Mountains

McGregor Range is located partly in the Tularosa Basin, which is visually typical of the Chihuahuan Desert landscape described above; partly on Otero Mesa, which is predominantly grassland; and partly in the foothills of the Sacramento Mountains. The Otero Mesa grasslands provide a distinctive and appealing expanse of vegetation. In the southeast part of McGregor is an area of transition between the basin and the mesa escarpment that has more varied terrain and vegetation, with a mixture of grasses, shrubs, and cacti, and is broken up by small drainages along the escarpment edge. Visible human-made

features throughout McGregor Range include military and livestock infrastructure. These features are noticeable from the foreground but are generally subordinate in distant views.

Since the Mission and Master Plan PEIS was completed, Centennial Range has been constructed on Otero Mesa. The 5,200-acre range is fenced. Within the fenced area, the vegetation is natural, although it is clear of large shrubs in the center. From the fenceline, several targets are clearly visible. However, the natural surroundings have not been altered.

Areas of higher elevation in the Sacramento Mountains and its foothills have distant views onto McGregor Range, including expansive vistas of grasslands on Otero Mesa that appear relatively uninterrupted by human-made structures, except for a few roadways, stock corrals, and water improvements.

McGregor Range, escarpment transition zone

McGregor Range is comanaged by BLM through the RMPA. BLM classifies lands according to objectives for retaining their visual character. The classifications are based on a scenic analysis, perceived value, and numbers of viewers. The withdrawn land on McGregor Range has been categorized under the BLM's Visual Resource Management (VRM) classification system. The purpose of this system is to provide an inventory of visual resources and to provide management objectives according to the visual quality and sensitivity of an area. BLM lands are classified as VRM Classes I, II, III, IV, and unclassified (from the most valued and sensitive to alteration, to the least). Areas along U.S. Highway 54 and New Mexico Highway 506 are Class III, where changes in the basic elements of the landscape may be evident but should remain subordinate. Culp Canyon WSA is rated as Class II to preserve the character of the natural landscape. The remainder of McGregor Range is rated as Class IV where the level of change to characteristic landscape can be high. This classification reflects lower visual sensitivity because viewer numbers are relatively low away from major public roadways.

BLM has completed preliminary work on evaluating Otero Mesa as part of a rural historic landscape potentially eligible for listing on the National Register of Historic Places. Other historic landscapes that may also be present on Fort Bliss are described in Section 4.9.

BLM land adjacent to the Fort Bliss Training Complex has also been classified according to its visual quality and sensitivity. A portion of the Organ Mountains west of Doña Ana Range is designated as a scenic ACEC (see Figure 4.1-2) and is managed as a VRM Class I area (where management actions

should not alter the natural landscape). Views from most locations in the ACEC onto Fort Bliss are obstructed by the intervening terrain of the Organ Peaks. The Sacramento Escarpment ACEC, located north of McGregor Range, is also managed as VRM Class I. Distant views of the northwest corner of McGregor Range may be visible from some viewing locations in this ACEC. Most of the mountainous areas carry a VRM Class II rating, including the WSAs, the Organ and Franklin Mountains, and most mountain ranges and hills throughout the region.

McGregor Range Chihuahuan Desert vegetation, south of Wilde Benton

McGregor Range, Centennial Range on Otero Mesa

The USFS uses a similar VRM rating system to manage visual resources. Areas are classified as Preservation, Retention, Partial Retention, Modification, and Maximum Modification, each class denoting diminishing visual value and sensitivity to visible alterations. Land in Lincoln National Forest, Sacramento District, adjacent to McGregor Range is primarily classified as a Modification area due to alterations (such as roads, signage, and evidence of productive uses) and relatively low visual quality. There are some areas classified as Retention, mostly in mountainous terrain, where changes within the natural landscape should not be evident.

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4.2 MAIN CANTONMENT AREA INFRASTRUCTURE

Infrastructure within the Main Cantonment Area is composed of the following systems: ground transportation, utilities, energy, and communications. The ROI for the ground transportation systems is El Paso County, TX. The ROI for assessing utility, energy, and communication systems is made up of the service areas of each service purveyor serving the facilities operated by Fort Bliss in the Main Cantonment Area 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.

4.2.1 Ground Transportation

This section describes the existing highway system, roads, and railways in the ROI.

4.2.1.1 Roadways

The evaluation of roadway conditions is based on capacity estimates (Ref# 352). The capacity of a roadway depends on the number of lanes, lateral obstructions, percentage of trucks in the traffic stream, intersection control, and other physical factors depending on the type of roadway. Traffic volume is typically reported as Annual Average Daily Traffic (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 locations with such equipment are limited. The AADT may also be estimated by taking short traffic counts called Average Daily Traffic (ADT) with portable equipment (usually for two consecutive days) and adjusting the counts with factors derived from the AADTs to account for daily and seasonal variations.

The AADT factors for estimating the percent of daily traffic that occurs during the peak hour are called K-factors. Capacity analysis for highways with four or more lanes is conducted for direction during the peak hour. Therefore, continuous count locations are used to estimate peak hour directional distributions factors, called D-factors. Applying K- and D-factors to AADT estimates the peak hour volume (phv) that is used in determining the capacity of a particular roadway.

A comparison of a roadway's AADT to its capacity is expressed in terms of level of service (LOS). 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 AADT)-to-capacity ratios as they relate to LOS values are shown in **Table 4.2-1**.

Regional Roadway Systems

Several highways provide regional access to El Paso and Fort Bliss. The major east-west access is provided by I-10 (see Figure 1-1), which runs through downtown El Paso and passes just south of the Main Cantonment Area. I-10 is the most heavily traveled roadway in El Paso and connects the region to western and central Texas to the east and southern New Mexico and Arizona to the west. I-25 provides the major northern access to the El Paso region and intersects I-10 approximately 44 miles northwest of El Paso at Las Cruces, NM. U.S. Highway 54 (Patriot Freeway), a major non-Interstate freeway, also provides northern access to Alamogordo, NM.

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 (**Figure 4.2-1**). Loop 375, which connects the northeast and eastern portions of the city and helps to reduce traffic congestion along the US 54 corridor, 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 loop. Loop 375 becomes Woodrow Bean Transmountain Drive west of US 54, connects to I-10 northwest of El Paso, and has the advantage of few cross streets.

Table 4.2-1. Roadway Levels of Service

LOS	*Description*	*Criteria (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 flow, 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 interactions 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: Ref# 352

Main Cantonment Area Roadways

The Main Cantonment Area of Fort Bliss is surrounded by major arterial city streets (**Figure 4.2-2**). 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 Forrest Roads and portions of Marshall, Sheridan, Haan, and Robert E. Lee Roads.

Currently, vehicles exiting the Main Post for the training areas must either cross Fred Wilson Road at Chaffee or Airport Road at Haan Road. Access to training ranges for the majority of tracked vehicles and truck convoys is provided by the Chaffee/Fred Wilson crossing. Vehicle access to Biggs AAF is provided along Sergeant Major Boulevard east of Airport Road.

Table 4.2-2 presents the results of capacity analyses on selected roadway segments in the ROI around Fort Bliss. The traffic numbers represent the AADTs from which the peak vehicles per hour (vph) levels were derived.

The capacity levels were derived by using the following assumptions:

- 2,300 passenger cars per hour per lane (pcphpl) for freeways and interstates; and
- 900 pcphpl for signalized arterials, with the exception of Montana Avenue, which assumed 1,100 pcphpl.

Following standard capacity analysis procedures, passenger car capacity flow rates were reduced by 10 percent to account for trucks in the traffic stream and other physical factors affecting capacity. The vph compared to the capacity results in the volume-to-capacity ratio (V/C) used to determine LOS based on the criteria in Table 4.2-1.

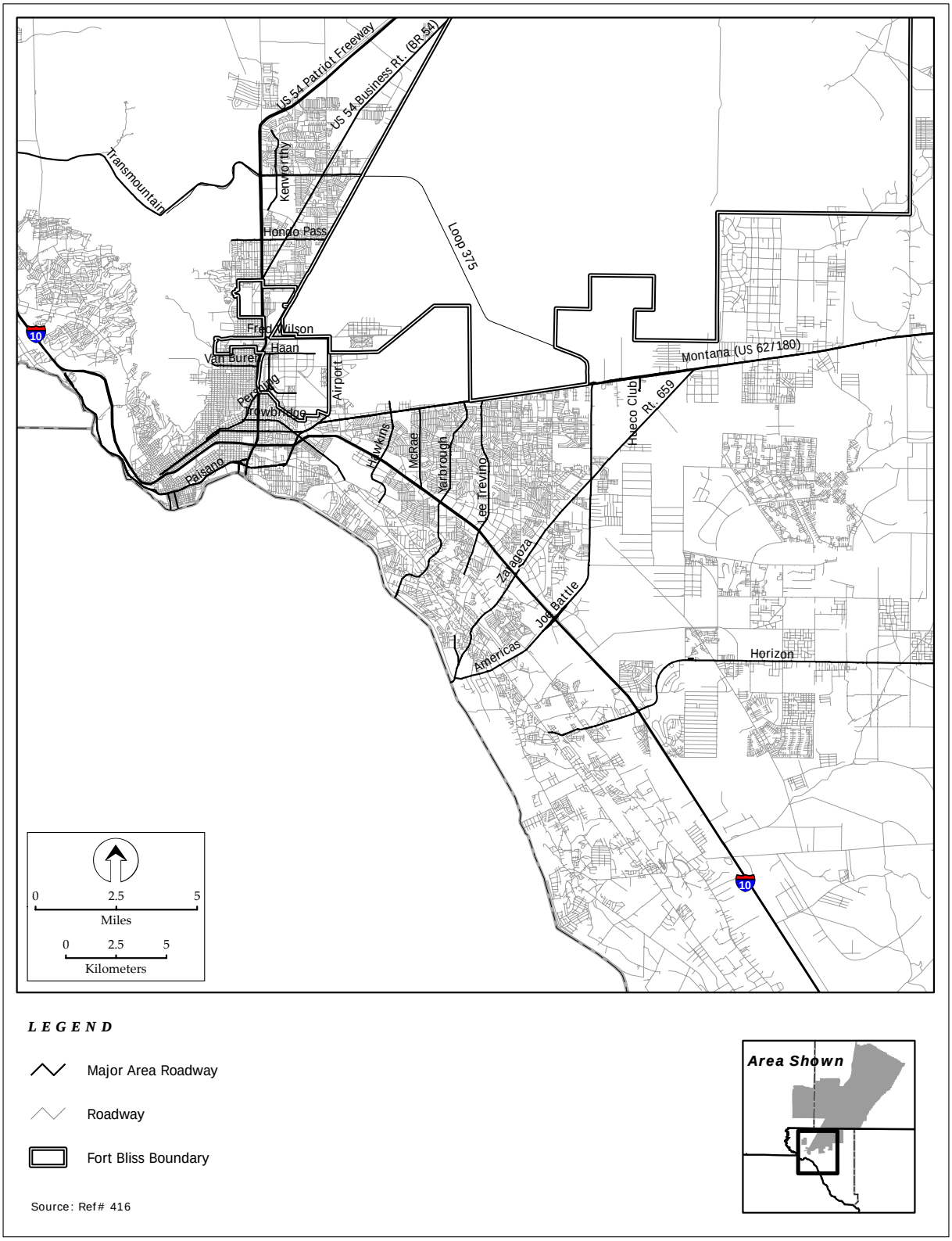

Figure 4.2-1. Major Roadways Around the Main Cantonment Area of Fort Bliss

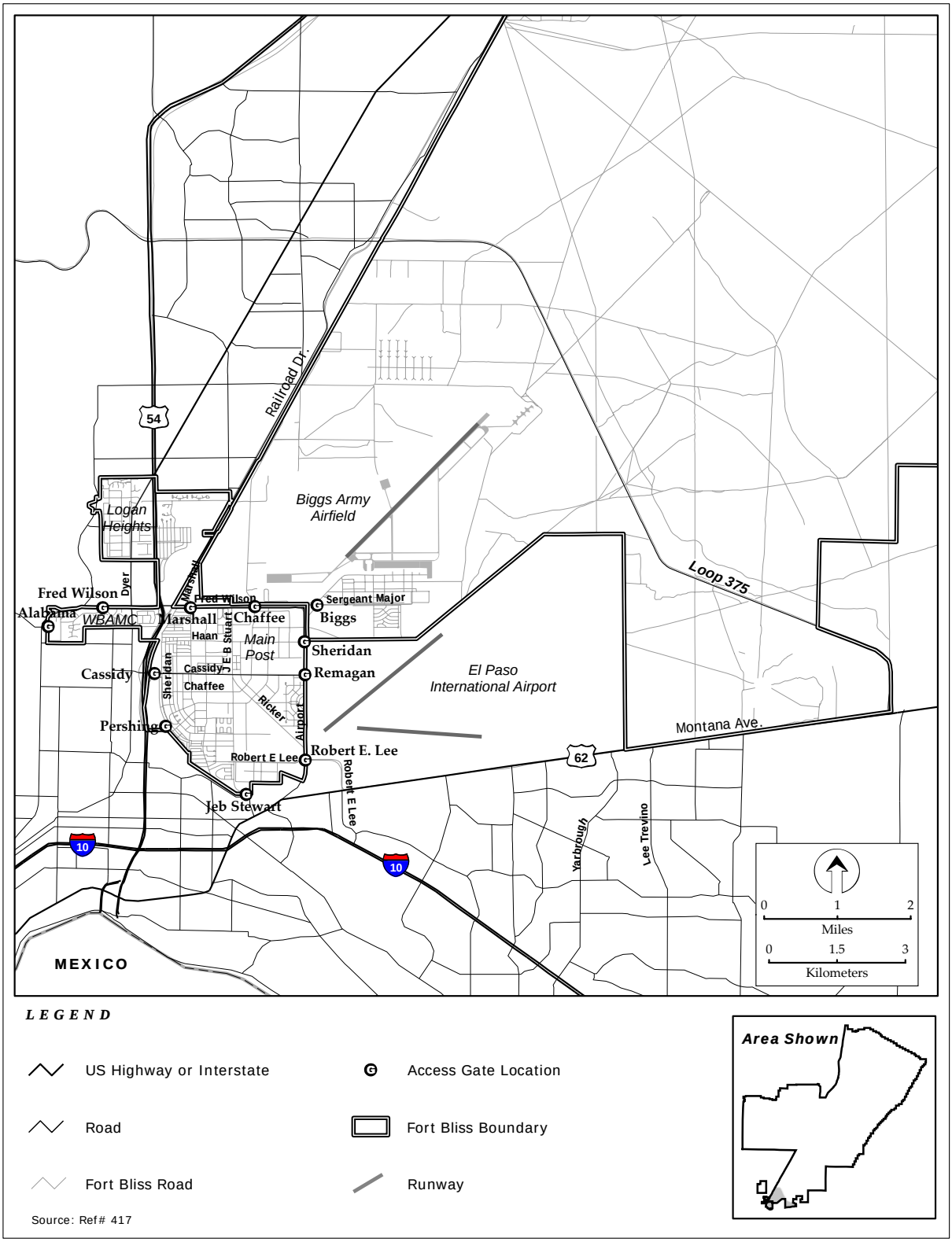

Figure 4.2-2. Transportation Network in the Fort Bliss Main Cantonment Area

Table 4.2-2. Capacity Analysis of Area Roadways, 2006

Route	*Segment*	*Traffic*	*vph*	*Capacity*	*V/C*	*LOS*
I-10	US 54 (Patriot Fwy) to Paisano Dr (US 62)	87,680	8,446	8,280	1.02	F
I-10	Paisano Dr (US 62) to McRae Blvd	189,520	8,528	8,280	1.03	F
I-10	McRae Blvd to Yarbrough Dr	140,760	6,334	6,210	1.02	F
I-10	Yarbrough Dr to Lee Trevino Dr	139,380	6,272	6,210	1.01	F
I-10	Lee Trevino Dr to Zaragoza Rd	104,880	4,720	6,210	0.76	D
I-10	Zaragoza Rd to Loop 375 (Americas Ave)	74,520	3,353	4,140	0.81	D
I-10	Loop 375 (Americas Ave) to Horizon Blvd	65,320	2,939	4,140	0.71	C
Montana Ave	US 54 (Patriot Fwy) to Paisano Dr (US 62/180)	26,280	1,445	1,980	0.73	C
Montana Ave	Paisano Dr (US 62/180) to Hawkins Blvd	43,200	2,376	2,970	0.80	C
Montana Ave	Hawkins Blvd to McRae Blvd	59,400	3,267	2,970	1.10	F
Montana Ave	McRae Blvd to Yarbrough Dr	44,280	2,435	2,970	0.82	C
Montana Ave	Yarbrough Dr to Lee Trevino Dr	38,880	2,138	1,980	1.08	F
Montana Ave	Lee Trevino Dr to Loop 375 (Joe Battle Blvd)	31,680	1,742	1,980	0.88	D
Montana Ave	Loop 375 (Joe Battle Blvd) to Hueco Club Rd	41,040	2,257	1,980	1.14	F
US 54	I-10 to Trowbridge Ave	85,811	4,720	12,420	0.38	B
US 54	Trowbridge Ave to Pershing Dr	83,553	4,595	12,420	0.37	B
US 54	Pershing Dr to Van Buren Ave	75,085	4,130	7,245	0.57	B
US 54	Van Buren Ave to Fred Wilson Ave	56,455	3,105	4,140	0.75	C
US 54	Fred Wilson Ave to Hondo Pass	42,905	2,360	4,140	0.57	B
US 54	Hondo Pass to Loop 375 (Transmountain Dr) to Kenworth St	32,367	1,780	4,140	0.43	A
Loop 375	Route 659 to Montana Avenue	16,100	1,449	4,140	0.35	A
Loop 375	Montana Avenue to BR 54	13,800	1,242	4,140	0.30	A
Loop 375	BR 54 to US 54	20,700	1,863	4,140	0.45	A
Fred Wilson Blvd	US 54 to Airport Drive	30,000	1,980	2,430	0.81	C
Airport Rd	Fred Wilson to Haan Rd	34,609	2,284	2,430	0.94	D

Source: Ref# 412

As shown in Table 4.2-2, portions of I-10 and Montana Avenue currently experience unacceptable level of service during peak periods due to limited capacity and high hourly traffic volumes. Long-range plans call for widening I-10 along these affected segments as well as upgrading Montana Avenue to expressway standards.

Local Roads and Access Points

Access to the Main Cantonment Area is provided by eleven Access Control Points (shown on Figure 4.2-2). 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 is one gate on Biggs AAF (Biggs Gate) and two gates on WBAMC (Fred Wilson Gate and Alabama Gate). All vehicles that enter Fort Bliss are required to display either a decal or vehicle pass. For those persons without decals, vehicle passes are issued at the Cassidy Gate, Robert E. Lee Gate, Chaffee Gate, Biggs Gate, and Fred Wilson Gate.

Table 4.2-3 summarizes the average weekday traffic entering at the installation gates. The highest volumes are observed at the Cassidy, Sheridan, Biggs, and Robert E. Lee Gates. The highest volume of traffic entering the installation occurs during the morning rush hour between 0700 and 0900 hours (7:00 – 9:00 a.m.). Most of the gates have two entering lanes, and there is generally little or no delay or congestion at entry points.

96 **Table 4.2-3. Average Weekday Entering Traffic at Installation Gates**

Hour	*Gate*									
	Cassidy	*Sheridan*	*Biggs*	*Lee*	*Wilson*	*Remagen*	*Pershing*	*Alabama*	*Jeb Stuart*	*Chaffee*
0001-0100	68	0	30	46	13	N/A	N/A	N/A	N/A	N/A
0101-0200	36	0	18	33	6	N/A	N/A	N/A	N/A	N/A
0201-0300	39	0	19	40	6	N/A	N/A	N/A	N/A	N/A
0301-0400	74	0	12	70	6	N/A	N/A	N/A	N/A	N/A
0401-0500	168	0	58	105	20	N/A	N/A	N/A	N/A	N/A
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

Note: Excludes Marshall Gate, which is outbound only
N/A = not applicable – gate is closed during those hours
Source: Ref# 471

97 ## Planned Roadway Improvements

98 Two improvement projects planned for the region could affect Fort Bliss and traffic patterns in the
99 surrounding area:

100 The Inner Loop is a proposed 9.54-mile route that will begin at the junction of US 54 at Fred Wilson and
101 extend Fred Wilson Avenue east to terminate at Loop 375. This route will traverse between Biggs AAF
102 and EPIA. One of the purposes of the Inner Loop is to provide a direct route for trucks in the area to US
103 54 and Loop 375, thus relieving traffic congestion on Airport Road, Airway Boulevard, US 62/180, and
104 Paisano Drive. The route will also provide additional access to Fort Bliss, EPIA, and Butterfield Trail
105 Industrial Park. It will improve key intersections along Fred Wilson Road, including the interchange with
106 US 54, Airport Road/Sergeant Major Boulevard, and the Loop 375 interchange.

107 The Northeast Parkway is being planned to provide a limited access roadway for trucks and other traffic
108 to bypass I-10 through El Paso and also to provide a more efficient and direct access to regional industrial
109 parks. This 20-mile long, limited-access, four-lane freeway would include a corridor between Anthony,
110 NM at the I-10/NM 404 Interchange and Loop 375 near the Railroad Drive overpass in northeast El Paso.

4.2.2 Utilities

This section describes the facilities and utilities used for potable water pumping, treatment, storage, and distribution; wastewater collection and treatment; and solid waste collection, recycling, and disposal.

4.2.2.1 Water Supply

Potable water is currently provided to the Main Cantonment Area from on-post wells and interconnections with the City of El Paso (Ref# 2).

On-post wells occur in two well fields: the Tobin Well Field (seven wells) is located approximately three miles northeast of the Main Post. The Pike Well Field (four wells) is on the Main Post. Water from each of the well fields is pumped to separate buildings, where it is chlorinated and delivered to the Main Cantonment Area grid. The well fields can produce a combined flow of 15.8 million gallons per day (MGD), and the City of El Paso currently can provide up to 4.24 MGD, for a total capacity of approximately 20 MGD (Ref# 2).

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. The Tobin and Pike Well Fields plus the two wells on Biggs AAF have a combined capacity of approximately 22.9 MGD (Ref# 2).

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 (Ref# 2). Assuming an on-post resident population of approximately 15,800 (including permanently assigned military personnel, dependents, and students) and a daily (non-resident) population of approximately 16,400 (including civilian personnel and military personnel not resident on the post, who are assumed to consume water at the rate of 24 gallons/capita/day), per capita water consumption for 2004 averaged 266 gallons/day. This on-post consumption rate is approximately 83 percent higher than the 145 gallons/capita/day calculated based on data from EPWU on average water consumed per customer in 2004 (average daily water demand of 179,000 gallons per year, or approximately 95.0 MGD divided by the population of the estimated EPWU service area [Ref# 215, 317]).

An estimated 26,300 military and civilian dependents and 16,400 military and civilian employees reside in the City of El Paso. At the average rate of 145 gallons/capita/day for the dependents and 121 gallons/capita/day for the employees, consumption from the El Paso water system would be approximately 6.1 MGD. This value represents approximately 5.8 percent of the EPWU 2004 average daily demand of 95.0 MGD (Ref# 215) or 1.9 percent of existing EPWU treatment capacity of 305 MGD (Ref# 318).

4.2.2.2 Wastewater Treatment

Wastewater generated at Fort Bliss flows through five connections to the City of El Paso's sewer system. This water is treated at the Haskell Street Wastewater Treatment Plant, about 3 miles away. The plant has a current treatment capacity of 27.7 MGD (Ref# 214). In 2004, approximately 2.9 MGD of sewage was generated on post. Assuming a sewage generation rate of 24 gallons/person/day for daily staff, per capita sewage generation is estimated at approximately 158 gallons/person/day. The post typically uses approximately 10.5 percent of the plant's treatment capacity.

The City of El Paso currently has a total treatment capacity of 94.2 MGD at four facilities, including the Haskell Street plant (Ref# 322). 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 7.0 percent of El Paso's treatment capacity. The four treatment plants operated by EPWU have a combined excess capacity of 44.7 MGD.

4.2.2.3 Storm Water

Most of the storm water runoff from the Main Cantonment Area flows through a series of storm drainage channels, pipes, and storm water pump stations to various storm water retention ponds. Water collected in these ponds is lost through evaporation and infiltration; none is discharged to surface waters (Ref# 3). There are several small connections with the City of El Paso's storm water collection system at the post boundary, mainly along access roads to the post. These discharges are currently covered by the City of El Paso's municipal separate storm sewer system permit, but are anticipated to be covered in the near future by a new permit issued to Fort Bliss.

Much of the storm water collected from the Main Cantonment Area flows into the main storm water retention pond located north of Fred Wilson Road and east of the Union Pacific/Southern Pacific rail lines. It has a capacity of 2,230 acre feet (af) (Ref# 3) and could store the runoff generated by a 100-year storm at that time. This area is a CWA Section 404 jurisdictional wetland.

Storm water collected from Landfill Road, housing on Sheridan Road, and off-post areas is collected in a retention basin northwest of Pershing Street Gate, west of the Officers' Club. Should this retention basin be overtopped, storm water would flow in a drainageway south to the Rio Grande (Ref# 3). This discharge is covered by a National Pollutant Discharge Elimination System (NPDES) General Storm Water Permit. This permit will be replaced by the new permit covering all storm water discharges from the post.

Storm water collected from Biggs AAF is discharged to two retention basins northwest of the airfield. There is also a series of dry wells near the southwest end of the primary runway (Ref# 3).

4.2.2.4 Solid Waste Disposal

Domestic solid waste is collected and disposed of by private contractor at a government-owned, 102-acre landfill (MSW ID No. 1422) located 3 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 FY 2005, 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 Clint Landfill. 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 until 2008, and the Type IV cell for approximately 10 more years.

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.

The City of El Paso owns and operates a Type I Landfill (Clint Landfill—MSW ID No. 2284) that 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 tons per day (tpd) (Ref# 202). 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. The landfill is governed under TCEQ and USEPA rules and regulations. The per capita generation rate for the City of El Paso is about 3 pounds per day.

4.2.3 Energy

4.2.3.1 Electricity

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 to the north. The line is part of a loop that

can supply Fort Bliss from two directions. The line has a loading capacity of about 150 megavolt amperes (MVA) (Ref# 2). 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 Main Cantonment Area has a peak demand of 30 MVA, or about 1 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) (Ref# 2).

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 (Ref# 2). The Main Cantonment Area thus consumes approximately 1 percent of power available from EPEC (1.4 percent of peak electricity use). Off-site military dependents consume considerably less than this amount.

4.2.3.2 Natural Gas

Natural gas, the primary heating fuel in the Main Cantonment Area, is supplied by the El Paso Natural Gas Company 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.

Design per capita gas consumption on the post is estimated at 28.2 CFH (Ref# 2), 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 of floor space per hour, approximately 11 million SF of floor space, and 1,000 btu per cubic foot of natural gas, the post would require approximately 0.88 million CFH on the coldest days. The annual consumption of natural gas in the Main Cantonment Areas is not known.

The Texas Gas Company provides 25.9 billion cubic feet of natural gas per year to 28 cities in Texas, including El Paso, with an annual average consumption of 47 thousand cubic feet per customer (Ref# 280).

4.2.4 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 (more than 350 lines), the Integrated Switch Digital Network (ISDN) (78 lines), and the Defense Switched Network (DSN) (96 lines). These telephones are complemented by commercially provided cell phones operating through a tower in the Franklin Mountains. Fort Bliss also has 12 secure phone systems (Ref# 2).

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 (Ref# 2).

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 fire department. Use of radio frequencies is managed by two frequency managers assigned to the post. The use of radio frequencies has the potential to interfere with radio astronomy telescopes that operate in Socorro, New Mexico and part of the transcontinental very long baseline array that has nearby stations in Fort Davis, Texas, and Pie Town and Los Alamos, New Mexico (Ref# 2).

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 (Ref# 2).

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4.3 TRAINING AREA INFRASTRUCTURE

Infrastructure within the Fort Bliss Training Complex is composed of ground transportation, utilities, energy, and communication systems. The ROI for these systems consists of the South Training Areas, Doña Ana Range–North Training Areas, and McGregor Range.

4.3.1 South Training Areas

4.3.1.1 Ground Transportation

The South Training Areas are northeast of Fort Bliss's Main Cantonment Area and are bordered on the north by the New Mexico state line. TAs 1A and 1B are adjacent to the Main Cantonment Area and EPIA. U.S. Highway 54 runs along the northwest boundary, and the southernmost boundary is U.S. Highway 62/180 (Montana Avenue) (see Figure 4.2-1). Loop 375 divides TA 1B. None of the other training areas are near any major roadways.

4.3.1.2 Utilities

Water Supply

There is a small complex of Site Monitor buildings 10 miles east of the Main Cantonment Area. These buildings obtain water from an on-site well. The water is chlorinated and stored in a 30,000-gallon tank (Ref# 3).

Wastewater Treatment

Wastewater generated at the Site Monitor buildings is collected in septic tanks that flow to drain fields or dry wells. Wastewater flow is estimated to be approximately 1,200 gallons per day.

Storm Water

Storm water generated by the Site Monitor location is passed by sheet flow to outlets cut in the perimeter fence. The outlets pass to a dune area, where water is lost through infiltration and evaporation (Ref# 3).

Solid Waste

Solid waste generated at the Site Monitor location is placed in dumpsters, which are periodically trucked to the on-site landfill (Ref# 3).

4.3.1.3 Energy

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. Liquefied Petroleum Gas (LPG) at the Site Monitor location is stored in four 1,000-gallon tanks, one 800-gallon tank, and one 500-gallon tank (Ref# 3).

4.3.2 Doña Ana Range-North Training Areas

4.3.2.1 Ground Transportation

The Doña Ana Range-North Training Areas are bounded by U.S. Highway 54 on the east. Doña Ana Range Camp is located west of U.S. Highway 54 and 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. Orogrande Range Camp is accessed off US 54. Average Annual Daily Traffic on U.S. 54 is approximately 5,400 in Otero County. AADT on Martin Luther King, Jr. Boulevard is estimated to be between 10,000 and 12,000. Martin Luther King, Jr. Boulevard becomes New Mexico Highway 213 in New Mexico; AADT on NM 213 is approximately 5,100.

4.3.2.2 Utilities

Water Supply

Doña Ana Range Camp is provided with water from two wells into the Hueco Bolson, one with a capacity of 500 gallons per minute (gpm) (0.72 MGD) and the second with a capacity of 200 gpm (0.29 MGD). The water is disinfected at each well and pumped to the distribution system or to a 150,000 gallon elevated tank. Water is chlorinated and stored in two 250,000-gallon tanks (Ref# 2).

The Orogrande Range Camp water system receives potable water from WSMR. WSMR makes the production from one well, nominally 1,000 GPM, available for Fort Bliss use. Currently, two 4-inch lines with pumps rated at approximately 500 GPM each provide water to Orogrande Range Camp. This water is stored on site (200,000 gallon capacity) or trucked to the SHORAD and Red Eye Sites on McGregor Range (Ref# 2).

The water that supplies WSMR is pumped from the Soledad Recharge Area, and WSMR has agreed not to extract more water than the natural recharge rate, estimated at 750 acre feet per year (afy). WSMR uses an average of approximately 520 afy. This leaves up to approximately 230 afy (average of 0.21 MGD) available for Fort Bliss use (Ref# 479).

In addition, the Hueco Camp wells, located in TA 4D, support 250 gpm (0.36 MGD). Water from the wells is disinfected and stored in a 20,000-gallon elevated tank (Ref# 2).

Wastewater Treatment

Wastewater is collected from Doña Ana Range Camp in a small network and treated in a two-cell, 3.75-acre lagoon about 0.5 miles to the south. The lagoon has a design biological oxygen demand loading of 40 lbs/day/acre (Ref# 2). Wastewater is collected from Orogrande Range Camp in a small network and is treated in a one-cell, 4.74-acre lagoon about 0.25 miles to the northeast (Ref# 2).

Storm Water

Doña Ana Range Camp is located in a gently sloping area at the southeast foothills of the Organ Mountains. Storm water consists of sheet flow, most of which is channelized into a graded ditch that runs along the south loop of the access road. Drainage from the ditch flows south of the access road and to the southeast towards a dry lake. Ten- and 25-year storm water events were evaluated and the facilities at the range camp were determined to be adequate (Ref# 3).

Orogrande Range Camp is located in a relatively flat area with a gentle slope to the northwest. An analysis of the storm water drainage system 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 (Ref# 3).

Solid Waste

Solid waste generated at the range camps is placed in dumpsters and picked up by the private contractor that services the Main Cantonment Area. Solid waste is then disposed of at the Fort Bliss Type I landfill (Ref# 3).

4.3.2.3 Energy

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 (Ref# 2).

No natural gas is supplied to the Doña Ana Range-North Training Areas (Ref# 2). 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 7 gallons per person per month, and a 30-day supply must be maintained (Ref# 2).

4.3.3 McGregor Range

4.3.3.1 Ground Transportation

U.S. Highway 54 connects El Paso, Texas with Alamogordo, New Mexico and 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 on to McGregor Range on the west at U.S. Highway 54 and exits the range at TA 16. Highway 506 is a gravel road maintained by Otero County and is a primary access route that connects several communities, including Timberon, Piñon, and Crow Flats, with the Otero County seat in Alamogordo. The AADT volume on Highway 506 in 1995 was less than 30 vehicles per day. There are numerous other roads in the McGregor Range road network that total over 1,000 miles of roadway. The Army maintains the road network on McGregor Range, which primarily consists of dirt roads that provide access to different parts of the range. The only ingress to grazing units in the Sacramento Mountains, including the Grapevine area, is via county and Forest Service roads originating at US 54 and traversing the north end of McGregor Range (Ref# 405).

4.3.3.2 Utilities

Water Supply

McGregor Range Camp receives water from the City of El Paso through a line with a capacity of 2.88 MGD. Water is chlorinated and is stored in two 250,000-gallon tanks. The Meyer Range Complex receives water by pipeline from McGregor Range Camp. Water is stored in a 25,000-gallon tank (Ref# 2).

Wastewater Treatment

Wastewater from McGregor Range Camp is treated in a 10.23-acre, single-celled lagoon. As of June 2006, a second 5-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 (Ref# 2).

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 1 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 discharge. There may be a small amount of nuisance ponding within the range camp and at Meyer Range. Twenty-five-year storm water events were evaluated and the facilities at the Range Camp and Meyer Range were determined to be adequate (Ref# 3).

Solid Waste

Solid waste generated at McGregor Range Camp is placed in dumpsters and picked up by the private contractor that services the Main Cantonment Area and taken to the Fort Bliss landfill (Ref# 3).

4.3.3.3 Energy

Electricity is supplied to McGregor Range Camp and Meyer Range Complex from an EPEC 7,500 KVA substation to the southwest, although a higher demand (15,000 KVA) can be provided for 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 two-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 7 gallons per person per month, and a 30-day supply must be maintained (Ref# 2).

4.4 AIRSPACE USE AND MANAGEMENT

Airspace management includes air traffic control and is defined as the direction, control, and handling of flight operations in the "navigable airspace" that overlies the geopolitical borders of the United States and its territories. 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 Federal Aviation Administration (FAA) Order 7400.2E (49 USC). This 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 (Ref# 324). Management of this resource considers how airspace is designated, used, and administered to best accommodate the individual and common needs of military, commercial, and general aviation. The FAA considers multiple and sometimes competing demands for aviation airspace in relation to airport operations, Federal Airways, Jet Routes, military flight training activities, and other special needs to determine how the National Airspace System (NAS) can best be structured to address all user requirements.

The FAA has designated four types of airspace within the U.S:

Controlled airspace is airspace of defined dimensions within which air traffic control service is provided to Instrument Flight Rule (IFR) flights and to Visual Flight Rule (VFR) flights in accordance with the airspace classification (Ref# 258). Controlled airspace is categorized into five separate classes, Classes A through E. These classes identify airspace that is controlled, airspace supporting airport operations, and designated airways providing en route transit from place to place. The classes also dictate pilot qualification requirements, rules of flight that must be followed, and the type of equipment necessary to operate within that airspace.

Special Use Airspace (SUA) is designated airspace within which flight activities are conducted that require confinement of participating aircraft or place operating limitations on non-participating aircraft. Restricted Areas and Military Operations Areas (MOAs) are examples of SUA.

Other airspace consists of advisory areas, areas that have specific flight limitations or designated prohibitions, areas designated for parachute jump operations, Military Training Routes (MTRs), and Aerial Refueling Tracks (ARs). This category also includes Air Traffic Control Assigned Airspace (ATCAA). When not required for other needs, ATCAA is airspace authorized for military use by the managing Air Route Traffic Control Center (ARTCC), usually to extend the vertical boundary of SUA.

Uncontrolled airspace is designated Class G airspace and has no specific prohibitions associated with its use.

The U.S military manages airspace in accordance with processes and procedures detailed in DoD Directive 5030.19, DoD Responsibilities on Federal Aviation and National Airspace System Matters. The U.S. Army implements these requirements through AR 95-2, Air Traffic Control, Airspace, Airfields, Flight Activities, and Navigational Aids.

The ROI for this SEIS is the airspace that is affected by aviation activities at Biggs AAF and the military training activities on McGregor Range and Doña Ana Range–North Training Areas (**Figure 4.4-1**).

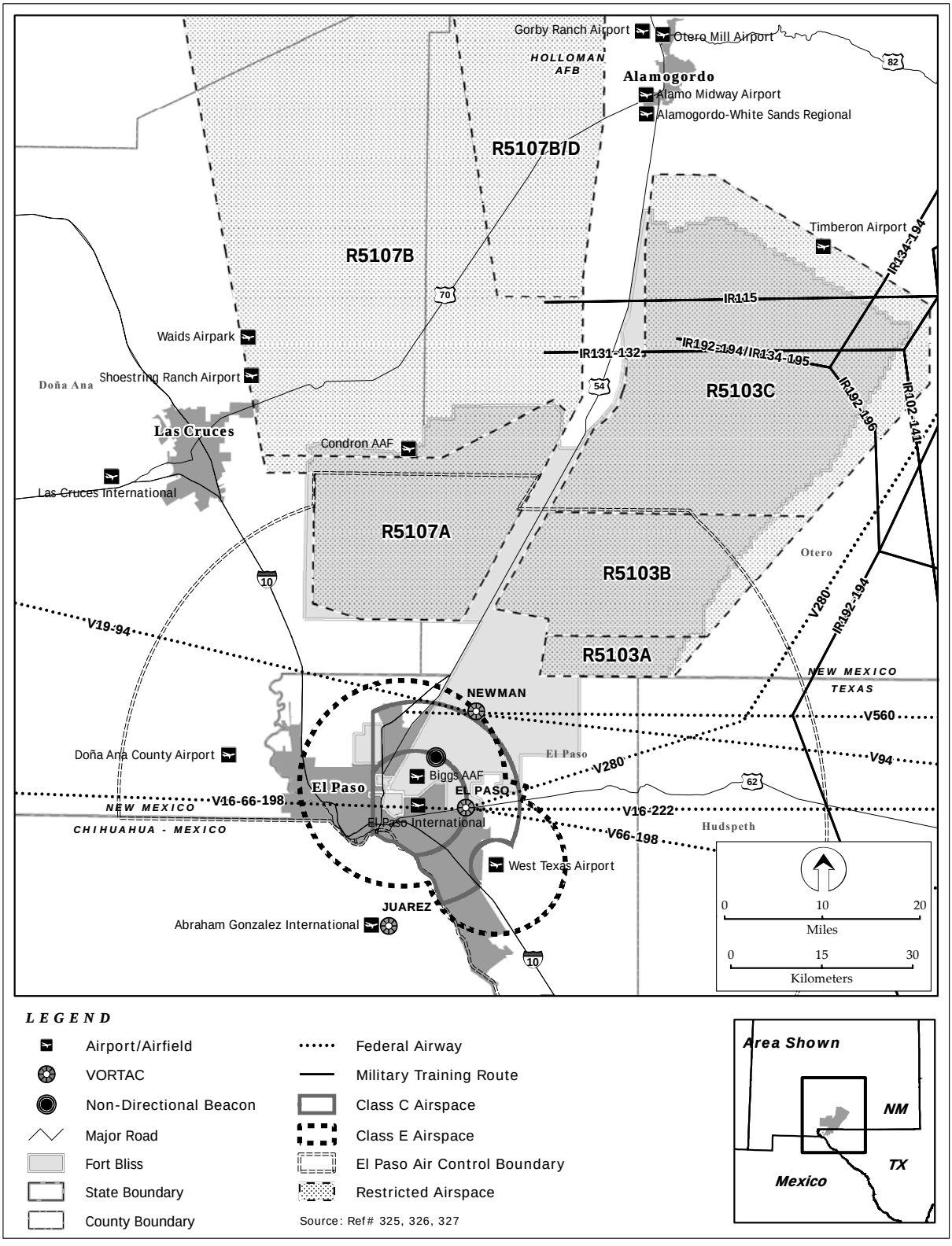

Figure 4.4-1. Airspace in the Region of Influence

4.4.1 Terminal Airspace

Biggs AAF mission activities occur within the airspace terminal area under the control of the FAA-operated El Paso Approach Control facility at EPIA. The Approach Control Area contains elements of controlled airspace, uncontrolled airspace, SUA (Restricted Areas), and MTRs.

There are several public use and private airports in the ROI. The public-use airports within the El Paso Approach Control Area include EPIA; West Texas Airport near Horizon City, Texas; and Doña Ana County Airport near Santa Teresa, New Mexico. El Paso Approach Control provides terminal area Air Traffic Control (ATC) radar services to Biggs AAF, EPIA, and West Texas Airport. The Doña Ana County Airport is VFR-only with no ATC services. The private Timberon, New Mexico airport lies within the boundaries of Restricted Area R-5103C.

Although Biggs AAF and EPIA are contiguous, each has distinct airspace and ATC operating parameters and procedures. Simultaneous operations typically occur at both airports. However, their proximity to one another and the relationship of their runway configurations can require air traffic considerations, particularly during peak traffic periods or instrument weather conditions in which landings and takeoffs at both facilities may be coordinated and controlled as a single airport. The Biggs AAF ATC tower is open from 7:00 a.m. to 10:00 p.m. Monday through Thursday, from 7:00 a.m. to 5:00 p.m. on Friday, and is closed on Saturdays, Sundays, and holidays except when extended hours are requested. When the Biggs AAF ATC tower is closed, aircraft arriving to or departing from Biggs AAF receive air traffic advisories and departure clearances from El Paso Approach Control.

The controlled airspace structure within the ROI consists of Class C airspace established around Biggs AAF and EPIA in conjunction with approach control and ATC tower services for IFR operations; Class D airspace around Biggs AAF and EPIA in conjunction with ATC tower services for landings, takeoffs, and instrument procedures at each respective airport; and Class E airspace around Biggs AAF and EPIA for aircraft transitioning between the airports and the enroute airspace environment. Because ATC tower services are not available at the West Texas Airport, Class E airspace has been established to accommodate instrument operations at the airport and aircraft transitioning between the airport and the enroute airspace system.

Aviation operations at Biggs AAF have remained relatively constant, with 39,850 in 2002, 38,903 in 2003, 39,715 in 2004, and 39,556 in 2005 (Ref# 316). In calendar year (CY) 2004, EPIA supported 116,351 aviation operations (Ref# 278).

The El Paso Approach Control Area also contains segments of seven low-altitude airways, which are designated as Class E airspace.

4.4.2 Training Airspace

The ROI contains Restricted Area SUA and MTRs that are used for military training operations by the Army and other DoD services.

Restricted Areas are airspace that support ground or flight activities that could be hazardous to non-participating aircraft. A Restricted Area is airspace designated under 14 CFR Part 73, within which the flight of aircraft, while not wholly prohibited, is subject to restriction. Most Restricted Areas are designated "joint-use" and IFR/VFR operations in the area may be authorized by the controlling ATC facility when it is not being utilized by the using agency (Ref# 258).

MTRs are flight corridors developed and used by the DoD to practice high-speed, low-altitude flight, generally below 10,000 feet above mean sea level (MSL). Specifically, MTRs are airspace of defined vertical and lateral dimensions established for the conduct of military flight training at airspeeds in excess of 250 knots indicated airspeed (Ref# 258). MTRs are identified as Visual Routes (VR) or Instrument Routes (IR).

The Doña Ana Range–North Training Areas are located in Restricted Area R-5107A, approximately 5 nautical miles (nm) north of the New Mexico-Texas border and west of US 54. The lateral boundaries of this Restricted Area extend approximately 13 nm to the north and south. The east/west boundaries are approximately 13.5 nm wide at the southern boundary and 23 nm wide at the northern boundary. Altitudes in R-5107A extend from the surface to unlimited, but there is a 2,000-foot above ground level (AGL) restriction over the part of the Organ Mountains that contains potential raptor nesting habitat. This Restricted Area is active 24 hours a day, 7 days per week (Ref# 326).

McGregor Range is located under Restricted Areas R-5103A, B, and C. The lateral boundaries of these Restricted Areas extend northward approximately 45 nm from the New Mexico-Texas border to approximately 8 nm south of Alamogordo, New Mexico, and eastward within a radius of 25 nm of US 54. The altitudes for R-5103A extend from the surface to, but not including, 18,000 feet MSL; for R-5103B from the surface to unlimited; and for R-5103C from surface to unlimited. The published hours of operation for R-5103A/B/C are from 7:00 a.m. to 8:00 p.m. local time Monday through Friday. Changes to these hours of operation are disseminated through the nationwide Notice to Airmen (NOTAM) system that pilots are expected to review prior to flight in the vicinity of Restricted Areas or other defense-related airspace.

Segments of eight MTRs transit through the McGregor Range Restricted Area (**Table 4.4-1**).

Table 4.4-1. Military Training Routes in the ROI

MTR	*Altitude Range*	*Route Width Range*	*Operating Hours*
IR-102	500' AGL–10,000' MSL	7–10 nm	Daylight hours by NOTAM
IR-115	500' AGL –12,000' MSL	10 nm	Daylight hours by NOTAM
IR-116	500' AGL –12,000' MSL	10 nm	Daylight hours by NOTAM
IR-131	500' AGL –12,000' MSL	10 nm	Daylight hours by NOTAM
IR-132	500' AGL –12 000' MSL	10 nm	Daylight hours by NOTAM
IR-134	100' AGL –12,500' MSL	Varied as defined by geographical coordinates	Sunrise–11:00 p.m.
IR-192	100' AGL –12,500' MSL	10–20 nm	Sunrise–11:00 p.m.
IR-194	100' AGL –12,500' MSL	7–24 nm	Sunrise–11:00 p.m.
IR-195	100' AGL –12,500' MSL	Varied as defined by geographical coordinates	Sunrise–11:00 p.m.

AGL = above ground level; IR = Instrument Route; MSL = mean sea level; nm=nautical mile; NOTAM = Notice to Airmen

4.5 EARTH RESOURCES

The Earth Resources section in the Mission and Master Plan PEIS included six topics: physiography, stratigraphy, structure, seismicity, mineral and energy resources, and soils. There have not been any substantive changes in the condition of the first five topics, and they are not expected to be affected by the actions considered in the SEIS. Therefore, the information in the PEIS is incorporated by reference and not repeated in this document. However, new data have been generated regarding soils in the vicinity and soils are the one earth resource that has the potential to be affected by the proposed land use changes. Therefore, the primary earth resource to be addressed in this SEIS is soils in the Main Cantonment Area and Fort Bliss Training Complex, with specific emphasis on factors that would affect and be affected by construction and ground-disturbing training activities, especially off-road vehicle maneuvers.

Since the PEIS, a new soil survey was completed for all of Fort Bliss except approximately 19,160 acres within Lincoln National Forest. The Fort Bliss Soil Survey database (Ref# 191) provides updated soils information in a single data source, including physical, chemical, and engineering properties, as well as limitations for military uses and ecological site descriptions and classifications. The new soil survey data characterize current conditions of soils, vegetation, and overall ecology, which provide a baseline for comparison of the effects of planned future construction and training activities.

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.

4.5.1 General Setting

Major land resource areas (MLRA) are geographically associated land resource units identified by the U.S. Department of Agriculture (Ref# 190) to facilitate regional and national planning. The dominant physical characteristics of the MLRAs describe relevant land use, elevation and topography, climate, water, soils, and potential natural vegetation. Fort Bliss falls within three MLRAs that are briefly described in **Table 4.5-1** to broadly characterize the region. The majority (82 percent) of Fort Bliss falls within MLRA 42: Southern Desertic Basins, Plains, and Mountains. **Figure 4.5-1** displays the MLRAs on Fort Bliss.

4.5.2 Soils on Fort Bliss

In general, soils on Fort Bliss are well drained to excessively drained with depth to bedrock ranging from shallow to very deep. The Soil Survey document (Ref# 282) 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 4.5-2**. Basic characteristics of each of these general soil map units are shown in **Table 4.5-2**.

Soil characteristics such as susceptibility to erosion and the suitability for roads, building construction, and use by military vehicles are a function of many physical and chemical properties of each soil, in combination with the climate, topography, and vegetation. 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 (Ref# 191).

Table 4.5-1. Summary of Major Land Resource Areas on Fort Bliss

Major Land Resource Area	*Percent of Total Fort Bliss Land*	*Brief Description of Characteristics*
42: Southern Desertic Basins, Plains, and Mountains	82%	About 1/3 federally owned (mainly in New Mexico), with most of the rangeland at low carrying capacity. Mean sea level elevations range from 2,625 feet (800 meters) to 8,530 feet (2,600 meters) in the mountains. Broad desert basins and valleys are bordered by gently sloping to strongly sloping fans and terraces. Average annual precipitation ranges from approximately 8 inches (200 millimeters) to 13 inches (325 millimeters), most occurring from mid-spring to mid-autumn. With scarce surface water and low precipitation, the Rio Grande, Pecos River, and a few larger tributaries are the only perennial streams. Groundwater in deep valley fill provides most water for domestic, municipal, and livestock use. Most soils are well drained and medium textured, formed mainly in locally transported sediments on the smoothly sloping sites. Shallow soils occur on steep and broken hill slopes. This area supports desert grass-shrub vegetation with variations of plant communities, depending on landscape position, soils, and topography.
70: Pecos-Canadian Plains and Valleys	17%	Located in Colorado and New Mexico, mostly in farms, ranches, or other private holdings. Some of the northern and eastern slopes of the high mesas in the north are covered by forest vegetation, but the total forested area is small. Elevation ranges from 3,940 feet (1,200 meters) to almost 7,900 feet (2,400 meters), increasing gradually from southeast to northwest. Most of these dissected high plains are gently sloping to rolling, but bands of steep slopes and rough broken land border the stream valleys. Average annual precipitation ranges from approximately 12 inches (300 millimeters) to 16 inches (400 millimeters), fluctuating widely from year to year. Water is scarce throughout the area because of low and erratic precipitation and few perennial streams. Groundwater in deep sand and gravel in the north and from limestone in the south provides water for domestic and agricultural purposes, but is scarce in areas where shale and sandstone are near the surface. Most soils are well drained and moderately fine to moderately coarse textured with mixed mineralogy. Vegetation is predominantly short and mid-height grasses, dominated by blue grama, western wheatgrass, and lesser amounts of black grama, galleta, New Mexico feathergrass, and a variety of shrubs, half shrubs, and forbs in the southern part. Scattered juniper and piñon with an understory of sideoats grama, bottlebrush squirreltail, and western wheatgrass grow on shallow soils and in escarpments.
39: Arizona and New Mexico Mountains	1%	Located in parts of Arizona, Colorado, New Mexico, and Utah. Mostly covered with timber and woodlands. Most of this area is very hilly and mountainous, with an upland plateau dissected by deep canyons. Average annual precipitation is higher than MLRA 42, increasing with elevation, with more larger streams and tributaries maintaining perennial flow. Groundwater is limited and usually occurs at great depth. At lower elevations, soils overlie mostly sedimentary rocks and old alluvium. Vegetation at lower elevations grade to chaparral and grassland.

Source: Ref# 190

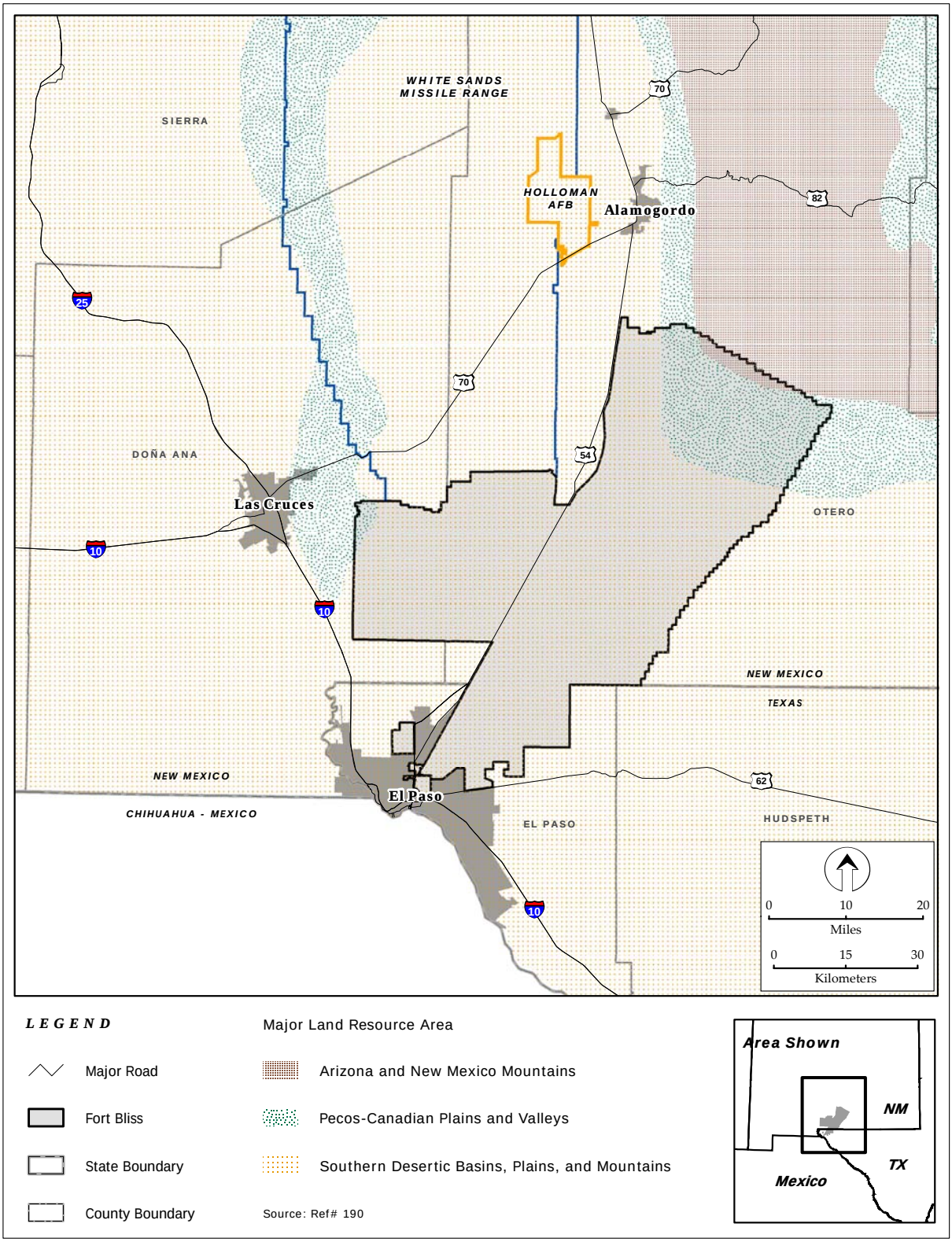

Figure 4.5-1. Major Land Resource Areas on Fort Bliss

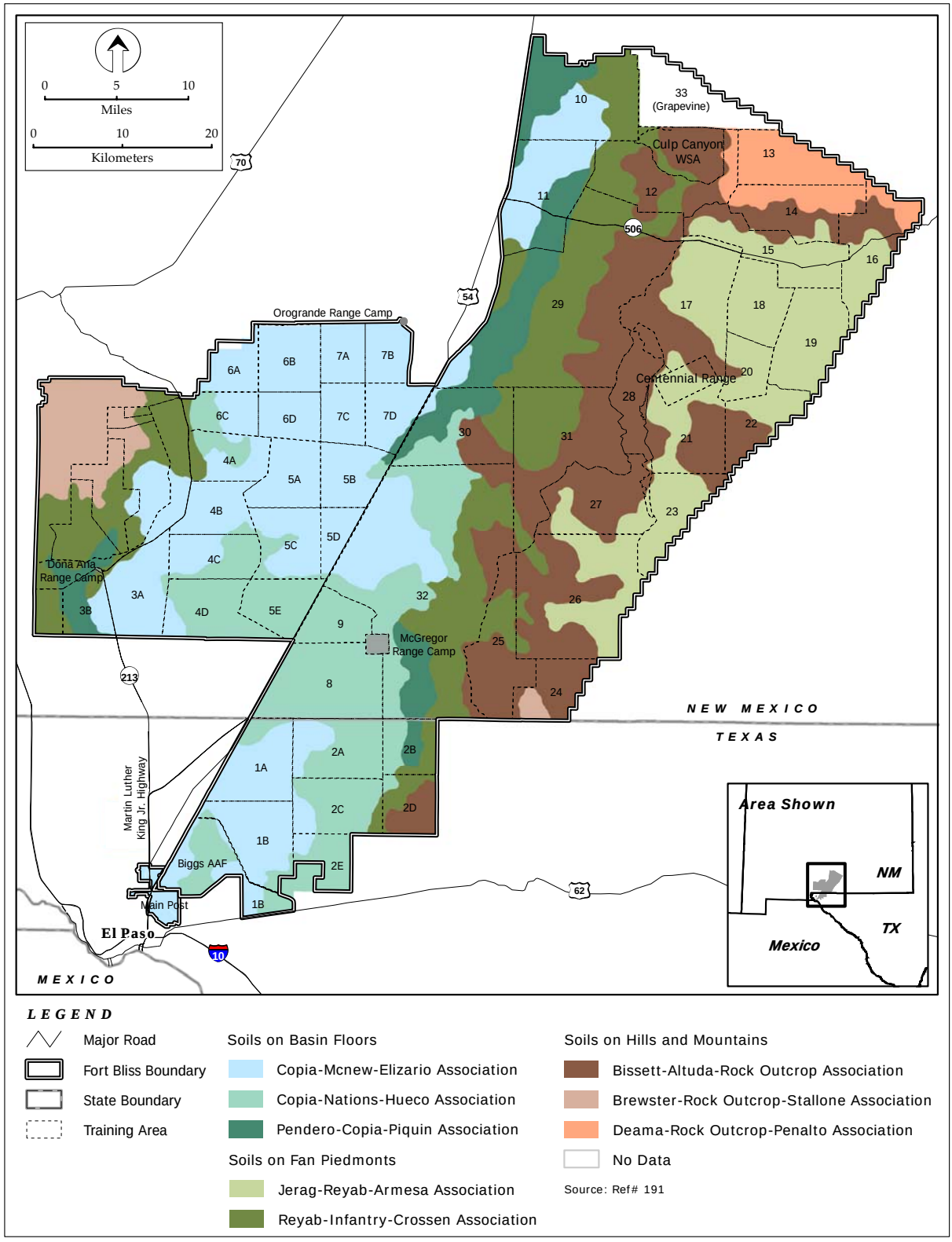

Figure 4.5-2. General Soil Map Units on Fort Bliss

Table 4.5-2. Characteristics of General Soil Map Units

Landscape Position	*Map Unit 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
	Pendero-Copia-Piquin Association	6%	2–15% slopes, very deep, excessively drained, loamy fine sand to very gravelly sandy loam surface texture
	Copia-Nations-Hueco Association	15%	0–5% slopes, very deep to moderately deep, loamy fine sand surface texture
Subtotal	Basin Floors	43%	
Fan Piedmonts	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)
	Jerag-Reyab-Armesa Association	14%	0–5% slopes, well drained, very deep to shallow, very fine sandy loam and silt loam surface texture
Subtotal	Fan Piedmonts	34%	
Hills and Mountains	Deama-Rock Outcrop-Penalto Association	3%	5–65% slopes, well drained, shallow and very shallow, very cobbly or gravelly 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
	Bissett-Altuda-Rock Outcrop Association	16%	5–65% slopes, well drained, shallow and very shallow, very gravelly or very cobbly loam surface texture
Subtotal	Hills and Mountains	23%	

1. Excluding Castner Range and TA 33 (Grapevine)
Source: Ref# 282

Soil loss tolerance is the maximum rate of soil loss that can occur while sustaining productivity. When soil loss is greater than the tolerance threshold, erosion is considered excessive. This generally results from human activities that remove the ground cover and loosen the soil, exposing soil to wind and water, accelerating the erosion process. Many of the soils on Fort Bliss are deep, with a relatively high (5 tons per acre per year) soil loss tolerance. However, with vegetation damaged or removed, annual erosion frequently exceeds 5 tons per acre, resulting in sand dunes, rills, gullies, and soil pedestals evident in many places (Ref# 191).

The Soil Survey (Ref# 191, 282) provides interpretations for specific 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 4.5-3** summarizes areas on Fort Bliss associated with selected soil ratings, hazards, and limitations that are relevant to the proposed mission changes.

58 **Table 4.5-3. Soil Limitations for Use on Fort Bliss**

Land or Training Use[1]	*Percent of Soils with Designated Rating, Hazard, or Limitation*				
	Excellent/ Slight Limitations	*Good*[2]	*Fair/ Moderate Limitations*	*Poor/ Severe Limitations*	*Not Rated*[3]
Main Post and Biggs AAF					
Natural Surface Road Construction	96%	N/A	0%	2%	2%
Small Commercial Buildings	71%	N/A	27%	0%	2%
Wind Erosion	0%	N/A	0%	100%	0%
Water Erosion	100%	N/A	0%	0%	0%
Trafficability, Vehicle Type 2	51% (wet) 98% (dry)	47% (wet) 0% (dry)	0% (wet) 0% (dry)	0% (wet) 0% (dry)	2% (wet) 2% (dry)
Trafficability, Vehicle Type 3	51% (wet) 98% (dry)	47% (wet) 0% (dry)	0% (wet) 0% (dry)	0% (wet) 0% (dry)	2% (wet) 2% (dry)
Trafficability, Vehicle Type 4	51% (wet) 98% (dry)	47% (wet) 0% (dry)	0% (wet) 0% (dry)	0% (wet) 0% (dry)	2% (wet) 2% (dry)
South Training Areas (TAs 1A, 1B, 2A-E)					
Natural Surface Road Construction	88%	N/A	4%	5%	3%
Small Commercial Buildings	65%	N/A	27%	5%	3%
Wind Erosion	0%	N/A	0%	100%	0%
Water Erosion	95%	N/A	2%	3%	0%
Trafficability, Vehicle Type 2	61% (wet) 95% (dry)	34% (wet) 0% (dry)	0% (wet) 1% (dry)	2% (wet) 2% (dry)	3% (wet) 2% (dry)
Trafficability, Vehicle Type 3	61% (wet) 95% (dry)	33% (wet) 0% (dry)	1% (wet) 1% (dry)	2% (wet) 2% (dry)	3% (wet) 2% (dry)
Trafficability, Vehicle Type 4	61% (wet) 95% (dry)	33% (wet) 0% (dry)	1% (wet) 1% (dry)	2% (wet) 2% (dry)	2% (wet) 2% (dry)
North Training Areas (TAs 3A & B, 4 A-D, 5 A-E, 6 A-D, 7 A-D, AA)					
Natural Surface Road Construction	96%	N/A	4%	0%	0%
Small Commercial Buildings	55%	N/A	43%	2%	0%
Wind Erosion	0%	N/A	0%	100%	0%
Water Erosion	100%	N/A	0%	0%	0%
Trafficability, Vehicle Type 2	49% (wet) 100% (dry)	51% (wet) 0% (dry)	0% (wet) 0% (dry)	0% (wet) 0% (dry)	0% (wet) 0% (dry)
Trafficability, Vehicle Type 3	49% (wet) 100% (dry)	51% (wet) 0% (dry)	0% (wet) 0% (dry)	0% (wet) 0% (dry)	0% (wet) 0% (dry)
Trafficability, Vehicle Type 4	49% (wet) 100% (dry)	51% (wet) 0% (dry)	0% (wet) 0% (dry)	0% (wet) 0% (dry)	0% (wet) 0% (dry)
Doña Ana Range					
Natural Surface Road Construction	24%	N/A	44%	25%	7%
Small Commercial Buildings	21%	N/A	46%	25%	8%
Wind Erosion	14%	N/A	0%	86%	0%
Water Erosion	58%	N/A	32%	10%	0%
Trafficability,	12% (wet)	62% (wet)	0% (wet)	18% (wet)	8% (wet)

Land or Training Use[1]	*Percent of Soils with Designated Rating, Hazard, or Limitation*				
	Excellent/ Slight Limitations	*Good*[2]	*Fair/ Moderate Limitations*	*Poor/ Severe Limitations*	*Not Rated*[3]
Vehicle Type 2	73% (dry)	0% (dry)	1% (dry)	18% (dry)	8% (dry)
Trafficability, Vehicle Type 3	12% (wet) 73% (dry)	61% (wet) 0% (dry)	1% (wet) 1% (dry)	18% (wet) 18% (dry)	8% (wet) 8% (dry)
Trafficability, Vehicle Type 4	12% (wet) 73% (dry)	61% (wet) 0% (dry)	1% (wet) 1% (dry)	18% (wet) 18% (dry)	8% (wet) 8% (dry)
McGregor Range, North Tularosa Basin (TAs 10, 11, & 29 north of Highway 506, west half of 12)					
Natural Surface Road Construction	46%	N/A	42%	8%	4%
Small Commercial Buildings	43%	N/A	18%	35%	4%
Wind Erosion	2%	N/A	0%	98%	0%
Water Erosion	93%	N/A	5%	2%	0%
Trafficability, Vehicle Type 2	24% (wet) 91% (dry)	71% (wet) 0% (dry)	0% (wet) 4% (dry)	1% (wet) 1% (dry)	4% (wet) 4% (dry)
Trafficability, Vehicle Type 3	24% (wet) 91% (dry)	59% (wet) 0% (dry)	12% (wet) 4% (dry)	1% (wet) 1% (dry)	4% (wet) 4% (dry)
Trafficability, Vehicle Type 4	24% (wet) 91% (dry)	59% (wet) 0% (dry)	12% (wet) 4% (dry)	1% (wet) 1% (dry)	4% (wet) 5% (dry)
McGregor Range, South Tularosa Basin (TAs 8, 9, 25, 30, 31, 32, 11 and 29 south of Highway 506)					
Natural Surface Road Construction	46%	N/A	27%	17%	10%
Small Commercial Buildings	44%	N/A	18%	35%	4%
Wind Erosion	2%	N/A	0%	98%	0%
Water Erosion	81%	N/A	14%	5%	0%
Trafficability, Vehicle Type 2	34% (wet) 81% (dry)	52% (wet) 0% (dry)	0% (wet) 5% (dry)	4% (wet) 3% (dry)	10% (wet) 11% (dry)
Trafficability, Vehicle Type 3	34% (wet) 81% (dry)	44% (wet) 0% (dry)	8% (wet) 5% (dry)	4% (wet) 3% (dry)	10% (wet) 11% (dry)
Trafficability, Vehicle Type 4	34% (wet) 81% (dry)	43% (wet) 0% (dry)	9% (wet) 5% (dry)	3% (wet) 3% (dry)	11% (wet) 11% (dry)
McGregor Range, Southeast Training Areas (TAs 24, 26, 27)					
Natural Surface Road Construction	17%	N/A	19%	42%	22%
Small Commercial Buildings	2%	N/A	21%	49%	28%
Wind Erosion	6%	N/A	0%	94%	0%
Water Erosion	50%	N/A	32%	18%	0%
Trafficability, Vehicle Type 2	0% (wet) 47% (dry)	60% (wet) 13% (dry)	0% (wet) 0% (dry)	12% (wet) 12% (dry)	28% (wet) 28% (dry)
Trafficability, Vehicle Type 3	0% (wet) 47% (dry)	47% (wet) 0% (dry)	13% (wet) 13% (dry)	12% (wet) 12% (dry)	28% (wet) 28% (dry)
Trafficability, Vehicle Type 4	0% (wet) 47% (dry)	47% (wet) 13% (dry)	13% (wet) 0% (dry)	12% (wet) 12% (dry)	28% (wet) 28% (dry)
Remainder of McGregor Range (TAs 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 28, 33, east half of 12)					
Natural Surface Road Construction	26%	N/A	21%	35%	18%
Small Commercial Buildings	0%	N/A	36%	42%	22%

Land or Training Use[1]	*Percent of Soils with Designated Rating, Hazard, or Limitation*				
	Excellent/ Slight Limitations	*Good*[2]	*Fair/ Moderate Limitations*	*Poor/ Severe Limitations*	*Not Rated*[3]
Wind Erosion	1%	N/A	0%	99%	0%
Water Erosion	61%	N/A	22%	17%	0%
Trafficability, Vehicle Type 2	0% (wet) 58% (dry)	65% (wet) 0% (dry)	0% (wet) 9% (dry)	11% (wet) 11% (dry)	24% (wet) 22% (dry)
Trafficability, Vehicle Type 3	0% (wet) 57% (dry)	57% (wet) 0% (dry)	9% (wet) 9% (dry)	11% (wet) 11% (dry)	23% (wet) 23% (dry)
Trafficability, Vehicle Type 4	0% (wet) 47% (dry)	47% (wet) 0% (dry)	13% (wet) 13% (dry)	12% (wet) 12% (dry)	28% (wet) 28% (dry)

1. Vehicle Type 2 includes high-speed tracked vehicles like M2A1, M2A2, and trucks like HMMWV.
Vehicle Type 3 includes tracked vehicles like 155-mm, Howitzer, and M1A1 tanks.
Vehicle Type 4 includes most medium tanks like M1A2.
2. Applies only to vehicle trafficability ratings.
3. Includes miscellaneous map units such as rock outcrops, pits, and dumps.
AA = Assembly Area
Source: Ref# 191

Limitations for Natural Surface Road Construction are developed by considering soil properties such as slope, rock fragments, ponding, and soil slippage that could cause problems for roads of minimal design and construction. This category is used to alert managers to areas where roads should be rerouted or where mitigation measures would be needed to minimize maintenance needs (Ref# 191).

Soil properties influence the construction of Small Commercial Buildings, including the selection of the site, the design of the structure, construction, performance after construction, and maintenance. Small Commercial Buildings are structures less than three stories high without basements. Rating terms indicate the extent to which the soil features affect building site development. A slight rating indicates that the soil is favorable for building construction and low maintenance can be expected. Moderate limitations can be overcome or minimized by special planning, design, or installation. Severe limitations indicate that the soils are unfavorable and generally cannot be overcome without major soil reclamation, special design, or expensive installation procedures (Ref# 282).

Based on the Soil Survey database (Ref# 191), the slight, moderate, and severe limitations for erosion shown in Table 4.5-3 correlate to the Not Highly Erodible, Potentially Highly Erodible, and Highly Erodible areas shown in **Figures 4.5-3** and **4.5-4**. The correlations were computed by comparing the Highly Erodible ratings for each soil map unit to the Kw factor (for water erosion) or Wind Erosion Index for dominant soil components.

Erosion Hazard ratings indicate the susceptibility of soils to accelerated wind or water erosion (shown in Figures 4.5-3 and 4.5-4 for the Fort Bliss Training Complex). A rating of slight (Not Highly Erodible) indicates that erosion is unlikely under ordinary climatic conditions with natural vegetation and ground cover intact; moderate (Potentially Highly Erodible) indicates that some erosion is likely and erosion control measures may be needed; severe (Highly Erodible) indicates that erosion is very likely and erosion control measures are advised. If soils with severe erosion hazards are left untreated, significant erosion is expected, resulting in loss of soil productivity and off-site damage. There is a close correlation between soil blowing and the size and durability of surface crust, rock fragments, and organic matter. This rating considers the natural vulnerability of the soils, with erosion most likely to occur if vegetation or other ground cover is reduced or removed. For example, if repeated maneuvers cause damage to vegetation or removal of ground cover like leaves, biological crusts, or other litter, the training areas with the highest percentage of soils with severe erosion hazards would be the most likely to erode, causing onsite and offsite damage and possibly resulting in unstable conditions for future training (Ref# 282).

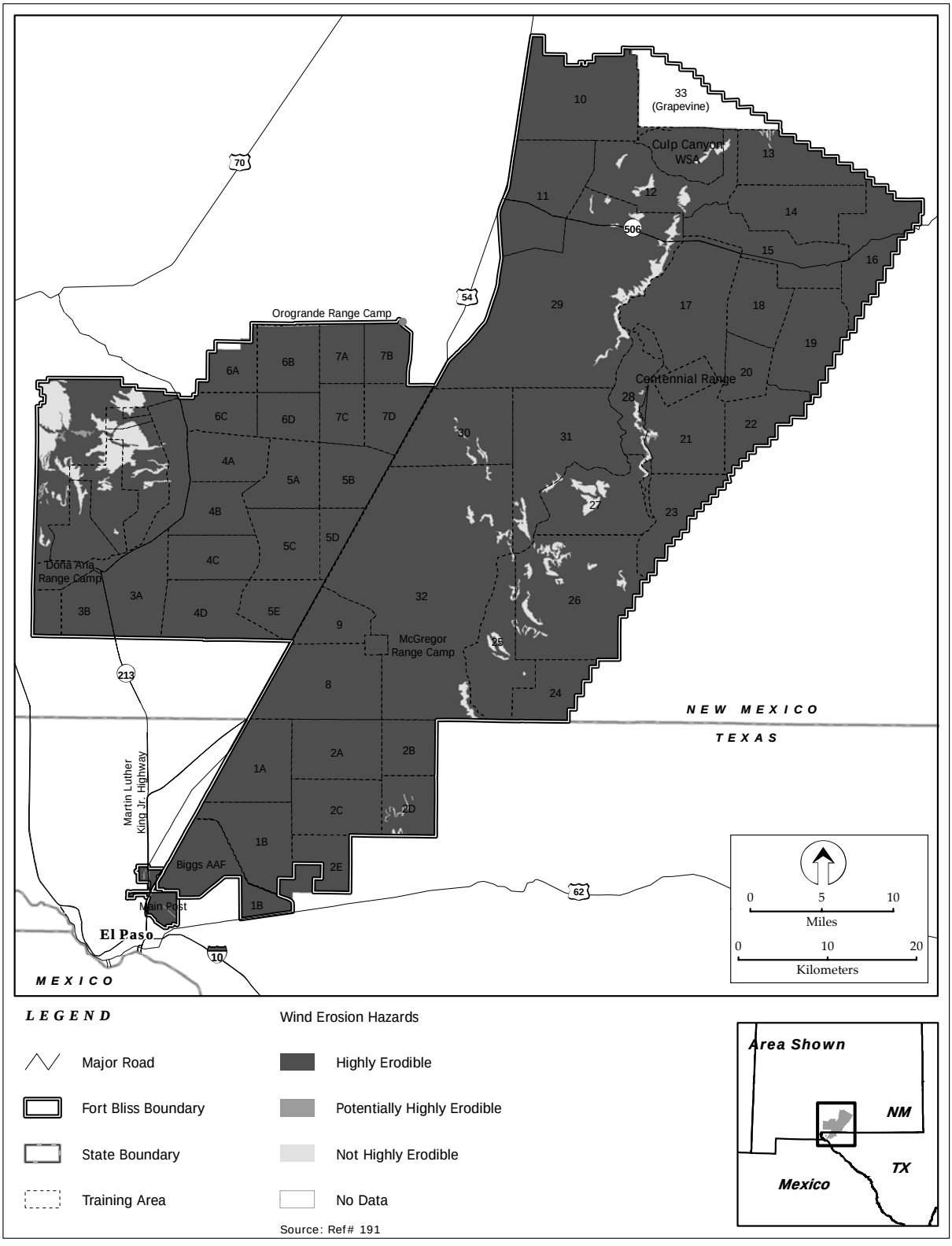

Figure 4.5-3. Soils on Fort Bliss Susceptible to Wind Erosion

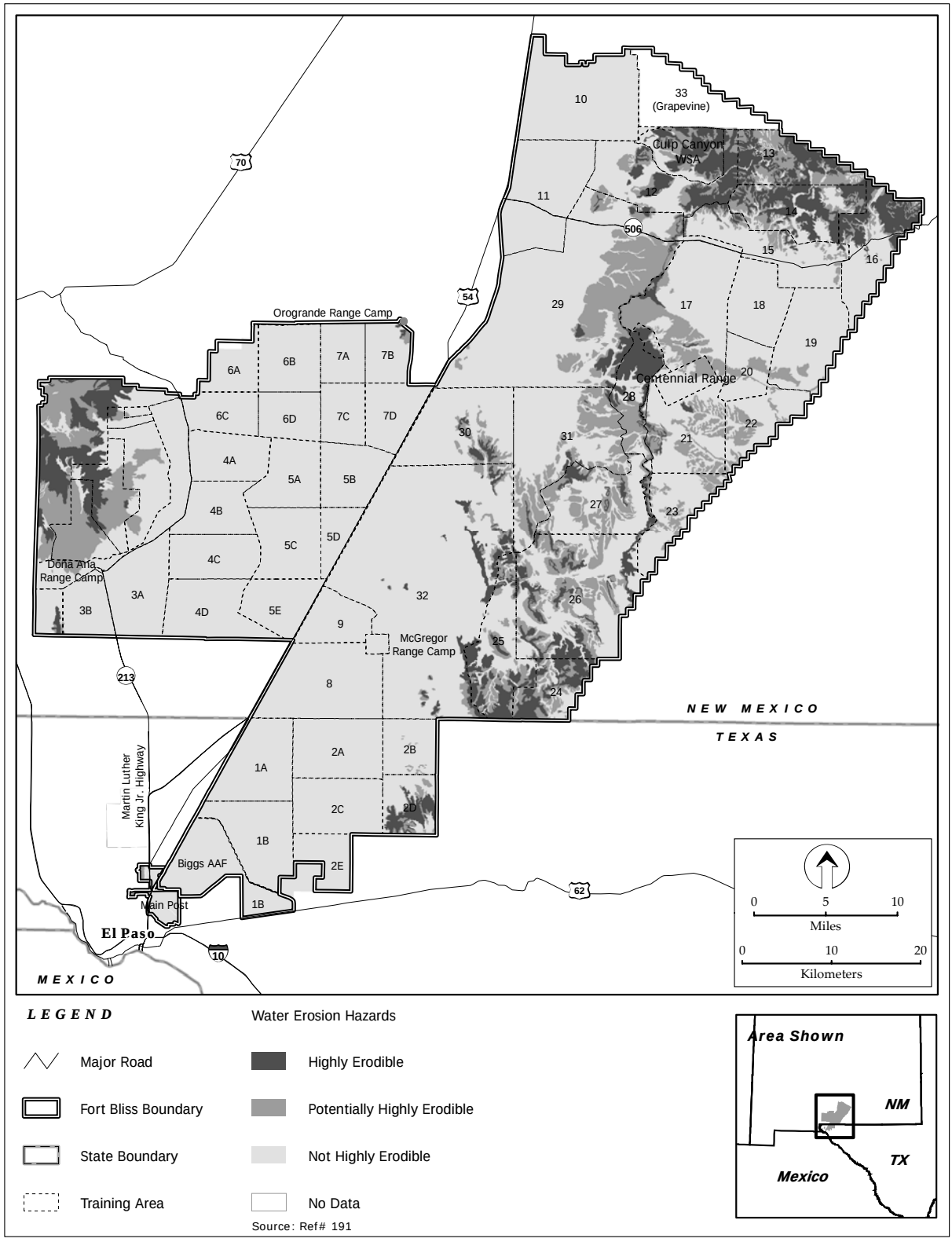

Figure 4.5-4. Soils on Fort Bliss Susceptible to Water Erosion

Trafficability is the capacity of soils to support military vehicles. Trafficability is affected by soil strength, slope, stickiness, slipperiness, vegetation, and natural obstacles. It is subdivided by vehicle type, depending on the contact pressure of tires or tracks and vehicle weight, and considers the effect on the surface soil layer under wet or dry conditions. The Soil Survey provides Trafficability ratings under wet conditions (high soil moisture) for one pass and 50 passes during a wet season. The ratings listed in Table 4.5-3 are for 50 passes. An excellent rating means that soil features are very favorable for the vehicle to pass; good indicates moderately favorable soil conditions; fair indicates some significant soil limitations that are likely to require adjustments to the vehicle spacings or route; poor indicates soil features that cannot be overcome. Areas with fair to poor trafficability may require greater vehicle maintenance (Ref# 282).

4.5.3 Ecological Conditions

The new Fort Bliss Soil Survey (Ref# 191, 282) describes ecological sites and applies the principles of the transition state concept to characterize changes in the ecosystem structure and function. The state and transitional model provides a framework for understanding vegetation dynamics that incorporates current ecological knowledge from many different sources. State and transition models in the ecological site (also called ecosite) description characterize ecological states (vegetative and ecological conditions) and transitions (ecological dynamics) that lead to changes in vegetative and ecologic conditions. An ecological site is defined as "a kind of land with specific physical characteristics, which differs from other kinds of land in its ability to produce distinctive kinds and amounts of vegetation and in its response to management" that is correlated with soil map units (Ref# 194). This concept was developed by a task force for the Society of Range Management to provide improved methods of tracking and monitoring rangeland health while providing some sensitive and useful tools to manage for sustainability. Since 1997, agency leaders for the three agencies with primary responsibility for assessing rangeland health (BLM, U.S. Forest Service, and Natural Resources Conservation Service) participated in a committee to promote the use of the ecological site concept and to develop indicators and protocols for assessment (Ref# 194).

Each ecological site describes a desired plant community and uses a threshold concept to characterize changes in the system. There are 17 standard indicators that are used to evaluate soil and site stability, hydrologic function, and biotic integrity and their degree of departure from the potential plant community and optimum ecological condition. These indicators primarily include measures of erosion by water and wind, plant community composition and production, and earth cover (Ref# 41).

The various plant community types possible on an ecological site correspond to the states of the vegetation and soil and help determine the management actions that may cause a transition from one plant community to another. Each ecosite description that follows the new format adopted by the lead federal agencies includes a description of the historic climax plant community species composition, ground cover, and production in its optimum state. It also describes other transition states that result due to degradation of the optimum system. On the Fort Bliss Training Complex, the departure from the historic plant community typically involves a reduction in grasses, increasing shrub components and bare ground, and accelerated soil erosion. This condition also exists in other areas of the Chihuahuan Desert that have been disturbed. In general, transitions to shrub-invaded and shrub-dominated ecosites are considered very difficult to convert back to higher level states dominated by grasses, even with active management (Ref# 29).

The ecosite description attempts to attribute possible causes for transitions within each ecosite, such as overgrazing, drought, or surface-disturbing activities, but it does not identify specific causes and effects. However, considering the transition states of the ecosites that dominate each of the major segments of the Fort Bliss Training Complex provides a way to characterize current conditions and evaluate the likelihood of change as more of the training areas are affected by off-road vehicle maneuvers. The occurrence of

coppice dunes is one indicator of a lower transition state, especially on Sandy and Deep Sand ecosites. Coppice dunes existed on Fort Bliss prior to military use.

The dominant ecological sites are summarized in **Table 4.5-4**, grouped by segment. Only those ecosites comprising 5 percent or more of each segment are listed, so the total is less than 100 percent. Only those with an ecosite identification (ID) ending in NM are currently described using the new ecological site description content and format containing the transition state model. Where ecosites have the same name but different ID numbers (Loamy, for example), the primary difference is related to precipitation, which causes other differences in vegetative cover and soils.

Table 4.5-4. Dominant Ecological Sites in the Fort Bliss Training Complex

Training Range Segment	*Ecological Site Name*	*Ecosite ID*	*Percent of Segment*
South Training Areas (TAs 1A & B, 2 A-E)	Deep Sand 8 to 10.5 inches	R042XB011NM	74%
	Gravelly	R042XB014NM	7%
	Loamy 8 to 10.5 inches	R042XC001NM	6%
	Sandy 8 to 10.5 inches	R042XB012NM	6%
	Limestone Hill & Mountain (Desert Grassland)	R042XY249TX	5%
North Training Areas (TAs 3A & B, 4 A-D, 5 A-E, 6 A-D, 7 A-D, AA)	Deep Sand 8 to 10.5 inches	R042XB011NM	83%
	Sandy 8 to 10.5 inches	R042XB012NM	5%
Doña Ana Range	Gravelly	R042XC001NM	28%
	Igneous Hills	R042XE002NM	16%
	Igneous Mountains	R042XF001NM	11%
	Foothill Slope (Mixed Prairie)	R042XY274TX	11%
	Gravelly Sand 8 to 10.5 inches	R042XB024NM	7%
	Igneous Hill & Mountain (Desert Grassland)	R042XY247TX	6%
	Limestone Hill & Mountain (Desert Grassland)	R042XY249TX	5%
McGregor Range, North Tularosa Basin (TAs 10, 11 & 29 north of Highway 506, west half of 12)	Deep Sand 8 to 10.5 inches	R042XB011NM	37%
	Loamy 8 to 10.5 inches	R042XC007NM	30%
	Gravelly	R042XC001NM	16%
	Sandy 8 to 10.5 inches	R042XB012NM	6%
	Limestone Hill & Mountain (Desert Grassland)	R042XY249TX	5%
McGregor Range, South Tularosa Basin (TAs 9, 25, 30, 31, 32, 11 & 29 south of Highway 506)	Deep Sand 8 to 10.5 inches	R042XB011NM	31%
	Gravelly	R042XC001NM	21%
	Loamy 8 to 10.5 inches	R042XC007NM	15%
	Limestone Hill & Mountain (Desert Grassland)	R042XY249TX	15%
	Sandy 8 to 10.5 inches	R042XB012NM	12%
McGregor Range, Southeast Training Areas (TAs 24, 26, 27)	Limestone Hills	R042XE001NM R070XD151NM R042XE001NM	35%
	Limestone Hill & Mountain (Desert Grassland)	R042XY249TX	16%
	Shallow Sandy 12 to 14 inches	R042XD006NM	13%
	Loamy 12 to 14 inches	R042XD001NM	8%
	Gravelly	R042XC001NM	7%
	Limy 12 to 14 inches	R042XD004NM	6%
	Loamy 8 to 10.5 inches	R042XC007NM	6%
	Draw 12 to 14 inches	R042XD003NM	6%

Training Range Segment	*Ecological Site Name*	*Ecosite ID*	*Percent of Segment*
Otero Mesa (TAs 15, 17, 18, 19, 20, 21, 22, 23, 28, ACEC, Centennial Range)	Limy 12 to 14 Inches	R042XD004NM	24%
	Limestone Hills	R042XE001NM R070XD151NM R042XC020NM	19%
	Loamy 12 to 14 inches	R042XD001NM	18%
	Shallow Sandy 12 To 14 inches	R042XD006NM	18%
	Gravelly 12 to 14 inches	R042XD007NM	7%
	Limestone Hill & Mountain (Desert Grassland)	R042XY249TX	6%
Sacramento Foothills (TAs 12, 13, 14, 16, 33 Grapevine, Culp Canyon WSA)	Limestone Hills	R042XE001NM R070XD151NM R042XC020NM	56%
	Limestone Hill & Mountain (Desert Grassland)	R042XY249TX	16%
	Gravelly	R042XC001NM	8%
	Draw 12 to 14 inches	R042XD003NM	7%
	Loamy 12 to 14 inches	R042XD001NM	5%
All of Fort Bliss with Ecological Sites Mapped (1,103,595 acres)	Deep Sand 8 to 10.5 inches	R042XB011NM	34%
	Gravelly	R042XC001NM	11%
	Limestone Hills	R042XE001NM	10%
	Limestone Hill & Mountain (Desert Grassland)	R042XY249TX	8%
	Loamy 8 To 10.5 inches	R042XC007NM	8%
	Sandy 8 to 10.5 inches	R042XB012NM	5%

Source: Ref# 191

The dominant ecosites, totaling at least 10,000 acres within the Fort Bliss Training Complex, are listed in **Table 4.5-5**, in descending order of total acreage. The ecosite ID numbers provide information on the dominant land type (R for rangeland), MLRA (for example, 042X), a letter reflecting the Land Resource Unit (the basic unit from which MLRAs are determined), a three-digit site number assigned by the state, and the postal code for the state responsible for the ecosite description (NM or TX). A brief description of the ecosites and the most common transition state are also included in the table. The most common transition states are based on vegetation mapping of Fort Bliss (see Section 4.8).

Table 4.5-5. Dominant Ecosites and Brief Descriptions, in Order of Occurrence

Ecosite Name (% of Fort Bliss)	*Ecosite ID*	*Current Estimated Primary Transition State*[1]	*Brief Description*
Deep Sand (34%)	R042XB011NM	Mesquite Dune State	This ecosite often intergrades with either the Sandy or Gravelly Sand ecosites. The historic plant community of this ecosite is dominated by dropseeds and a significant cover of black grama and bush muhly. Coppice dunes are similar to the mesquite-dominated state in the Sandy ecosite. This site is often associated with dunes in the soil survey data, primarily on either Copia or Nations soil map unit components. Causes of the transition from the historic plant community are unknown, but may relate to destruction of plants by trampling or vehicles with consequent erosion.

Ecosite Name (% of Fort Bliss)	*Ecosite ID*	*Current Estimated Primary Transition State*[1]	*Brief Description*
Gravelly (11%)	R042XC001NM	Shrubland	This ecosite is associated with Limestone Hills, Draw, Loamy, and Sandy sites. The historic plant community is dominated by grasses, with shrubs scattered and evenly distributed. Black grama is the dominant grass species; winterfat, fourwing saltbush, and creosotebush are common shrubs. Overgrazing, other damage to vegetation, or extended drought can reduce grass cover, effect a change in grass species dominance, and may result in a shrub-dominated state.
Limestone Hills (10%)	R042XC020NM R042XE001NM R070XD151NM	Grass-Succulent Mix	This ecosite is associated with both Draw and Gravelly ecosites, but in a higher topographic position. The historic plant community is a grass/succulent mix, with grasses dominant, followed by succulents and shrubs. Forbs are the minor component. Transitions from Grass-Succulent mix to a Succulent-Dominated state may occur as a result of surface disturbance.
Limestone Hill & Mountain (Desert Grassland) (8%)	R042XY249TX	Grass-Succulent Mix	The historic plant community includes mid- and short-grasses with an abundance of perennial forbs and woody shrubs. Transitions from Grass-Succulent mix to a Succulent-dominated state may occur as a result of surface disturbance.
Loamy 8 to 10.5 inches (8%)	R042XC007NM	Shrub-Dominated	This ecosite is associated with the Gyp Upland, Gravelly, and Shallow ecosites. The historic plant community is dominated by grasses with shrubs sparse and evenly distributed. Continuous damage to grass cover reduces surface water infiltration and may eventually effect a change to bare or shrub-dominated states from which it is extremely difficult to recover. Survey data and vegetation mapping indicate relatively low perennial grass cover, high percentages of bare ground, and the beginning of mesquite invasion.
Sandy 8 to 10.5 inches (5%)	R042XB012NM	Mesquite Shrubland	This ecosite is often associated with the Shallow Sandy ecosite depending on the depth of caliche and intergrades with Deep Sand and Gravelly Sand. The historic plant community is dominated by black grama and other grasses, especially dropseeds. Shrub invasion is very common, and mesquite invasion is documented by the average mesquite canopy cover on 27 plots. The causes for transition to coppice dunes is attributed to drought and surface disturbance, including grazing.
Limy 12 to 14 inches (4%)	R042XD004NM	Shrub-Invaded Grasslands	This ecosite is associated with the Gyp Upland ecosite with an increase in alkali sacaton along this interface. The historic plant community is dominated by grasses with shrubs and half-shrubs sparse and evenly distributed. Tobosa, black grama, and blue grama are the dominant species. Retrogression within this state is characterized by a decrease in black and blue grama and an increase in burrograss, initiated by a transition to a Burrograss-Grassland state. Continued reduction in grass

Ecosite Name (% of Fort Bliss)	*Ecosite ID*	*Current Estimated Primary Transition State*[1]	*Brief Description*
			cover and resulting infiltration problems may eventually effect a change to a Bare State, with very little or no remaining grass cover. Alternatively, creosotebush, tarbush, or mesquite may expand or invade. Transitions back to a Grassland State from a Bare or Shrub-Dominated state may not be economically feasible.
Shallow Sandy 12 to 14 inches (4%)	R042XD006NM	Grass-Succulent Mix	This ecosite occurs adjacent to or as a component associated with both the Gravelly and Limy ecosites. The historic community is open grassland sparsely dotted with shrubs with black grama and blue grama as the dominant species. Forb production and composition fluctuates both seasonally and from year to year. This site is subject to invasion by creosotebush.
Loamy 12 to 14 inches (3%)	R042XD001NM	Shrub-Invaded Grasslands	This ecosite typically receives surface water flows from adjacent Gravelly and Shallow Sandy ecosites. The historic plant community is open prairie grassland with short grasses (blue grama and tobosa) dominant. Occasional forbs and woody shrubs occur in association with the grasses. The transition to a shrub-invaded state is facilitated by loss of grass cover due to drought or surface disturbance. Continued reduction in grass cover and increased erosion may eventually lead to a shrub-dominated state subject to erosion and unlikely to recover.
Gravelly 12 to 14 inches (1%)	R042XD007NM	Grassland	This ecosite is associated with the topographically higher Limestone Hills from which it can receive surface water flows. It is also associated with the Shallow Sandy ecosite, where they occur together as a complex on fan piedmonts and adjacent to the Limy and Loamy ecosites. The Gravelly ecosite occupies a convex landscape position. The soils contain a shallow petrocalcic horizon, which is very slowly permeable, keeping soil water perched and available to plants. Black grama is the dominant grass species. Forb production is variable and an important component. Shrubs are a noticeable component of this site and include yucca, prickly pear, creosotebush, tarbush, winterfat, and others. Retrogression within this state is characterized by a decrease in black grama, blue grama, and sideoats and an increase in dropseeds, sand muhly, and creosotebush, influenced by drought or overgrazing. The relative density of shrubs for this ecosite may have been kept in check by fire, so fire suppression may facilitate shrub expansion and the transition to a shrub-dominated state. Drought and overgrazing may assist in shrub establishment and expansion. As grass cover is reduced, the amount of bare ground increases, increasing susceptibility to physical crusting, reduced infiltration, litter movement and redistribution, and erosion.

Ecosite Name (% of Fort Bliss)	*Ecosite ID*	*Current Estimated Primary Transition State*[1]	*Brief Description*
Loamy 8 to 10.5 inches (1%)	R042XB014NM	Shrub-Dominated	This ecosite intergrades with Sandy, Clayey, and Gravelly or Gravelly Loam ecosites, without sharp boundaries. The presumed historic plant community is dominated by black grama and tobosa with some alkali sacaton. Survey data and vegetation mapping indicate relatively low perennial grass cover, high percentages of bare ground, and the beginning of mesquite invasion with some coppice dune formation.
Igneous Hills (1%)	R042XE002N	Grassland-Succulent Mix	The historic plant community type is dominated by black grama, bush muhly, and sideoats grama. Tobosa may be abundant where soil moisture is higher. Shrubs and succulents are common, especially on south-facing slopes where there is low grass cover. Where there is increased bare ground, there is evidence of sheet flow by surface water. The presence of creosotebush may increase with surface disturbance.
Draw 12 to 14 inches (1%)	R042XD003NM	Grass-Shrub Mix	This ecosite is associated with Limestone Hills, Igneous Hills, and Gravelly sites from which it receives and transports runoff water. It consists of two separate elements, the arroyo channel and its associated floodplain, with an ephemeral stream floodplain and gently sloping surface. Along the channel it has the appearance of an elongated sinuous savannah with shrubs and trees dominant, and high production from grasses and an abundant variety of forbs in the understory. Vegetation is variable and is dependent on flood events, distance from the channel, parent material, and amount of gravel and cobble in the soil profile. Sideoats grama is the dominant grass in the historic plant community, in addition to cane bluestem, bush muhly, blue grama, and plains bristlegrass. Desert willow, Apache plume, brickellbush, littleleaf sumac, mariola, and mesquite are common woody species. Retrogression is characterized by a decrease in the dominant grasses. Transition to the creosotebush-dominated state may occur as a result of continued loss of grass cover and increased erosion.

1. Applies to those sites with Ecological Site Descriptions that have information associated with Fort Bliss GIS vegetation data.

Source: Ref# 29, 30

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4.6 AIR QUALITY

This section describes the current air quality conditions in the area around Fort Bliss, Texas and New Mexico, and compares it to the relevant federal and state air quality standards. In addition, a 2004 baseline air emissions inventory is presented to represent current air emissions from Fort Bliss operations.

Air quality in a given location can be described by the concentration of individual pollutants in the atmosphere and is generally expressed in units of parts per million (ppm) or micrograms per cubic meter ($\mu g/m^3$). Air quality is determined by the type and amount of pollutants emitted into the atmosphere, the size and topography of the air basin, and the prevailing meteorological conditions. Meteorological conditions have a significant impact on the pollutant concentrations because they control the dispersion or mixing of pollutants in the atmosphere through the influences of wind speed, wind direction, atmospheric stability, and other meteorological variables. In some cases, natural conditions can increase pollution levels. For example, summer thunderstorms can produce dust storms that carry large quantities of particulate matter high into the atmosphere.

The main pollutants of concern considered in this air quality analysis include volatile organic compounds (VOCs), ozone (O_3), carbon monoxide (CO), nitrogen oxides (NO_X), sulfur dioxide (SO_2), particulate matter less than 10 microns in diameter (PM_{10}), and particulate matter less than 2.5 microns in diameter ($PM_{2.5}$). Although VOCs or NO_X have no established ambient standards, they are important precursors to O_3 formation, and their emissions are often regulated.

Identifying the ROI for air quality requires knowledge of the types of pollutants being emitted, the emission rates and release parameters of the pollutant source, the source proximity to other pollutant sources, and local and regional meteorological conditions. The ROI for inert pollutants (all pollutants other than ozone and its precursors) is generally limited to a few miles downwind from a source. Thus, for PM_{10} emissions from construction and operational activities at Fort Bliss, the ROI is limited to the immediate surrounding area. However, for large sources of ozone precursors, the ROI for ozone can extend much farther downwind than for inert pollutants. In the presence of solar radiation, the maximum effect of VOCs and NO_X emissions on ozone levels usually occurs several hours after they are emitted and many miles downwind from the source. Therefore, the ROI for air quality includes Doña Ana and Otero Counties, New Mexico, and El Paso County, Texas.

4.6.1 Applicable Regulations and Standards

Comparing the concentration of a pollutant in the atmosphere to relevant federal and state ambient air quality standards determines the significance of that pollutant in a region or geographical area. Federal, Texas, and New Mexico regulations and standards affect the Main Cantonment Area within Texas and the Fort Bliss Training Complex within Texas and New Mexico.

4.6.1.1 Federal Air Quality Standards

Under the authority of the Clean Air Act (CAA), the USEPA has established nationwide air quality standards to protect public health and welfare, with an adequate margin of safety. These federal standards, known as the National Ambient Air Quality Standards (NAAQS), were developed for six "criteria" pollutants: O_3, nitrogen dioxide (NO_2), CO, PM_{10}, SO_2, and lead (Pb). The standards are defined in terms of concentration (e.g., ppm) determined over various periods of time (averaging periods). Short-term standards (1-hour, 8-hour, or 24-hour periods) were established for pollutants with acute health effects, while long-term standards (annual periods) were established for pollutants with chronic health effects.

In 1997, the USEPA promulgated two new standards: a new 8-hour O_3 standard (which has replaced the 1-hour O_3 standard revoked in 2005) and a new standard for particulate matter less than or equal to 2.5 µm in diameter ($PM_{2.5}$), which are fine particulates that had not been previously regulated. In addition, the USEPA revised the existing PM_{10} standard. Attainment designations for the 8-hour O_3 standard were

promulgated on April 15, 2004 and were effective as of June 15, 2004. Attainment designations for the $PM_{2.5}$ standard were promulgated on December 17, 2004, based on 2001-2003 monitoring data, and were effective as of April 5, 2005. The NAAQS are presented in **Table 4.6-1**.

Table 4.6-1. National and State Ambient Air Quality Standards

Air Pollutant	*Averaging Time*	*Federal NAAQS*		*New Mexico AAQS*		*Texas AAQS*	
		Primary	***Secondary***	***Primary***	***Secondary***	***Primary***	***Secondary***
Carbon Monoxide (CO)	8-hour 1-hour	9 ppm 35 ppm	--- ---	8.7 ppm 13.1 ppm	--- ---	9 ppm 35 ppm	--- ---
Nitrogen Dioxide (NO_2)	AAM 24-hour	0.053 ppm ---	0.053 ppm ---	0.05 ppm 0.10 ppm	0.053 ppm ---	0.053 ppm ---	0.053 ppm ---
Sulfur Dioxide (SO_2)	AAM 24-hour 3-hour	0.03 ppm 0.14 ppm ---	--- --- 0.5 ppm	0.02 ppm 0.10 ppm ---	--- --- 0.5 ppm	0.03 ppm 0.14 ppm ---	--- --- 0.5 ppm
Particulate Matter (PM_{10})	AAM 24-hour	50 $\mu g/m^3$ 150 $\mu g/m^3$	50 $\mu g/m^3$ 150 $\mu g/m^3$	--- ---	50 $\mu g/m^3$ 150 $\mu g/m^3$	50 $\mu g/m^3$ 150 $\mu g/m^3$	50 $\mu g/m^3$ 150 $\mu g/m^3$
Particulate Matter ($PM_{2.5}$)	AAM 24-hour	15 $\mu g/m^3$ 65 $\mu g/m^3$	15 $\mu g/m^3$ 65 $\mu g/m^3$	--- ---	--- ---	15 $\mu g/m^3$ 65 $\mu g/m^3$	15 $\mu g/m^3$ 65 $\mu g/m^3$
Total Suspended Particulates (TSP)	AGM 30-day 7-day 24-hour	--- --- --- ---	--- --- --- ---	60 $\mu g/m^3$ 90 $\mu g/m^3$ 110 $\mu g/m^3$ 150 $\mu g/m^3$	--- --- --- ---	--- --- --- ---	--- --- --- ---
Ozone (O_3)	8-hour	0.08 ppm	---	---	---	0.08 ppm	0.08 ppm
Lead (Pb) and Lead Compounds	Calendar Quarter	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$	1.5 $\mu g/m^3$

NAAQS = National Ambient Air Quality Standards; AAQS = Ambient Air Quality Standards; AAM = Annual Arithmetic Mean; AGM = Annual Geometric Mean; ppm = parts per million; $\mu g/m^3$ = micrograms per cubic meter
Source: Ref# 209, 210

USEPA has classified all areas of the United States as meeting the NAAQS (in attainment) or not meeting the NAAQS (in nonattainment) for each individual criteria pollutant. The CAA Amendments (CAAA) of 1990 established a framework to achieve attainment and maintenance of the health-protective NAAQS. Title I sets provisions for the attainment and maintenance of the NAAQS.

4.6.1.2 State Air Quality Standards

Under the CAA, state and local agencies may establish air quality standards and regulations of their own, provided these are at least as stringent as the federal requirements. Activities on the Fort Bliss Military Reservation are measured against air quality standards in New Mexico and Texas. The New Mexico Environment Department's Air Quality Bureau revised its ambient air quality standards (AAQS) in November 1995. According to the preamble of the new regulation, the New Mexico AAQS are not intended to provide a sharp dividing line between air of satisfactory quality and air of unsatisfactory quality. They are, however, numbers that represent objectives that will preserve the state's air resources. The Texas Commission on Environmental Quality has adopted the NAAQS as their state standards. Table 4.6-1 shows the national and state ambient air quality standards that apply to Fort Bliss.

4.6.1.3 State Implementation Plans

Individual states are required to establish a State Implementation Plan (SIP), which is approved by USEPA. A SIP is a document designed to provide a plan for maintaining existing air quality in attainment areas and programmatically eliminating or reducing the severity and number of NAAQS violations in nonattainment areas, with an underlying goal to bring state air quality conditions into (and maintain) compliance with the NAAQS.

The principal method of maintaining or improving ambient air quality is by controlling emissions from sources. The SIP establishes regulations to control stationary emission sources, and the USEPA establishes regulations to control mobile sources, which are installed by vehicle manufacturers. In attainment areas, Prevention of Significant Deterioration (PSD) regulations apply; in nonattainment areas, New Source Review regulations apply.

Several control regulations can apply to large stationary emission sources, including Best Available Control Technology (BACT), New Source Performance Standards (NSPS), National Emission Standards for Hazardous Air Pollutants (NESHAPs), and Maximum Achievable Control Technology (MACT). Based on the type of source, the emission levels of criteria pollutants, and the location, one or more of these control requirements may be applicable.

The PSD regulations provide special protection from air quality impacts for certain areas, primarily National Parks and Wilderness Areas, which have been designated as "Class I" areas. Mandatory PSD Class I areas established under the CAAA of 1977 for the States of New Mexico and Texas are listed under 40 CFR 81.421 and 81.429, respectively. These are areas where air quality related values (especially visibility and acid deposition) have been determined to be important issues. The nearest PSD Class I area to Fort Bliss is Guadalupe Mountains National Park, which is 45 miles to the southeast. Other PSD Class I areas in the region include Big Bend National Park, Carlsbad Caverns National Park, the White Mountain Wilderness Area, and the Bosque del Apache Wilderness Area. However, because of their distance from Fort Bliss, these PSD Class I areas are not expected to be impacted by the proposed activities.

4.6.1.4 Conformity Rule

Under the General Conformity Rule of the CAA, Section 176(c), federal activities must not: cause or contribute to any new violation, increase the frequency or severity of any existing violation, or delay timely attainment of any standard, interim emission reductions, or milestones in conformity to a SIP's purpose of eliminating or reducing the severity and number of NAAQS violations or achieving attainment of the NAAQS.

In 1996, Fort Bliss entered into an Agreed Final Judgment with the State of Texas as a result of an air quality enforcement action involving asbestos management, dust control, gasoline truck inspections, and oxygenated fuels. Since 24 December 2003, the Agreed Final Judgment has been terminated with the State of Texas, as Fort Bliss has demonstrated compliance with the requirements of the order. Fort Bliss continues with demonstrated compliance and operates in the spirit of the Judgment parameters.

4.6.2 Regional Climate

Fort Bliss is located in the northern Chihuahua Desert and has a semi-arid to arid, subtropical desert climate characterized by low rainfall, relatively low humidity, hot summers, moderate winters, wide temperature variations, and an abundance of sunshine throughout the year. Records of the weather in the area that have been kept since 1904 indicate that the area has an average annual precipitation of 8.8 inches, (Ref# 3) with extremes of 2.22 inches and 18.29 inches. More than half of the total average annual precipitation occurs during the months of July, August, and September. During these months, brief but heavy rainstorms frequently cause localized flooding. A small percentage of annual precipitation falls in the form of snow. Periods of extreme dryness lasting up to several months are not unusual.

Fort Bliss has a frost-free season that averages 248 days a year. Temperatures are generally warm, ranging from highs in the mid-50 degrees Fahrenheit (°F) during the winter months to highs well above 90°F during the summer. The annual average temperature is 63.3°F, with a record low of -8°F and a record high of 114°F. Daytime humidity is generally low, ranging from 10 to 14 percent. Because of the mountainous terrain and the Rio Grande Valley, there are significant diurnal and regional fluctuations in humidity. Typical of desert climates, rapid cooling from nighttime re-radiation causes increases in

relative humidity. Average daily relative humidity increases to about 40 percent at midnight and to 51 percent by 6:00 a.m.

Wind speeds in the El Paso area are moderate, with an annual average of 9.0 miles per hour (mph). From October through February, average wind speeds range from 8.2 to 9.0 mph and are predominantly from the north. The highest average wind speeds (11.3 mph) occur during the months of March and April, decreasing slightly in May to an average of 10.5 mph. The combination of relatively strong sustained winds and the low precipitation in the spring contribute considerably to the occurrence of dust and sand storms in the area, particularly at that time of year. During the summer months, average wind speeds drop to their lowest levels of the year (less than 8.0 mph). The predominant wind direction during the summer months is from the south-southwest.

A combination of abundant sunshine, high temperatures, low relative humidity, and continuous winds results in an evaporative rate that is more than 10 times the amount of annual precipitation. The annual evaporation rate for shallow water bodies in the area (known as "pans") is about 105 inches, and the average annual evaporation rate from small lakes in the region ranges from 72 to 80 inches.

4.6.3 Regional Air Quality

4.6.3.1 Texas

El Paso County, Texas, is classified as being in attainment for all criteria pollutants, with the exception of the City of El Paso, which is designated as moderate nonattainment for CO and PM_{10}. El Paso County, including Fort Bliss, was designated as being in attainment of the $PM_{2.5}$ standard and the 8-hour ozone standard. The El Paso City-County Health and Environment District (EPCCHED), in cooperation with TCEQ and USEPA, has been monitoring $PM_{2.5}$ since 1998 in the El Paso County area. $PM_{2.5}$ data do not exist for the areas in the Fort Bliss Training Complex. The source of fine particles (measured as $PM_{2.5}$) is generally combustion processes (e.g., boilers, internal combustion engines), while coarse particles (measured by PM_{10}) result from windblown dust on deserts and fields or road dust kicked up from motor vehicles. Based on the information collected in the 2005 Baseline Air Emission Inventory (Ref# 206), it is not expected that emissions from boilers, furnaces, and internal combustion engines will contribute significantly to an exceedance of the $PM_{2.5}$ standard.

The TCEQ Air Monitoring Division and EPCCHED maintain several air quality monitoring sites in El Paso County, the majority of which are located within or near the El Paso city limits. EPCCHED has a monitoring station on Fort Bliss west of the Air Defense School. The data from the city monitoring sites are not representative of the air quality over Fort Bliss because the city monitoring sites have additional emissions related to heavily populated areas that would not occur on the more remote sites of Fort Bliss, and therefore they have not been considered for this evaluation. On the eastern side of the City of El Paso near Fort Bliss, monitoring stations located south and east of the installation provide representative air quality data for the area. Monitoring data for 2002 through 2004 from these stations are presented in **Table 4.6-2** and indicate generally good air quality. According to the Natural Events Action Plan, the majority of exceedances of the 24-hour PM_{10} standard in the City of El Paso during these years were due to high winds lifting dust into the air from areas of exposed soil (i.e., dust storms). These days of exceedance were not included in the calculation of the attainment status for the area. USEPA has accepted the plan and its assumptions.

158 **Table 4.6-2. Air Quality Monitoring Data for El Paso, Texas**

Pollutant/Monitoring Station	*Averaging Time/ Measurement*	*Maximum Concentration*		
		2002	*2003*	*2004*
CO (ppm)				
Ivanhoe C414	8-hour	2.8	2.8	2.0
Chamizal C41		6.7	6.6	5.3
Ascarate Park SE C37		5.3	5.7	4.0
Skyline Park C72		2.2	2.2	2.1
Ivanhoe C414	1-hour	4.6	4.87	3.5
Chamizal C41		12.3	9.2	7.8
Ascarate Park SE C37		12.0	13.3	7.6
Skyline Park C72		3.9	3.6	2.5
O_3 (ppm)				
Ivanhoe C414	8-hour	0.088	0.078	0.077
Chamizal C41		0.105	0.080	0.078
Ascarate Park SE C37		0.097	0.086	0.081
Skyline Park C72		0.092	0.076	0.084
NO_2 (ppm)				
Ascarate Park SE C37	AAM	0.017	0.016	0.018
Chamizal C41		0.021	0.020	0.014
Skyline Park C72		0.011	0.011	0.009
PM_{10} ($\mu g/m^3$) [1]				
Ivanhoe C414	AAM	33	37	24
Ascarate Park SE C37		49	61	45
Ivanhoe C414	24-hour	226	187	167
Ascarate Park SE C37		421	802	397
$PM_{2.5}$ ($\mu g/m^3$)				
Chamizal C41	AAM	10.6	9.7	---
Skyline Park C72		7.5	5.9	---
Chamizal C41	24-hour	49	27	---
Skyline Park C72		19	24	---
SO_2 (ppm)				
Skyline Park C72	AAM	0.001	0.001	0.001
	24-hour	0.004	0.008	0.002
	3-hour	0.021	0.031	0.007
Pb ($\mu g/m^3$)				
Skyline Park C72	QAM	0.04	0.04	---

1. The high PM_{10} values recorded at the El Paso monitoring stations were due to unusual events (dust storms). These days of exceedance were not included in the calculation of the attainment status for the area

ppm = part per million by volume; µg/m3 = micrograms per cubic meter; AAM = Annual Arithmetic Mean.; QAM = Quarterly Arithmetic Mean

Source: Ref# 208

159 ### *4.6.3.2 New Mexico*

160 Otero and Doña Ana Counties are designated as being in attainment for all criteria pollutants. However,
161 the western portion of Doña Ana County has experienced violations of the PM_{10} standard. USEPA has a
162 Natural Events Policy that is meant to address violations of the PM_{10} standard that are caused by natural
163 events such as high winds in areas that have exposed, dry soil. Doña Ana County has a Natural Events

Action Plan (NEAP) in place, which exempts PM_{10} exceedances during wind storms or other naturally occurring events (Ref# 212). Fort Bliss is a party to the NEAP, although because of the prevailing westerly winds and geography, it tends to be a receptor, rather than a generator, of blowing dust entrained within the western portion of the county (Ref# 211).

The New Mexico Air Quality Bureau does not monitor ambient air pollutant concentrations on Fort Bliss. Routine air quality monitoring occurs at several stations in Doña Ana County, west and north of the military reservation. **Table 4.6-3** presents a summary of air quality monitoring data for 2002 through 2004. The federal 24-hour PM_{10} standard was exceeded in 2002 and 2003, mainly during extremely high wind conditions.

Table 4.6-3. Air Quality Monitoring Data for South-Central New Mexico

Pollutant/Monitoring Station	*Averaging Time/ Measurement*	*Maximum Concentration*		
		2002	*2003*	*2004*
CO (ppm)				
Las Cruces Holiday Inn	8-hour	3.2	2.8	2.5
Las Cruces Holiday Inn	1-hour	5.2	3.8	4.2
O_3 (ppm)				
Chaparral	8-hour	0.080	0.071	0.080
La Union		0.080	0.090	0.075
Las Cruces Holiday Inn		0.068	0.067	0.063
Desert View Elementary School		0.085	0.082	0.076
Sunland Park City Yard		0.087	0.080	0.073
Santa Teresa Int. Blvd.		0.090	0.079	0.081
PM_{10} ($\mu g/m^3$)[1]				
Las Cruces	AAM	23	24	---
Anthony		33	34	26
Sunland Park City Yard		40	53	36
Las Cruces	24-hour	100	70	---
Anthony		95	113	111
Sunland Park City Yard		152	147	120
$PM_{2.5}$ ($\mu g/m^3$)				
Las Cruces	AAM	6.6	6.9	6.1
Sunland Park City Yard		12.2	11.2	10.2
Las Cruces	24-hour	26	17	23
Sunland Park City Yard		56	51	39
NO_2 (ppm)				
Desert View Elementary School	AAM	0.010	0.011	0.011
Santa Teresa Int. Blvd.		0.006	0.005	0.005
Desert View Elementary School	24-hour	—	0.030	0.036
Santa Teresa Int. Blvd.		—	0.024	0.026

Pollutant/Monitoring Station	*Averaging Time/ Measurement*	*Maximum Concentration*		
		2002	*2003*	*2004*
SO_2 (ppm)				
La Union	AAM	0.001	0.001	---
Sunland Park City Yard		0.001	0.001	0.001
La Union	24-hour	0.003	0.003	---
Sunland Park City Yard		0.003	0.004	0.005
La Union	3-hour	0.006	0.009	---
Sunland Park City Yard		0.008	0.009	0.009

1. The exceedance of the federal 24-hr PM_{10} standard in 2002 and 2003 is primarily due to extremely high wind conditions
ppm = part per million by volume; $\mu g/m^3$ = micrograms per cubic meter; AAM = Annual Arithmetic Mean
Source: Ref# 208

4.6.4 Current Air Emissions at Fort Bliss

Separate air emissions inventories for Fort Bliss have been generated for Texas and New Mexico. This is a logical division, although the two parts of Fort Bliss are adjoining, because Texas and New Mexico have different attainment status for some of the criteria pollutants, and there are differences in their air quality regulations.

4.6.4.1 Texas

The emissions inventory for CY 2004 for the portions of Fort Bliss in Texas, including the Main Cantonment Area, is summarized in **Table 4.6-4** (Ref# 206).

Table 4.6-4. Baseline Air Emission Inventory for Portions of Fort Bliss in Texas (CY 2004)

Emission Sources	*Actual Emissions (Tons/Year)*					
	NO_X	*SO_2*	*CO*	*PM*	*VOC*	*HAPs*
External Combustion Sources	31.59	0.22	26.39	2.40	1.73	0.69
Internal Combustion Sources (including Emergency and Portable Generators)	64.50	1.51	7.90	2.19	4.79	0.18
Solvent Use Sources	0.00	0.00	0.00	0.02	8.85	0.61
Storage Tanks and Fueling Operations	0.00	0.00	0.00	0.00	5.13	1.33
Miscellaneous Operations	0.17	0.00	0.05	1.92	1.90	0.42
Abrasive Blasting Operations	0.00	0.00	0.00	0.08	0.00	0.00
Surface Coating Operations	0.00	0.00	0.00	0.75	14.09	2.92
Fugitive Dust Sources	0.00	0.00	0.00	18.30	0.00	0.00
Total Emissions	**96.3**	**1.7**	**34.3**	**7.4**	**36.5**	**6.2**

HAPs = hazardous air pollutants
Source: Ref# 206

These sources can be divided into several groups:

- Combustion sources. Portable gasoline/diesel/JP-8-fired generators, diesel emergency generators, electric peak shaving plant generators, natural gas-fired boilers, and an incinerator.
- Solvent use sources. Degreasers used for maintenance and repair in motor pools and other facilities.
- Storage tanks and fueling operations. Fuel storage tanks, aviation fuel farm, and fuel dispensing facilities.

- Miscellaneous operations. Fire fighting training, welding operations, soil vapor extraction by systems, woodworking, and landfill operations.
- Abrasive blasting operations. Abrasive blasting room and portable blasting units.
- Surface coating. Surface coating operations occur in several painting booths. Emissions have been reduced by the use of low VOC paints.
- Fugitive dust. These result from Landfill Road and unpaved range roads. Emissions from Landfill Road are kept to a minimum by a strictly enforced 10 mph speed limit.

4.6.4.2 New Mexico

Fort Bliss is not considered to be a major source of air emissions by the Air Quality Bureau of the State of New Mexico, because it is primarily comprised of multiple minor individual emission sources that are included on the Air Quality Bureau's List of Insignificant Activities. A Baseline Air Emission Inventory for CY 2004 in the New Mexico portion of the installation was recently developed (Ref# 472) to determine the status of Fort Bliss with regard to air emission sources in the State of New Mexico and to address the dynamic activities in the training ranges. A summary of the air emission inventory is presented in **Table 4.6-5**.

Table 4.6-5. Baseline Air Emission Inventory for Portions of Fort Bliss in New Mexico (CY 2004)

Emission Sources	*Actual Emissions (Tons/Year)*					
	NO_X	*SO_2*	*CO*	*PM*	*VOC*	*HAPs*
External Combustion Sources	3.81	0.48	1.95	0.47	0.16	0.04
Internal Combustion Sources (including Emergency and Portable Generators)	25.53	0.48	3.08	1.08	1.27	0.06
Solvent Use Sources	0.00	0.00	0.00	0.00	0.42	0.00
Storage Tanks and Fueling Operations	0.00	0.00	0.00	0.00	1.54	0.12
Miscellaneous Operations	0.00	0.00	0.00	0.36	0.00	0.40
Surface Coating Operations	0.00	0.00	0.00	0.01	0.05	0.01
Total Emissions	**29.35**	**0.95**	**5.03**	**1.91**	**3.44**	**0.63**

Source: Ref# 472

4.6.5 Current Status of Air Quality Permits for Fort Bliss

Fort Bliss, Texas, has been able to retire its existing air quality permits with the TCEQ and register the sources with either historic standard exemptions or permit-by-rule regulations and proactive management. Fort Bliss has an application for a Federal Operating Permit (Title V permit) based on the updated Emission Inventory for 2004. The application is currently under review by TCEQ. NO_x is the key pollutant triggering major source for Title V. Fort Bliss has consolidated all historical standard exemptions and permit by rule (PBR) for surface coating, miscellaneous spray paints, and solvent degreasers under one state flexible permit. Old source evaluations and PBRs will be voided once the flexible permit is issued. The Air Quality Bureau of New Mexico considers Fort Bliss, New Mexico, a minor source of emissions. Consequently, Fort Bliss is not currently required to have any air quality permits for operations in New Mexico.

4.7 WATER RESOURCES

This section addresses surface and groundwater resources. 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 the Tularosa–Hueco Basin (including the Lower Tularosa Basin and the Upper Hueco Bolson), the Mesilla Basin, and the Salt Basin (**Figure 4.7-1**). The general hydrologic environment in the ROI was described in the 2000 Mission and Master Plan PEIS, which is incorporated by reference and not repeated.

Existing water resources information in this section is summarized from the EIS for *Proposed Leasing of Lands at Fort Bliss, Texas for the Proposed Siting, Construction, and Operation by the City of El Paso of a Brackish Water Desalination Plant and Support Facilities* (Ref# 222), which is incorporated by reference.

4.7.1 Surface Water

The Rio Grande is the only sizable usable source of surface water in the ROI. The El Paso region obtained an average of 24 percent of its water supply from the Rio Grande between 1967 and 2002 and the remaining 76 percent of its water supply from intermontane-basin aquifers in the Hueco and Mesilla Bolsons. The maximum annual surface water production of 58,743 af occurred in 2002 and comprised approximately 49 percent of the total water production for that year.

Reuse of river water for irrigation between the headwaters of the Rio Grande and El Paso degrades the quality of the water by increasing its dissolved solids content. During periods of high reservoir releases, the water quality meets drinking water standards, and El Paso can use the water after conventional treatment. However, during periods of low discharge, including the nonirrigation season (October-March), and during droughts, the salinity increases to the point that the water is no longer usable for domestic purposes without additional treatment.

The Doña Ana Range-North Training Areas and McGregor Range are located in two basins, the Tularosa Basin and the Salt Basin. The Salt Basin includes the western part of Otero Mesa and the southern slopes of the Sacramento Mountains foothills. The Tularosa Basin and the Salt Basin are characterized by small ephemeral streams that discharge toward the central areas of the 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. The Sacramento River, prior to the installation of upstream diversions, probably was perennial for at least part of its course through McGregor Range. **Figure 4.7-2** shows surface water drainages in the Fort Bliss Training Complex.

Three diversions capture water for use on the McGregor Range and the adjoining community of Orogrande. The diverted water is transported via three pipelines; one crosses the northwest quarter of McGregor Range to Orogrande, and the other two supply water to numerous storage tanks and water troughs across Otero Mesa. Otero Mesa earthen dams capture most of the available water for livestock. **Figure 4.7-3** shows the water pipelines, storage tanks, and earthen impoundments on McGregor Range. The Army holds water right number 01657 for the diversions used on McGregor Range. A change in the beneficial use from "livestock and domestic purposes" to "the preservation of fish and wildlife" was granted in 1963 by the New Mexico State Engineers Office. The right entitles the Army to divert 60,000 gallons per day (gpd) of surface water flow from the Sacramento River and 50,000 gpd from Carrisa Springs (Ref# 434).

The McGregor pipeline system (exclusive of the Orogrande system) is a large gravity-fed water network that is operated and maintained by BLM for wildlife and livestock. The three intakes (sources) for the system are in the Sacramento Mountains, north of McGregor Range. A smaller system, the El Paso line,

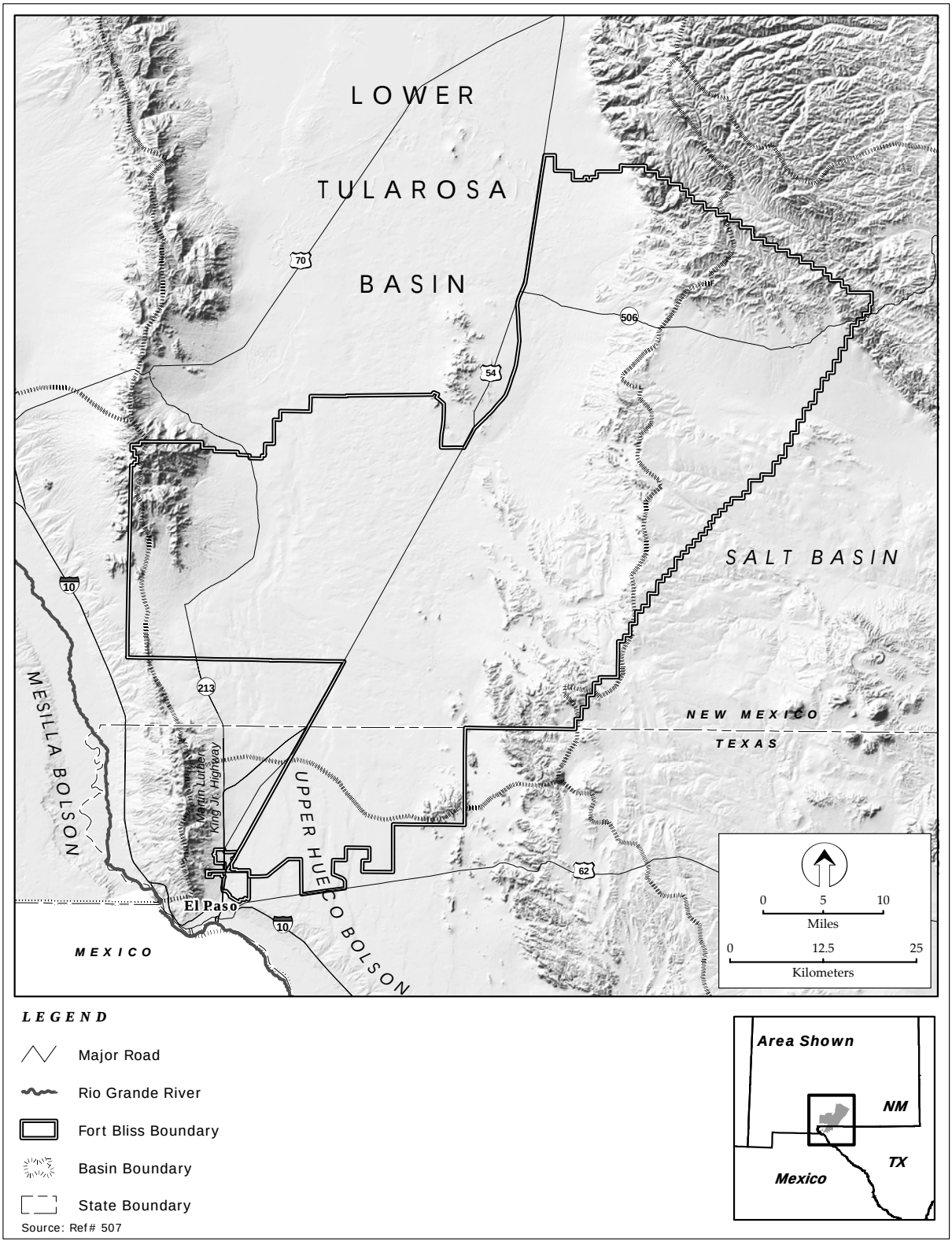


Figure 4.7-1. Basins in the Region of Influence

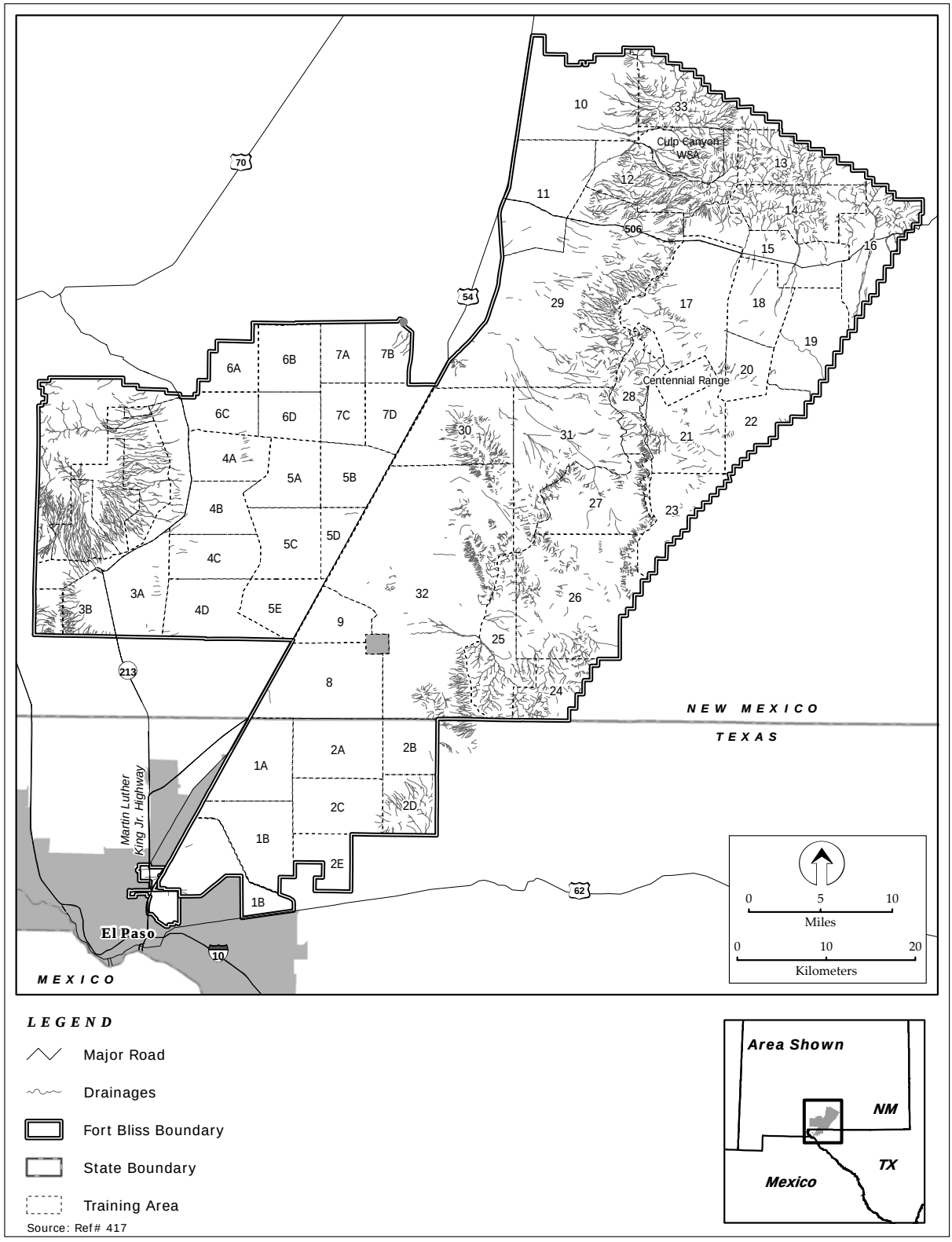


Figure 4.7-2. Surface Water Drainages in the Fort Bliss Training Complex

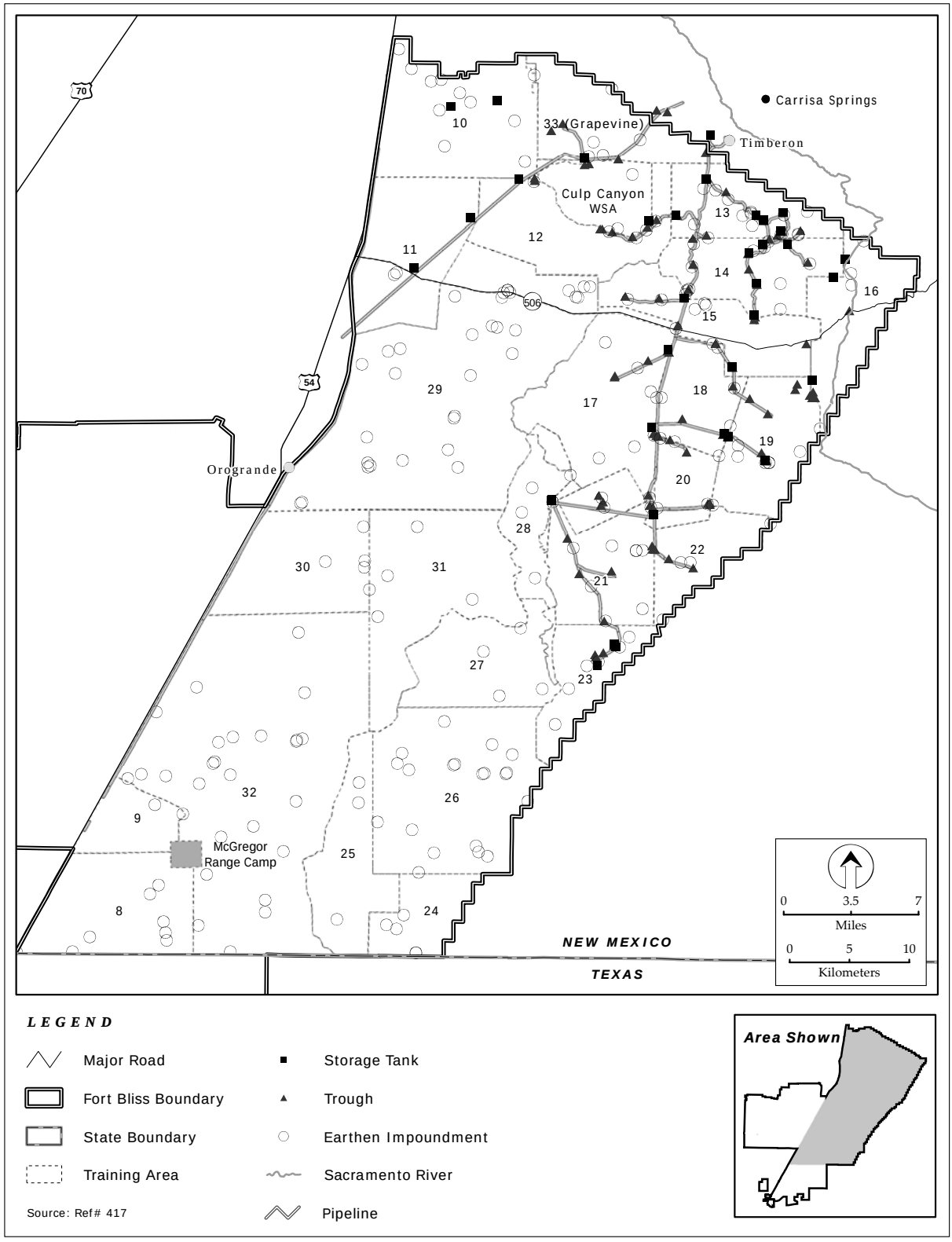


Figure 4.7-3. Water Pipelines and Storage Areas on McGregor Range

runs through El Paso Canyon to the east boundary of McGregor Range in the north part of Otero Mesa. The total flow of both lines is about 76 gpm (about 110 afy) (Ref# 3).

4.7.2 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 (see Figure 4.7-1). The principal aquifers in the Tularosa-Hueco Basin are the Hueco Bolson, which provides groundwater to the City of El Paso, the Fort Bliss Main Cantonment Area, and Cuidad Juárez, and the Tularosa Basin, which underlies parts of Doña Ana, Otero, Lincoln, and Sierra Counties and portions of the Doña Ana Range–North Training Areas and McGregor Range.

4.7.2.1 Hueco Bolson

The Hueco Bolson is an intermontane basin incised by the Rio Grande Valley. The part of the basin north of the Rio Grande is referred to as the Upper Hueco Bolson. The principal area of recharge to the bolson 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 afy. Most of the Rio Grande channel through the El Paso metropolitan area has been lined since 1968, virtually 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 tertiary treated 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).

The majority of the fresh water (chloride less than 250 milligram per liter [mg/L]) in the Hueco Bolson aquifer lies along the eastern front of the Franklin Mountains. The thickest part of the aquifer underlies Fort Bliss, northeastern El Paso, and northern Mexico. The freshwater portion of the aquifer is more than 1,000 feet deep in this area. The freshwater zone is widest at or near the water table and narrows with depth.

Small areas of fresh water in the eastern portion of the Hueco Bolson aquifer are surrounded by slightly to moderately saline water. The area of fresh water thins toward the east until only brackish water is present. Small pockets of fresh water occur along the base of the Hueco Mountains and serve as a water supply for commercial and residential users. In addition to fresh groundwater in storage, large volumes of brackish water are stored within deeper bolson sediments.

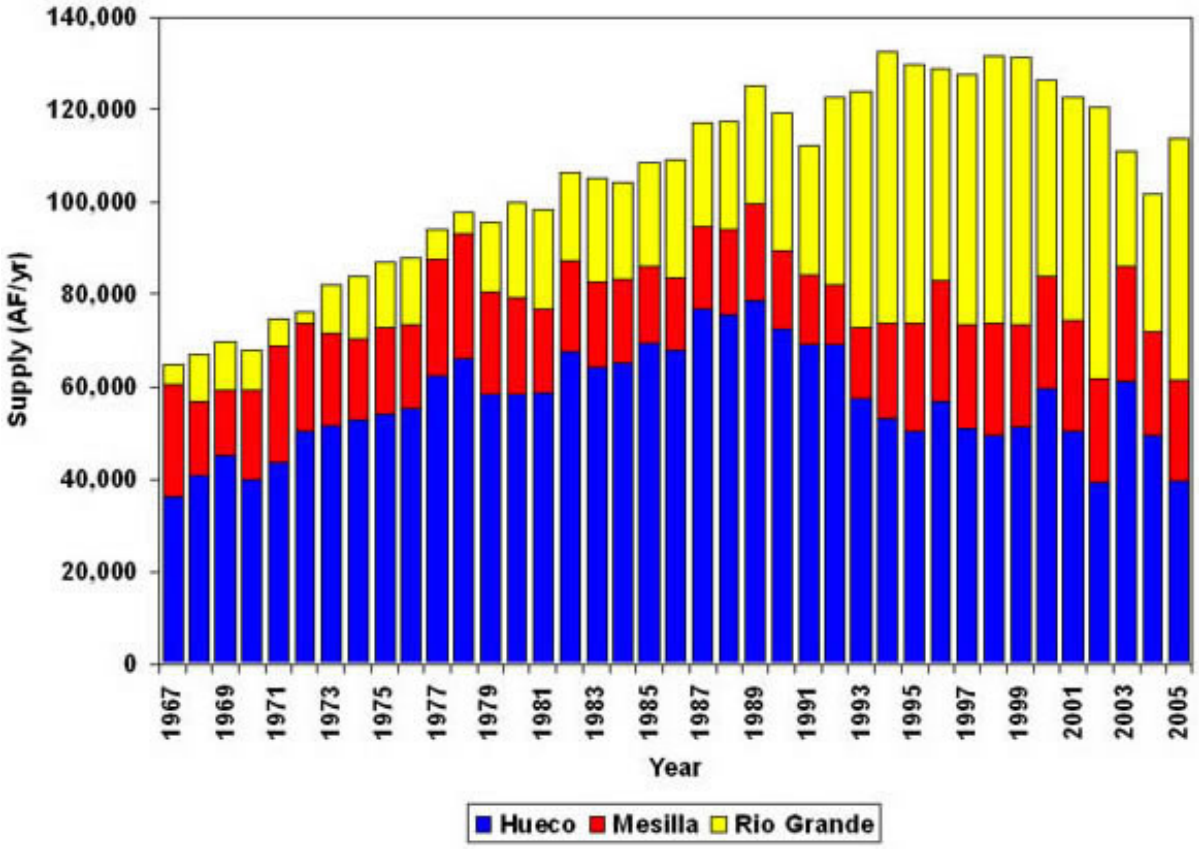
Domestic water supplies for the Fort Bliss Main Cantonment Area and the City of El Paso are furnished by on-post wells and EPWU. EPWU obtains groundwater primarily from the Hueco Bolson, while some additional groundwater is obtained from the Mesilla Bolson.

Estimates of groundwater availability representing the amount of usable water in the Hueco Bolson aquifer in Texas are varied and range from 3 million af to 10.6 million af. Estimates of the availability of saline groundwater between 1,000 and 3,000 mg/L total dissolved solids are more uncertain, ranging from 2.5 to 20 million af. 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.

In 2002, EPWU operated 84 wells in the Hueco Bolson aquifer, producing 131,000 af (equivalent to an average of 117 MGD). 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 5 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 10-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.

Over the past decade, combined water use by the City of El Paso and Fort Bliss averaged approximately 133,000 afy (117.8 MGD). On average, approximately 60 percent of the total annual water used by Fort Bliss and the City of El Paso combined was drawn from freshwater supplies in the Hueco Bolson and Mesilla Bolson aquifers. The amount of groundwater withdrawal has declined since 2000 (**Figure 4.7-4**) due to EPWU's increased use of the Rio Grande as a source of drinking water, aggressive water conservation, emphasis on reclaimed water, and effluent exchange agreements.



Source: Ref# 428

Figure 4.7-4. Sources of Water Supplied by EPWU Since 1967

In spite of a steadily increasing population, water use in the El Paso area has remained relatively constant or declined since about 1994 through water conservation programs. The goal of the city's water conservation efforts is to maintain per capita water consumption at or below 140 gallons per day (Ref# 321).

As indicated in Figure 4.7-4, during the past decade, most of the groundwater used by EPWU and Fort Bliss has been drawn from fresh water stored in the Hueco Bolson. The bolson provided approximately 72 percent of the total groundwater and 46 percent of the total combined water used by the installation and the city since 1993. Fort Bliss withdrawals of fresh water from the bolson have averaged approximately 5,000 afy (4.5 MGD) and remained relatively constant.

Groundwater withdrawals from the Hueco Bolson by Ciudad Juárez, Mexico, were about 15,000 afy (13.4 MGD) in the late 1950s and throughout the 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). In the past five

years, pumping has declined from over 126,000 af (112 MGD) in 2000 to under 120,000 af (107 MGD) in 2004 (Ref# 317).

A desalination plant to be operated by EPWU is being built within the boundaries of Fort Bliss. The plant will draw approximately 34,000 afy (30.5 MGD) of brackish water from the Hueco Bolson and produce a projected output of 31,000 afy (27.5 MGD) of potable water. The impact of the desalination plant operation on groundwater movement and water quality in the El Paso area was evaluated by EPWU (Ref# 222). This evaluation was based on projected population growth within the EPWU service area. Modeling predicted the effect of 50 years of pumping from the feed and blend wells that would be used as source water for the desalination plant. The model results show that the resulting drawdown would alter groundwater flow direction and hydraulic gradients.

After 50 years, there would be southerly-directed groundwater movement west of the desalination plant and the development of a localized groundwater trough (deeper area of drawdown) around the feed and blend wells. Because EPWU currently plans to pump the same total quantity of water from the Hueco Bolson with or without the proposed desalination project, the increased pumping from the feed and blend wells is expected to be offset by decreased pumping from other EPWU wells in the city. This would reduce the groundwater drawdown in the vicinity of those wells and have the beneficial effect of intercepting the flow of brackish groundwater from the northeast, maximizing the availability of fresh water to wells west of the desalination plant. By reducing the pumpage of fresh water, the project would slow down the intrusion of saline water in the area of Fort Bliss' existing water wells. While the modeling considered the effects on drawdown in general and the Fort Bliss wells in particular, it did not provide estimates of drawdown on wells neighboring the blend wells or estimate changes in water quality that would result from pumping the blend wells (Ref# 473).

4.7.2.2 Tularosa Basin

The southern (lower) 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.

Well fields in the Tularosa Basin supply water for Doña Ana Range Camp, the Main Post at WSMR, and the City of Alamogordo. 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 (Ref# 3).

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4.8 BIOLOGICAL RESOURCES

Biological resources consist of native or naturalized plants and animals and their habitats. This section focuses on plant and animal species and vegetation types that typify or are important to the function of the ecosystem, are of special societal importance, or are protected under federal or state law or statute. For purposes of this evaluation, sensitive biological resources are defined as those plants and animal species listed by the USFWS, under different levels of concern by the states of Texas and New Mexico, or considered sensitive by Fort Bliss.

The ROI for biological resources encompasses Fort Bliss and the surrounding areas that may be affected by activities on Fort Bliss, including a portion of the Tularosa Basin. The Organ Mountains, Sacramento Mountains, Hueco Mountains, and Otero Mesa are not discussed in detail here because land use in those areas will not change under any of the alternatives being considered in this SEIS. Detailed descriptions of these areas are provided in the 2000 Mission and Master Plan PEIS (Ref# 3) and INRMP (Ref# 23), which are incorporated by reference. Substantive changes and/or specifically relevant information from the PEIS are included in this section.

4.8.1 Vegetation

Fort Bliss exhibits a high degree of biodiversity due to its varied topography and large size (approximately 1.1 million acres). Plant communities on the installation range from the Chihuahuan Desert plant communities in the Tularosa Basin to Rocky Mountain conifer forests in the Organ Mountains (Ref# 3). Of the approximately 4,000 plant species found in New Mexico, an estimated 300 nonvascular (lichen, mosses, liverworts) and 1,200 vascular (ferns, fern allies, ephedras, conifers, flowering plants) species occur on Fort Bliss, with over 800 taxa in the Organ Mountains alone (Ref# 23).

Fort Bliss is generally characterized floristically as a shrub-grassland vegetation community. Over 98 percent of Fort Bliss is classified by these two general vegetation types. The remaining area is generally classified as woodland or disturbed. The vegetation data were recently updated and the new characterization and mapping (Ref# 417) is included in this section. Each general vegetation category is composed of a diverse subset of flora ranging from Chihuahuan Desert scrub in the Tularosa Basin to Rocky Mountain conifer forests in the Organ Mountains. Within the basin, alluvial fan, piedmont, desert shrub, and grassland plant communities dominate. Isolated islands of deep sand dominated by shinnery oak (*Quercus havardii*) occur on McGregor Range. These areas are approximately 1 square mile in size and are unique. Similar shinnery oak dominated dunes occur at the entrance to Culp Canyon and Grapevine Canyon. Additional wooded communities are generally found at higher elevations in the upper Sacramento Mountains foothills and in the Organ Mountains.

The ecological site units on the Main Cantonment Area and the Fort Bliss Training Complex were mapped using GIS, resulting in 16 land cover mapping units and 14 vegetation types for Fort Bliss, totaling approximately 1,071,616 acres. The land cover (vegetation) types are listed in **Table 4.8-1,** and shown in **Figures 4.8-1, 4.8-2, and 4.8-3**. **Table 4.8-2** summarizes the vegetation types within the groupings of training areas. The various types of shrubland total 67 percent, while there are 31 percent grasslands, 0.9 percent woodlands, and 0.3 percent of facilities.

The desert shrublands on Fort Bliss are mostly in the Tularosa Basin. About 31 percent of Fort Bliss is covered with mesquite-dominated plant communities, most of which are coppice dunes. Creosote-dominated plant communities cover over 15.5 percent of the total land. Shrub-dominated plant communities have replaced grassland plant communities (including black grama [*Bouteloua eriopoda*] grasslands) over large areas in southern New Mexico in the last century (Ref# 10, 328, 350).

Table 4.8-1. General Land Cover Types on Fort Bliss

General Land Cover Type	*Mapping Units*		*Percentage of Fort Bliss*
	New	*Old**	
Mesquite Coppice Dunes	1	1	30.91%
Sandscrub	2	2,3	8.11%
Basin Shrublands	3	4,5	4.49%
Creosote Piedmont Shrublands	4	6,7,8	15.48%
Foothill Desert Shrublands	5	9,10,11,12	6.39%
Sandy Plains Desert Grasslands	6	13,34	0.96%
Basin Lowland Desert Grasslands	7	14,15	4.03%
Piedmont Grasslands	8	16,17	3.70%
Mesa Grasslands	9	19,20,21,22	11.16%
Foothill Desert Grasslands	10	18,23,24,31	11.34%
Montane Riparian	11	25	0.04%
Montane Shrublands	12	26,27	2.18%
Montane Coniferous Woodland	13	28,29	0.87%
Montane Forest	14	30	0.03%
Facilities	15	32,33,35	0.32%
No Data	0	0	0.53%

*Mapping units do not directly correlate to the Mission and Master Plan PEIS due to updates.
Source: Ref# 3, 526

Historic land use in southern New Mexico has contributed to the current landscape conditions. Large grazing operations transformed grassland communities to shrub-dominated landscapes. Some areas have been transformed further to mesquite coppice dune communities with little chance of reverting back to the historic grassland conditions that once dominated (Ref# 331).

The vegetation and soils of Fort Bliss appear to have changed greatly in the last 150 years. A very early survey reported the range as rolling or gently rolling hills, and coppice dunes were reported for only one small area. An 1858 survey reports the area as a prairie, grass, or grass and prairie, but mesquite underbrush was becoming established. Even as late as 1884, surveys still reported large areas of grassland. Sand hills and dunes became more frequently mentioned between 1910 and 1940. As a further example, the McGregor Ranch was reported to be a grassland in 1884, but grass dominated areas had disappeared by the survey of 1937 (Ref# 509).

Currently, the maneuver areas are dominated by mesquite coppice dunes and grasslands. According to a survey done by Satterwhite and Ehlen in 1982, the major vegetation in these areas is mesquite-snakeweed-saltbush-dropseed grass (*Prosopis glandulosa, Gutierrezia sarothrae, Atriplex canescens,* and *Sporobolus cryptandrus*) and dropseed grass-sand sagebrush (*Sporobolus flexuosus, Sporobolus cryptandrus,* and *Artemisia filifolia*). Wind erosion, which occurs mostly between January and June, is a major problem in the region (Ref# 460). It is associated with both degrading grasslands and shrub-dominated areas, particularly on sandy soils (Ref# 82).

The conversion from grassland to shrublands is considered a step in the desertification process (Ref# 3, 329, 330, 331). Long-term studies carried out at the Jornada Experimental Range have shown that the conversion to shrublands has resulted in a reduction in plant species diversity (Ref# 3, 331, 332). Grassland communities had 2.5 times more plant species than the mesquite community and 1.7 times more plant species than the creosote community. Net primary productivity did not differ substantially between the grassland and shrubland types (Ref# 332, 333). Once established, coppice dunes persist with little conversion back to less desertified communities. The return to grasslands, even in areas where livestock and other perturbations have been excluded for many years, is highly unlikely (Ref# 334, 350, 351).

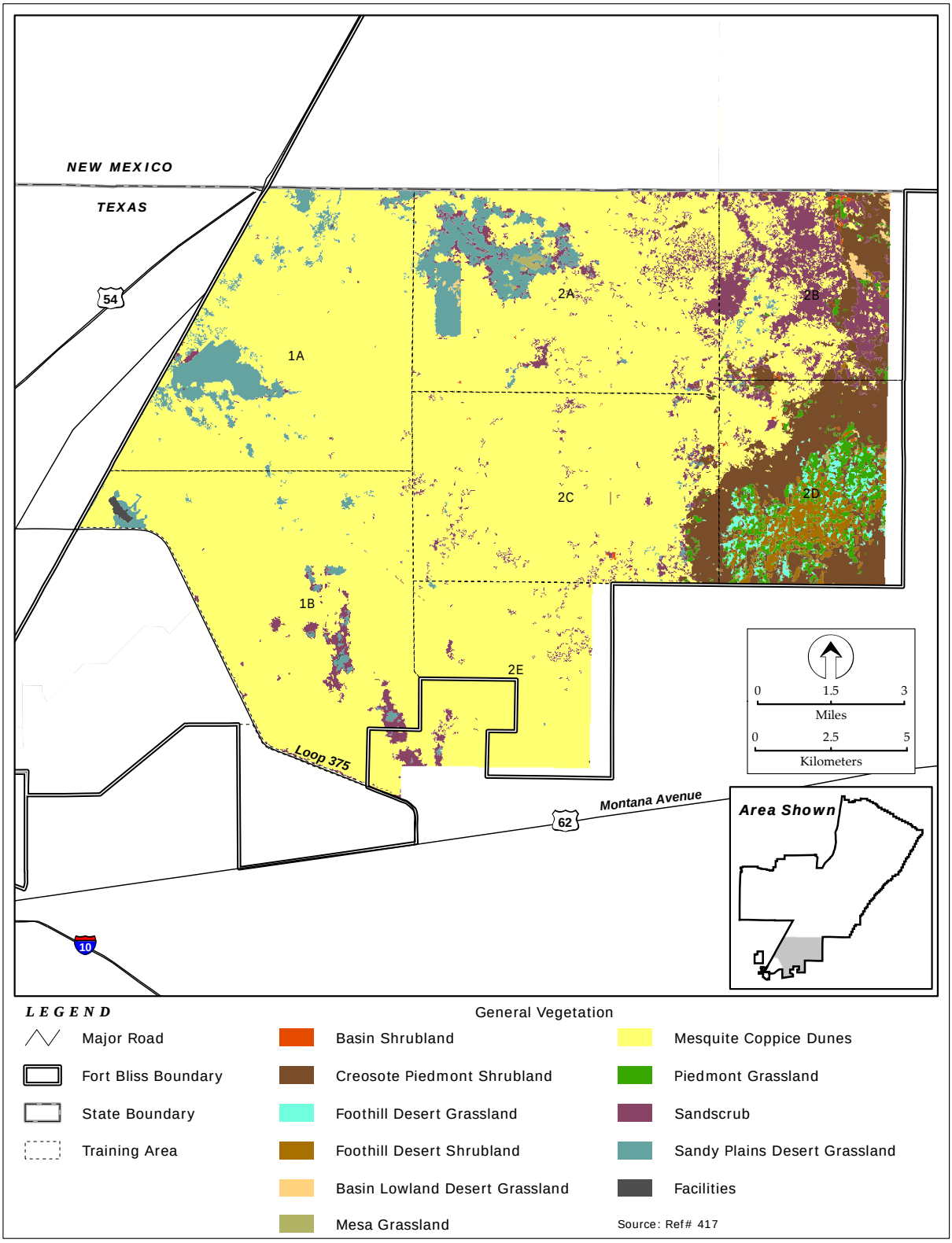

Figure 4.8-1. South Training Areas Vegetation

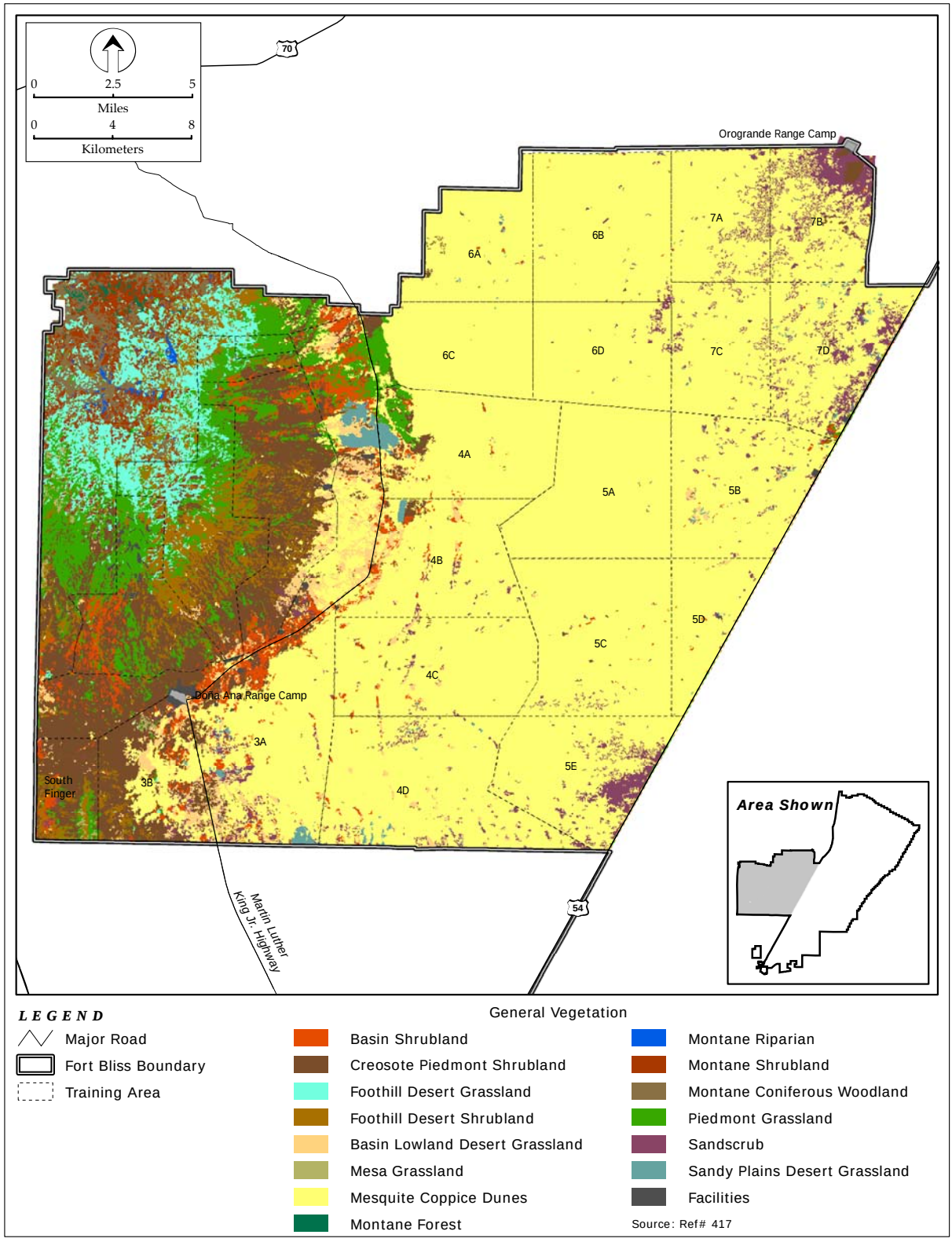

Figure 4.8-2. Doña Ana Range–North Training Areas Vegetation

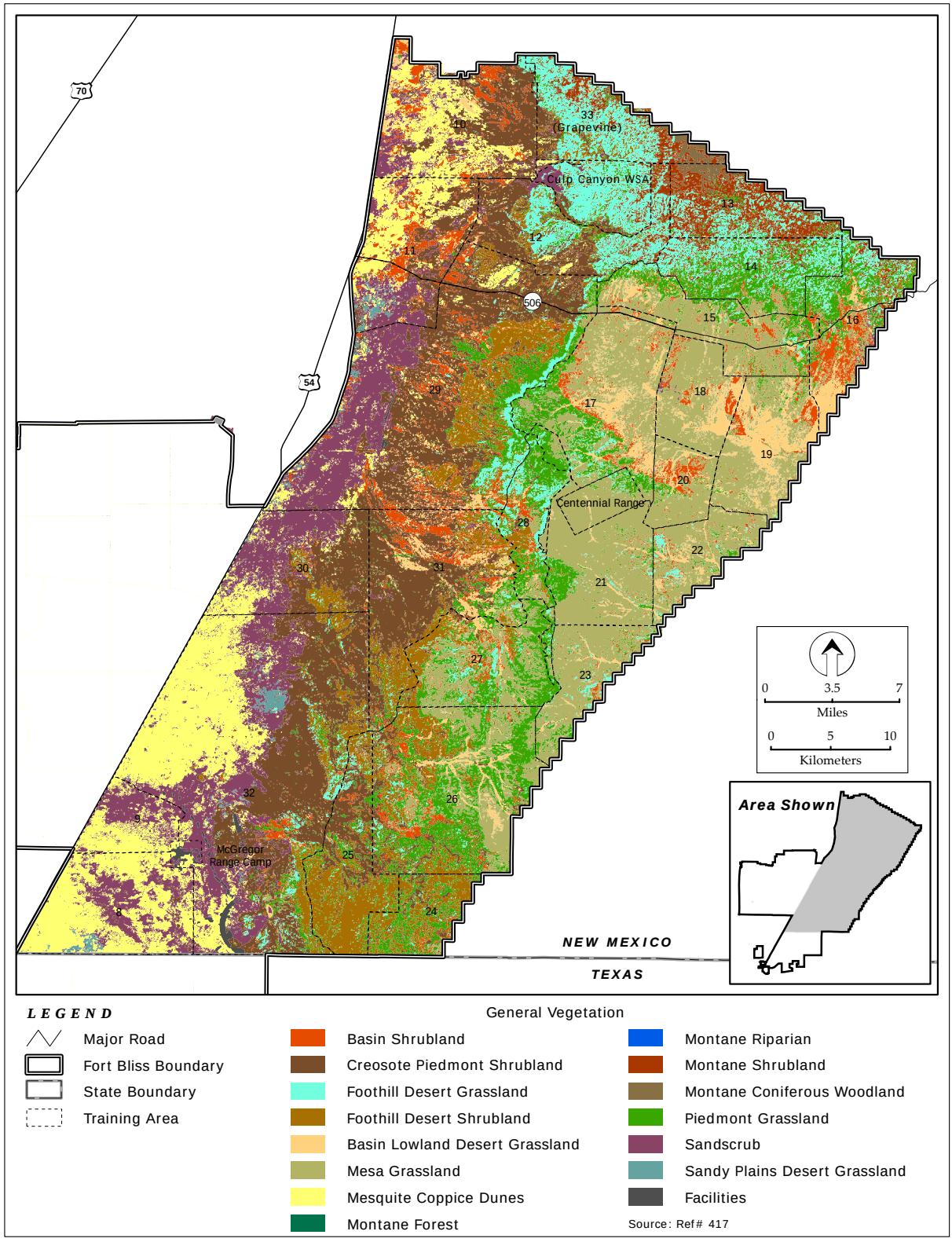

Figure 4.8-3. McGregor Range Vegetation

78 **Table 4.8-2. General Land Cover Type Distribution Across Areas of Fort Bliss**

General Land Cover Type	*Percent of Fort Bliss in land cover type (%)*	*McGregor Range North Tularosa Basin (%)*	*McGregor Range South Tularosa Basin (%)*	*McGregor Range Southeast TAs (%)*	*North Training Areas (%)*	*Organ Mountains (Doña Ana Range) (%)*	*Otero Mesa (%)*	*Sacramento Foothills (%)*	*South Training Areas(%)*
Mesquite Coppice Dunes	31	27	20	0	82	2	0	<1	76
Sandscrub	8	11	21	0	4	<1	<1	2	7
Basin Shrublands	4	14	5	5	2	3	7	4	<1
Creosote Piedmont Shrublands	15	38	31	8	6	25	<1	7	7
Foothill Desert Shrublands	6	4	11	20	<1	15	1	5	1
Sandy Plains Desert Grasslands	<1	<1	1	0	<1	0	0	0	5
Basin Lowland Desert Grasslands	4	3	2	5	3	2	14	3	<1
Piedmont Grasslands	4	<1	3	15	1	15	1	<1	1
Mesa Grasslands	11	<1	<1	24	<1	<1	61	4	<1
Foothill Desert Grasslands	11	3	4	23	<1	22	16	50	1
Montane Riparian	<1	0	0	0	0	<1	0	0	0
Montane Shrublands	2	<1	0	0	0	7	<1	19	0
Montane Coniferous Woodland	<1	0	0	0	0	7	0	5	0
Montane Forest	<1	0	0	0	0	<1	0	0	0
Facilities	<1	0	<1	0	<1	<1	0	0	<1
No Data	<1	<1	<1	<1	<1	<1	<1	<1	<1

Source: 526

Grassland plant communities account for over 31 percent of the land on Fort Bliss. Of this 31 percent, approximately 5 percent is sandy plains and basin lowland desert grasslands, 15 percent is mesa and piedmont grasslands, and 11 percent is foothill grasslands. This distinction is important as certain grassland species, such as the northern aplomado falcon, may find much of the grasslands present unsuitable (e.g., foothill grasslands that tend to have steep slopes and poor ground cover, or grasslands with shrub encroachment) (Ref# 361). Sandy plains desert grasslands, basin lowland desert grasslands in the Tularosa Basin, and piedmont grasslands are less suitable for northern aplomado falcon, while mesa grasslands and some basin lowland desert grasslands (e.g., on Otero Mesa) currently provide the best potential habitat for this species on the installation.

Woodland plant communities cover approximately 0.9 percent of Fort Bliss. These plant community types are in the higher elevations (such as the Organ Mountains and Sacramento Mountains foothills). Piñon-juniper woodlands and montane shrublands dominated by mountain mahogany occur in both mountain ranges. However, montane riparian, montane coniferous forests, and montane shrublands dominated by Gambel's oak occur only in the Organ Mountains and Sacramento Mountains foothills on Fort Bliss (Ref# 3).

Exotic plant species have become established on some areas on Fort Bliss. African rue and Russian thistle become established on disturbed ground and compete with other vegetation. Salt cedar (*Tamarix ramosissma*), which is a highly invasive species, has become established at some stock tanks and at other widely scattered locations with more mesic characteristics on Fort Bliss. Another potential problem plant is Malta thistle (*Centaurea melitensis*), which is currently known to grow along U.S. Highway 54 and other roadways on Fort Bliss. An additional exotic species of concern is Johnson grass (*Sorghum halepense*), which occurs in some drainages on Fort Bliss. Fort Bliss completes annual monitoring of distribution and abundance of exotic plant species and does targeted mitigation (Ref# 23). This information has been incorporated into the Fort Bliss INRMP (2000) providing necessary recommendations to preserve biological diversity on post.

4.8.2 Wetlands and Arroyo-Riparian Drainages

Wetlands provide a variety of functions, including groundwater recharge and discharge, flood attenuation, sediment stabilization, sediment and toxicant retention, nutrient removal and transformation, aquatic and terrestrial diversity and abundance, and aesthetic values. Three criteria are necessary to define jurisdictional wetlands: vegetation (hydrophytes), soils (hydric), and hydrology (frequency of flooding or soil saturation). Jurisdictional wetlands are wetlands subject to regulatory authority under Section 404 of the Clean Water Act (CWA) and EO 11990, Protection of Wetlands.

A U.S. Army Corps of Engineers study identified 2,410 miles of drainages on Fort Bliss (Ref# 3). Subsequent study by the U.S. Geologic Survey in 1997 (Ref# 507) refined that number to 1,722 miles (see Figure 4.7-2). The majority of these drainages are found in the northeast, central, and southeast portions of McGregor Range. The vast majority of arroyo-riparian drainages on Fort Bliss do not qualify as jurisdictional wetlands as defined by the U.S. Army Corps of Engineers. The only known Waters of the U.S. are on the west side of the Organ Mountains, which is part of the Rio Grande drainage, and some arroyos on McGregor Range that cross the state line into Texas. In addition, a storm water retention pond in the Main Cantonment Area has been identified as a jurisdictional wetland by USACE.

Perennial riparian corridors and some ephemeral corridors of the western U.S. have been shown to support high densities and diversity of fauna. In areas of the southwest, 90 percent of the avian diversity is found within riparian corridors (Ref# 335). Based on studies of the ephemeral drainages on McGregor Range and the Doña Ana Range–North Training Areas, the ephemeral drainages have been determined to have: 1) shrub, tree, and forb cover that is more dense along the drainage channels than the surrounding area; 2) greater species richness (for shrubs, trees, grasses, and forbs) than the perennial channel; 3) heights of shrubs along the drainage channels that are nearly twice the height of shrubs in the uplands; 4) riparian species such as desert willow that tended to be taller than nondrainage species; and 5) species

normally found in drainages at lower elevations that may be found outside drainages at higher elevations (Ref# 3).

4.8.3 Wildlife

This section summarizes amphibians and reptiles, avifauna, and mammals that occur in the ROI. Additional detail in the 2000 Mission and Master Plan PEIS (Ref# 3) and Fort Bliss INRMP (Ref# 23) is incorporated by reference and not repeated. Additional descriptions of wildlife on McGregor Range can be found in the Resource Management Plan Amendment prepared by BLM (Ref# 21).

Fort Bliss supports a relatively high faunal diversity. The State of Texas has the highest biodiversity of herpetofauna in the U.S. with 219 native and exotic species of amphibians and reptiles. New Mexico ranks third, supporting 123 species of amphibians and reptiles. Fort Bliss has documented 54 species and, although they have not been observed, 12 additional species have the potential to occur on Fort Bliss (Ref# 24). Texas has more bird species than any other state in the United States. There are approximately 620 identified species and subspecies of birds that regularly breed, migrate, winter, or nest in Texas (Ref# 336). There are an estimated 509 species of birds recorded in New Mexico and 334 species (54 and 68 percent for Texas and New Mexico, respectively) have been recorded on Fort Bliss (Ref# 338, 339). Studies on Fort Bliss have demonstrated that arroyo-riparian drainage areas are used more extensively by wildlife than adjacent upland areas (Ref# 337, 340). Over 1,700 miles of these arroyos have been mapped on Fort Bliss (Ref# 507) and many of these arroyos offer suitable habitat for wildlife, particularly avian species (Ref# 337).

4.8.3.1 Amphibians and Reptiles

Surveys for amphibians and reptiles were conducted on Otero Mesa and in the Tularosa Basin on McGregor Range in 1996 and 1997. In 2003, 2004, and 2005, the Hueco Mountains, dunes of west Culp Tank and Toy Tank areas, mixed dunes, mesquite dunes, and shinnery oak dunes were surveyed (Ref# 24). Based on these surveys and other information, 8 species of amphibians and 47 species of reptiles have been observed on Fort Bliss; an additional 11 species of amphibians and reptiles have the potential to occur (Ref# 24). The largest number of species occurs in the Hueco Mountains, which are characterized by fractured limestone outcrops (32 species), followed by grasslands (27 species), dune habitat (25 species), and desert shrublands (19 species) (Ref# 13, 24), Sacramento Mountains foothills (10 species), and Organ Mountains (6 species) (Ref# 3, 23).

During the surveys, it was determined that the box turtle (*Terrapene ornata)* is the only species of turtle observed on Fort Bliss and is most common in the grassland plant communities on Otero Mesa, although it has been regularly observed in the desert shrubland communities in the Tularosa Basin (Ref# 3, 23). The most diverse group of reptiles is the lizards; 24 species have been recorded from Fort Bliss including 6 species of whiptails (Ref# 3, 24). The striped whiptail (*Aspidoscelis moinata*) was commonly found during the 2003-2005 herpetofauna surveys (Ref# 24). Twenty-two species of snakes are known to occur on Fort Bliss. Species such as the western diamondback rattlesnake (*Crotalus atrox)* and bull snake (*Pituophis catenifersayi)* are common and widespread throughout Fort Bliss. During the 2003-2005 surveys, four previously unrecorded snake species were observed: the Western thread-snake, western patchnose snake, black-necked garter snake, and western hognose snake (Ref# 24).

4.8.3.2 Avifauna

A total of 334 species of birds have been recorded on Fort Bliss. Most of these species are listed and protected under the Migratory Bird Treaty Act (1918). Fort Bliss falls within the Chihuahuan desert and Mesa and Plain Physiographic Partners in Flight Region. Grassland and desert shrubland priority species within this region are primarily addressed in the sensitive species discussion (Section 4.8.4) due to parallel protection. Eighty species occur throughout the year, 129 species are seen only temporally during migration, 42 species are spring and summer residents, and the remaining species occur principally during the winter (Ref# 3, 23). Thirty-two species are common, 89 fairly common, 72 uncommon, and 141 rare

to very rare (Ref# 3, 23). Bird life in the Main Cantonment Area is typical of a more urbanized area. Species such as the house sparrow (*Passer domesticus*), great-tailed grackle (*Quiscalus mexicanus*), house finch (*Carpodacus mexicanus*), and Rock Dove (*Columba livia*) are common. Many of the 101 species of diving birds, wading birds, waterfowl, shorebirds, gulls, and terns observed on Fort Bliss have been observed at the EPWU Oxidation Ponds near the Main Cantonment Area. These bird species also have been observed on playa lakes and stock tanks in the South Training Areas, Doña Ana Range–North Training Areas, and McGregor Range.

EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds (2001), recognizes the ecological and economic importance of migratory birds to this and other countries. It requires federal agencies to evaluate the effects of their actions and plans on migratory birds (with an emphasis on species of concern) in their NEPA documents. Species of concern are those identified in 1) the report "Migratory Nongame Birds of Management Concern in the United States" (Ref# 489), 2) priority species identified by established plans such as those prepared by Partners in Flight, or 3) listed species in 50 CFR 17.11 Endangered and Threatened Wildlife.

In the West, over 60 percent of the neotropical migrants use riparian areas for stop-over habitat during migration or for breeding (Ref# 342, 343, 344). The arroyo-riparian drainages on Fort Bliss have a similar attraction to neotropical migrants (Ref# 3, 23, 337, 346). Recent studies of nesting and migratory birds at Fort Bliss and the surrounding area demonstrate that arroyo-riparian drainages are used more frequently and intensely than adjacent upland sites. Fort Bliss has an extensive network of arroyos with well-developed channels that occur throughout the training areas. Much of the focus on arroyo-riparian drainage research has occurred in the foothill desert shrublands vegetation communities, especially within the Tularosa Basin and southeast training areas of McGregor Range.

Raptor surveys revealed that the Swainson's hawk (*Buteo swainsonii)* and turkey vulture *(Cathartes aura)* were the most common raptors observed (Ref# 3, 23). Winter surveys showed that the golden eagle and red-tailed hawk were the most common wintering species (Ref# 3, 23).

4.8.3.3 Mammals

A total of 58 species of mammals have been documented and an additional 20 species have the potential to occur on Fort Bliss (this does not include domesticated species such as dogs, cats, cattle, or horses).

Rodent surveys in 1997 and 1998 revealed that the largest numbers of species were in the sandy arroyo scrub (14 species) and *Chilopsis* arroyo (14 species) and the smallest number (7 species) was in the mesquite dunes. Studies of rodents in arroyos and associated adjacent upland habitats found the relative abundance was greater in the arroyos than the adjacent uplands. In the 1997 surveys, the most abundant species were the silky pocket mouse (*Perognathus flavus)* and Merriam's kangaroo rat (*Dipodomys merriami).* Other common species were the deer mouse (*Peromyscus maniculatus)*, hispid cotton rat (*Sigmodon hispidus)*, white-footed mouse (*Peromyscus leucopus)*, cactus mouse (*Peromyscus eremicus)*, western harvest mouse (*Reithrodontomys megalotis),* and Ord's kangaroo rat (*Dipodomys ordii).* The deer and cactus mice were most common in the acacia scrub habitat while the white-footed mouse, hispid cotton rat, and western harvest mouse were most common in swales. Other rodents observed were the Texas antelope squirrel (*Ammospermophilus interpres),* rock squirrel (*Spermophilus variegatus),* Botta's pocket gopher (*Thomomys bottae),* and yellow-faced pocket gopher (*Cratogeomys castanops).* In addition, the porcupine (*Erethizon dorsatum),* coyote (*Canis latrans),* badger (*Taxidea taxus),* and bobcat *(Lynx rufus)* were observed (Ref# 3, 23).

The desert cottontail (*Sylvilagus audubonii)* and black-tailed jackrabbit (*Lepus californicus)* are common on post and most commonly found in the desert shrubland habitat. The coyote, kit fox (*Vulpes macrotis*), badger, and bobcat are predators in the desert shrubland and grassland habitats. The cougar (*Felis concolor*) occurs in a variety of habitats on Fort Bliss as well. The mule deer (*Odocoileus hemionus*) occurs throughout Fort Bliss and is most common in the mountainous portions including the foothills of

the Sacramento and Organ Mountains. The pronghorn antelope (*Antilocapra americana*) occurs mostly in the grassland communities of Otero Mesa and adjoining grasslands adjacent to the mesa, with occasional use of the desert shrubland habitat in the Tularosa Basin. The oryx (*Oryx gazella*) occurs throughout the Fort Bliss Training Complex, is common in the desert shrubland communities, has been observed in the area of Mack Tanks in the Tularosa Basin, and evidence of them was common at New Tank in the Hueco Mountains. Javelina (*Dicotyles tajacu*) is widely dispersed but uncommon in the Tularosa Basin and on Fort Bliss and have been observed infrequently in many locations (Ref# 3, 23).

4.8.4 Sensitive Species

Three categories of protection status are included in this section:

Federally Listed Threatened and Endangered Species. The Endangered Species Act of 1973 provides protection to species federally listed as endangered or threatened. Endangered species are those species that are at risk of extinction in all or a significant portion of their range. Threatened species are those that could be listed as endangered in the near future.

State Listed Threatened and Endangered Species. The states of New Mexico and Texas maintain their own lists of state endangered and threatened plant and animal species.

Other Sensitive Species. These include federally and state-listed candidates, proposed endangered, proposed threatened, and species of concern. Candidate species are those for which the USFWS has sufficient information on biological vulnerability and threats to support proposals to list them as endangered or threatened, but issuance of proposed rules for these species is precluded by higher priority listing actions. Proposed endangered and threatened species are those proposed for listing as endangered and threatened, respectively, and for which formal ruling is in progress. Species of concern are those identified to receive attention for planning purposes. At present, none of those species receive legal protection under the ESA.

Table 4.8-3 includes 61 sensitive species of flora and fauna known to occur, or having the potential to occur, on Fort Bliss. The list addresses species protection status and provides brief comments on their location within the installation. The diverse habitats on Fort Bliss have the potential to support species that have not been confirmed as occurring on post. Continued monitoring and improved documentation of Fort Bliss' natural environment ensures that sensitive species receive adequate protection in the event a new population is discovered.

Of the 61 sensitive species, 45 are federally listed. However, only nine species are federally listed as threatened, endangered, or candidate status. Of these nine species, only two regularly occur on Fort Bliss: the Sneed pincushion cactus (*Coryphantha sneedii var. sneedii*) populations exist on specific limestone habitats, and bald eagles (*Haliaeetus leucocephalus*) roost on winter slopes in Lincoln National Forest and forage on the Sacramento Mountains foothills part of McGregor Range. The northern aplomado falcon (*Falco femoralis septentrionalis*) has been observed on Fort Bliss, but only occasionally as transients. There have been no documented nesting attempts since the early 1900s, despite many surveys. The remaining six species (Kuenzler's hedgehog cactus [*Echinocereus fendleri* var. *kuenzleri*], interior least tern [*Sterna antillarum athalassos*], yellow-billed cuckoo [*Coccyzus americanus*], southwest willow flycatcher [*Empidonax trailii extimus*], piping plover [*Charadrius melodus]*, and Mexican spotted owl [*Strix occidentalis lucida*]) are not known to occur; have no suitable habitat or insufficient habitat to maintain a population; or exist as rare, transitory, or seasonal migrants, but breeding is not known to occur on Fort Bliss.

263 **Table 4.8-3. Sensitive 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 (*Coryphantha sneedii* var. *sneedii*)	E	E	E	Limestone Hills, Doña Ana Range–North Training Areas
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
Hueco Mountains rock daisy *(Perityle huecoensis)*	SC	—	—	Hueco Mountains, South Training Areas
Nodding cliff daisy *(Perityle cernua)*	SC	SC	—	Organ Mountains, Doña Ana Range–North Training Areas
Sand prickly pear (*Opuntia arenaria*)	SC	E	—	Low Potential to occur on Fort Bliss
Organ Mountains pincushion cactus *(Escobaria organensis*)	—	E	—	Organ Mountains, Doña Ana Range–North Training Areas
Crested coral-root (*Hexalectris spicata*)	—	SC	—	Organ Mountains, Doña Ana Range–North Training Areas
Sandhill goosefoot (*Chenopodium cycloides*)	—	SC	—	Occasional in sandy, disturbed places, Doña Ana Range–North Training Areas
Invertebrates				
Franklin Mountain talussnail (*Sonorella metcalfi)*	SC	—	—	Rock talus slopes in the Franklin Mountains and possible in the Organ 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
Boulder woodlandsnail (*Ashmunella auriculata*)	FB	—	—	Organ Mountains, Doña Ana Range–North Training Areas
Maple Canyon woodlandsnail (*Ashmunella todseni*)	FB	—	—	Organ Mountains, Doña Ana Range–North Training Areas
Organ Mountains woodlandsnail (*Ashmunella organesis*)	FB	—	—	Organ Mountains, Doña Ana Range–North Training Areas
Beasley's woodlandsnail (*Ashmunella beasleyi*)	FB	—	—	Organ Mountains, Doña Ana Range–North Training Areas
Reptiles				
Texas horned lizard (*Phrynosoma cornutum*)	SC	—	T	Widespread throughout post
Mountain short-horned lizard (*Phrynosoma douglasii hernandezii*)	—	—	T	Species occurs on McGregor Range; subspecies not recorded on post

Species	*Status*			*Location on Fort Bliss*
	Federal	*New Mexico*	*Texas*	
Gray-banded kingsnake (*Lampropeltis alterna*)		E		Known from Hueco Tanks State Park. Possible in Hueco Mountains of South Training Areas and on McGregor Range.
Mottled rock rattlesnake (*Crotalus lepidus lepidus*)	—	T	—	Species documented from the Organ Mountains; subspecies not recorded on post
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 at sewage lagoon on Fort Bliss
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*)	T	T	T	Forages in Sacramento Mountains, McGregor Range; roosts on Lincoln National Forest
Piping plover (*Charadrius melodus*)	T	E	—	Rare migrant on McGregor Range; observed once in 1987 at sewage lagoon on Fort Bliss
Mexican spotted owl (*Strix occidentalis lucida*)	T	—	T	Very rare on Fort Bliss; not known to breed on site; best potential habitat in Organ mountains, Doña Ana Range–North Training Areas
Yellow-billed cuckoo (*Coccyzus americanus*)	C	C	—	Uncommon migrant on Fort Bliss; lack of riparian habitat
Peregrine falcon (*Falco peregrinus anatum*)	SC	SC	E	Migrant and occasionally nesting in some mountains of Fort Bliss
Mountain plover (*Charadrius montanus*)	SC	SC	—	Several sightings on Otero Mesa, McGregor Range
Black tern (*Chlidonias niger*)	SC	—	—	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	—	T	Uncommon migrant on Fort Bliss
Zone-tailed hawk (*Buteo albonotatus*)	—	—	T	Uncommon migrant on Fort Bliss
Ferruginous hawk *(Buteo regalis*)	SC	—	—	Wintering and migrant species; mostly on Otero Mesa, McGregor Range
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*)	—	T	—	Uncommon migrant in arroyo-riparian habitat on Fort Bliss

Species	*Status*			*Location on Fort Bliss*
	Federal	*New Mexico*	*Texas*	
Loggerhead shrike (*Lanius ludovicianus*)	SC	—	—	Winter and breeding bird from Otero Mesa and Tularosa Basin
Baird's sparrow (*Ammodramus bairdii*)	SC	T	—	Migrates through and winters in dense grasslands primarily on Otero Mesa
Varied bunting (*Passerina versicolor*)	—	T	—	Very rare on Fort Bliss
Bell's vireo (*Vireo bellii*)	—	T	—	Occasional on Fort Bliss in heavy mesquite thickets in arroyo-riparian drainage habitats
Gray vireo (*Vireo vicinior*)	—	T	—	Nests in the Organ Mountains, Doña Ana Range–North Training Areas
Mammals				
Small-footed myotis (*Myotis ciliolabrum*)	SC	—	—	Distribution unknown
Occult little brown bat (*Myotis occultus*)	SC	—	—	Distribution unknown
Fringed myotis (*Myotis thysanodes*)	SC	—	—	Reported from the Sacramento Mountains foothills, McGregor Range
Cave myotis (*Myotis velifera*)	SC	—	—	Distribution unknown
Long-legged myotis (*Myotis volans*)	SC	—	—	Distribution unknown
Yuma myotis (*Myotis yumanensis*)	SC	—	—	Distribution unknown
Townsend's pale big-eared bat (*Corynorhinus townsendii pallescens*)	SC	—	—	Distribution unknown
Big free-tailed bat (*Nyctinomops macrotis*)	SC	—	—	Distribution unknown
Spotted bat (*Euderma maculatum*)	SC	T	T	Distribution unknown
Townsend's pale big-eared bat (*Corynorhinus townsendii pallescens*)	SC	—	—	Distribution unknown
Big free-tailed bat (*Nyctinomops macrotis*)	SC	—	—	Distribution unknown
Gray-footed chipmunk *(Neotamias canipes*)	SC	T	—	Occurs in woodland and forest habitats in the Sacramento Mountains foothills on McGregor Range
Organ Mountain Colorado chipmunk (*Neotamias quadrivittatus australis*)	SC	T	—	Occurs in Organ Mountains, Doña Ana Range–North Training Areas
Arizona black-tailed prairie dog (*Cynomys ludovicianus arizonensis*)	SC	—	—	Occurs on Otero Mesa , McGregor Range
Desert bighorn sheep (*Ovis canadensis mexicana*)	—	E	—	Does not occur on Fort Bliss; previously existed 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, thus 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.
SC = federal or state species of concern; E = endangered species; T = threatened species; C = candidate; FB = Fort Bliss sensitive species; — = without status.
Source: Ref# 3, 495, 497, 498

Of these species, the northern aplomado falcon has received substantial local interest. This is a grassland species of southern Texas, New Mexico, and Arizona. Historic records show that it was common throughout its range until about 1940 (Ref# 3). Loss of quality habitat is believed to be one of the leading causes of the falcon's decline. The northern aplomado falcon was listed as endangered under ESA in 1986. From 1952 until the present, only one documented successful nesting and several unsuccessful attempts have occurred in New Mexico (Ref# 494). It has been designated as a Nonessential Experimental Population within the states of New Mexico and Arizona, thus carrying 10(j) status under ESA. This designated the species as threatened within these geographic confines, separated from other populations' federal listing status (Ref# 494).

Potential aplomado falcon habitat on Fort Bliss, based on GIS analysis of several sources, is depicted on **Figures 4.8-4** and **4.8-5**. The aplomado falcon is known as a transient species on Fort Bliss; no nesting or residential populations are known on the installation. **Table 4.8.4** summarizes observations and survey efforts on Fort Bliss.

Table 4.8-4. Northern Aplomado Falcon Sightings and Survey Summary on Fort Bliss

Date	*Action*	*Comments*
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.
23 May 1997	Northern aplomado falcon sighting as part of Air Force study on Fort Bliss.	Follow-up survey failed to observe bird again.
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.
1994-2005	Surveys completed on Fort Bliss in 1994, 1996, 1997,1998, 1999, 2000, 2001, 2002, 2003, 2004, 2005.	One bird was observed in 2005, (mentioned below), one in 1999 (mentioned above), one in 1997 (mentioned above).
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.
Early 1990s-present	Hundreds of miles of annual survey routes within potential northern aplomado falcon habitat on Fort Bliss.	Minimal transient northern aplomado falcon observations, no documented nesting.

Source: Ref# 3, 23, 494, 496

Figure 4.8-4 illustrates current grassland conditions with habitat potential for northern aplomado falcon based on the 2002 updated vegetation map for Fort Bliss and a fall 2004 LANDSAT Thematic Mapper (TM) satellite image. Grasslands greater than 240 hectares in size and on areas with slopes less than 7 degrees are included on the map. The percent bare ground is estimated from TM imagery. Sandy plains grasslands in deserts are seldom as dense as other grassland types on Fort Bliss and do not usually fit habitat conditions reported for grasslands inhabited by aplomado falcons (Ref# 3, 511). Figure 4.8-5, map A, illustrates habitat potential for the species by mapping ecosites with grasslands potentially suitable for aplomado falcons. This map was modified from the map published by the BLM (Ref# 21) to exclude slopes greater than 7 degrees, and it includes ecosites across all of Fort Bliss in addition to McGregor Range. Ecosites included are all of the Loamy, Limy, Limestone Hills, Limestone Hill and Mountain (Desert Grassland), Gravelly 12-14 inches, Loamy Bottom 12-14 inches, Loamy Sand 10-12 inches, and Shallow Sandy 12-14 inches ecosites. Figure 4.8-5, map B shows the results of a habitat evaluation conducted by Taffanelli and Montoya (Ref# 525) as part of surveys for northern aplomado falcons on Fort Bliss. Their evaluation was based on a visual examination and comparison to occupied

grasslands in the Mexican state of Chihuahua. Both Figures 4.8-4 and 4.8-5 show that the vast majority of habitat is on Otero Mesa and portions of the southeast TAs on McGregor Range. Figure 4.8-5, map C, shows potential habitat based on unsupervised classification of a 1999 TM imagery (Ref# 361). A logistic regression was created to describe habitat in Chihuahua and applied to TM imagery of New Mexico and west Texas.

Direct measures of vegetation conditions in occupied habitat in desert grassland in Chihuahua, Mexico show a high percent of grass basal cover (average of 40 percent or greater) (Ref# 3, 511). Occupied grasslands are usually dominated by tobosa or blue grama. Coincident with the grassland condition is a relatively low bare ground percentage and lower shrub densities (Ref# 3, 511). Occupied areas are often in topographically flat or even slightly concave areas in large basins or draws (Ref# 511, 516). The 240 hectare minimum polygon size used in habitat mapping schemes is based on Montoya's thesis finding that minimum male home range during the nesting season was 240 hectares (Ref# 3). Montoya also reported a minimum home range area for pairs at about 1,600 hectares based on no observed overlap in use of space. Montoya estimated a density in his study area of about one pair per 4,300 hectares. During the nesting season, the birds may stay in relatively small areas, but they apparently require substantial areas for year-round habitation. In addition to these requirements, suitable nesting substrate for raptors must exist, and abundant avian prey must be available (Ref# 3, 511). Comparisons of prey availability between Otero Mesa and Chihuahuan grasslands showed a difference in average biomass of birds between the two locations, with a higher average biomass of birds in Chihuahua grasslands (Ref# 3).

These studies point out there are many aspects to habitat characteristic of northern aplomado falcons, and all are needed to create suitable habitat. Many areas on Fort Bliss have one or more of these characteristics; however, few areas have all characteristics present in an area large enough for nesting territory. The most favorable areas on Fort Bliss are draws on Otero Mesa. Southeast McGregor Range has limited favorable habitat for aplomado falcon because of slope limitations, shrub encroachment, and terrain. Habitat evaluations are currently being conducted on McGregor Range to determine habitat suitability. Monitoring of birds released as an experimental population may help in the understanding of habitat requirements and relative condition of desert grasslands in southern New Mexico.

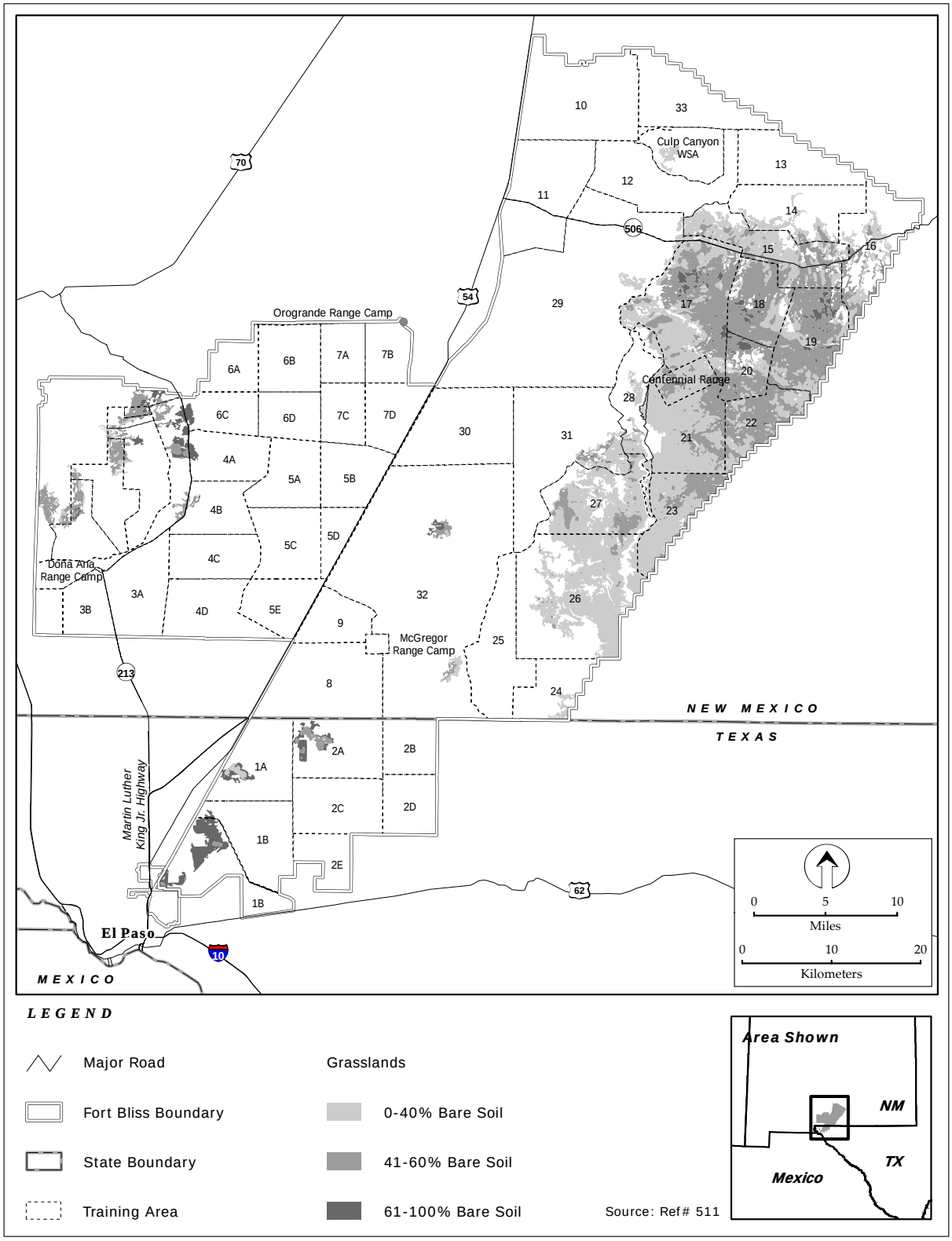

Figure 4.8-4. Current Grassland Conditions with Habitat Potential for Aplomado Falcons

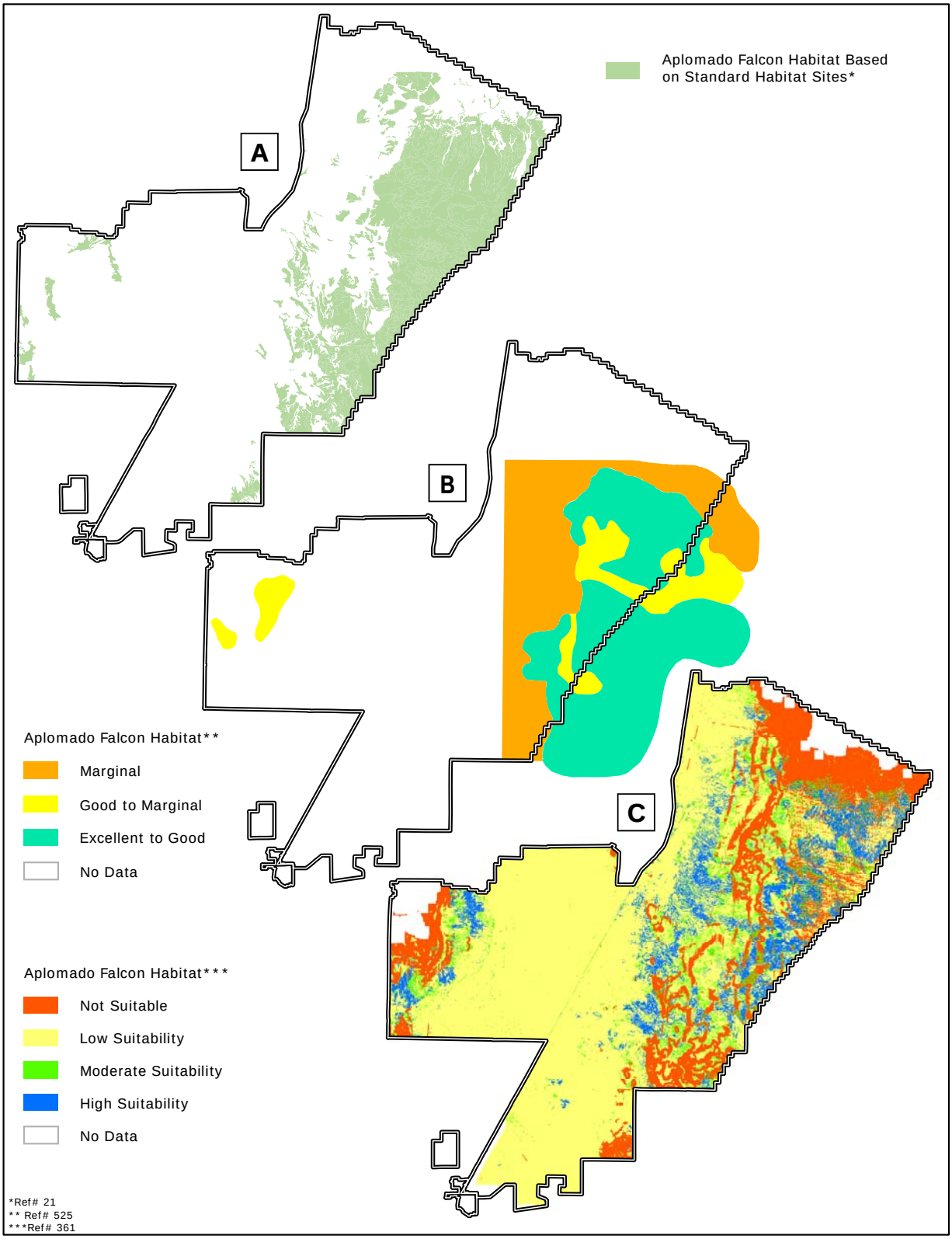

Figure 4.8-5. Potential Habitat for Northern Aplomado Falcon on Fort Bliss Identified by Various Screening Models

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4.9 CULTURAL RESOURCES

The ROI for cultural resources consists of all areas within the boundaries of Fort Bliss including the Main Cantonment Area, South Training Areas, Doña Ana Range–North Training Areas, and McGregor Range. The Mission and Master Plan PEIS (Ref# 3) describes in detail the cultural history of Native Americans and post-contact inhabitants in the ROI and is incorporated by reference. This baseline information has not changed since 2000 and is not repeated here.

Cultural resources on Fort Bliss are composed of Native American or Euroamerican districts, landscapes, sites, buildings, structures, artifacts, and other evidence of human use. These resources can be grouped into four major categories.

- Archaeological resources — locations where human activity measurably altered the earth or left deposits of physical remains (e.g., stone tools, projectile points, bottles). In this discussion, Native American archaeological resources pre-date the beginning of written records and consist of the remains of Native American activities. In the El Paso area, they range from isolated stone tools to pueblo sites to more recent occupations by the Manso, Suma, Jocome, and early Apache. Euroamerican resources are defined as those formed after the beginning of written records. Euroamerican archaeological resources on Fort Bliss include campsites, roads, fences, trails, dumps, and a variety of other features.

- Architectural resources — standing buildings, dams, canals, bridges, and other structures of historic, aesthetic, or scientific significance. The structures are generally 50 years of age or older, although military buildings and structures from the Cold War era (1946 to 1991), for example, can be considered significant historic properties if they were of exceptional importance to the nation's military history. At Fort Bliss, historic properties can date to the late 19th century and also include World War I, World War II, and Cold War-era military facilities, buildings, and structures.

- Cultural landscape — a geographic area that includes related cultural and natural resource features and the spatial relationships among those features. Historic cultural landscapes are generally 50 years old or older and can include military installations with associated operations areas, ranching landscapes, farming landscapes, industrial landscapes, and traditional landscapes. Historic vernacular landscapes are those modified by human activity to reflect certain traditions, customs, or values in the everyday lives of people. Ethnographic or traditional landscapes contain a variety of natural and cultural resources that an associated people define as heritage resources (e.g., contemporary settlements, religious sites, or geological structures).

- Properties of traditional cultural and religious importance — cultural resources associated with cultural practices and beliefs of a Tribal community, which are rooted in its history and are important in maintaining the continuing cultural identity of the Tribe. These can only be identified by Native American groups. Native American properties of traditional cultural and religious importance may include archaeological sites, locations of significant events, sacred areas, sources of raw materials, and traditional hunting or gathering areas. Native Americans may consider these properties essential for the preservation of their culture.

Two federally recognized Native American Tribes who live near Fort Bliss today have been identified as having traditional lands within the ROI: the Mescalero Apache Tribe and the Ysleta del Sur Pueblo (Tigua). Two additional federally recognized Native American Tribes have expressed an interest in lands managed by Fort Bliss: the Comanche Tribe and The Navajo Nation. The Army has initiated consultation with these four Tribes. One purpose of this consultation is to identify properties of traditional cultural and religious importance on Fort Bliss facilities. A project to survey sacred sites is included in the

ICRMP (Ref# 242). Two other modern tribes, the Fort Sill Apache and Kiowa, may have traditional interests in lands managed by Fort Bliss but have not requested consultation.

4.9.1 Applicable Regulations and Standards

4.9.1.1 National Register of Historic Places

Federal agencies must take into account the effect that their undertakings may have on historic properties. Historic properties are resources that are eligible for inclusion in the NRHP under the established criteria in 36 CFR 60.4 (*Parks, Forests, and Public Property—National Register of Historic Places Criteria For Evaluation*). A historic property must usually be more than 50 years old, although exceptions can occur. For example, more recent historic resources on a military base may be considered significant if they are of exceptional importance in understanding the Cold War.

To be considered eligible for inclusion in the NRHP, Native American and Euroamerican archaeological resources, architectural resources, landscapes, and properties of traditional cultural and religious importance must be determined to be significant by meeting one or more of the criteria outlined in 36 CFR 60.4. Properties identified by Tribes as properties of traditional cultural and religious importance need not qualify for inclusion in the NRHP to be managed as significant resources. A property of traditional cultural and religious importance that is eligible for the NRHP (i.e., a historic property) may be called a Traditional Cultural Property (TCP). Significant resources are those that:

a. are associated with events that have made a significant contribution to the broad patterns of our history;

b. are associated with lives of persons significant in our past;

c. embody the distinctive characteristics of a type, period, or method of construction, or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

d. have yielded, or may be likely to yield, information important in prehistory or history.

To be listed in or determined eligible for listing in the NRHP, a historic resource must meet at least one of the above criteria and must also possess integrity. Integrity is defined as the authenticity of a resource's historic identity as evidenced by the survival of physical characteristics that existed during the resource's historic or prehistoric occupation or use. The NRHP recognizes seven aspects or qualities that define integrity: location, design, setting, materials, workmanship, feeling, and association.

4.9.1.2 Fort Bliss Significance Standards

As part of its continuing cultural resource management efforts, Fort Bliss is revising its previously issued *Significance Standards for Prehistoric Archaeological Sites at Fort Bliss* (Ref# 474). These standards continue to provide guidance for determining a site's NRHP eligibility. They base eligibility on a resource's ability to address research questions. This method of determining NRHP eligibility provides a more consistent evaluation since it is based on explicit local research domains and data needs.

Standards for maintaining architectural resources have been established in a number of Design Guides, Specifications, and other documentation prepared by and for the Fort Bliss Directorate of Environment (Ref# 242). As inventory and NRHP eligibility evaluation is completed on buildings and structures, their status as historical resources determines whether or not they are subject to these standards.

4.9.1.3 Traditional Cultural Properties, Properties of Traditional Cultural and Religious Importance, and Native American Consultation

Traditional Cultural Properties are resources that are associated with cultural practices and beliefs rooted in the history of a community, and that are important to maintaining the continuity of that community's traditional beliefs and practices (Ref# 243, 250). Properties of traditional cultural and religious

importance are similar to TCPs except that they specifically apply to those sites identified by Native American Tribes as important to their cultural identity and need not be eligible for inclusion in the NHRP for management purposes. Legislatively, properties of traditional cultural and religious importance were recognized in the 1992 amendments to the NHPA. These amendments themselves grew out of passage of AIRFA and NAGPRA.

Evaluation of the significance of a TCP uses the standard NRHP evaluation criteria, with several key conditions. These are that the property: (1) must have been important to maintaining traditions for at least 50 years; (2) must be described and its significance documented; and (3) must have a boundary (Ref# 243, 250). It is important to note that properties of traditional cultural and religious importance may not fulfill the criteria for significance under 36 CFR 60.4 but may still be of significance to Native American groups. Although these resources may not be protected by NHPA, they may still fall under the purview of NAGPRA, AIRFA, or other legislation and are also managed as significant resources.

Consultation with interested Tribal groups is required as part of any action that might affect properties of traditional cultural and religious importance. The April 29, 1994, *Memorandum on Government-to-Government Relations with Native American Tribal Governments* issued by the President requires the development of effective day-to-day working relationships with sovereign Tribal governments.

Several laws and regulations address the requirement of federal agencies to notify or consult with Native American groups or otherwise consider their interests when planning and implementing federal undertakings. Legal mandates requiring consideration of Native American interests include NHPA, AIRFA, Archaeological Resources Preservation Act (ARPA), NAGPRA, and EO 13007, Indian Sacred Sites. NAGPRA specifically addresses the disposition of human remains, funerary objects, sacred objects, and objects of cultural patrimony. The chance of investigations on the Fort Bliss complex encountering artifacts or human remains subject to NAGPRA remains a possibility. Consultations between Fort Bliss and interested Native American Tribes are ongoing.

Consultations with Tribes expressing interest in lands managed by Fort Bliss identify properties important to their culture. If properties of traditional cultural and religious importance are identified by a federally recognized Tribe, they are managed, in consultation with that Tribe, as though eligible for the NRHP.

4.9.1.4 Historic Landscapes

Like other historic resources, historic landscapes are evaluated for significance as historic properties using NRHP criteria. Historic landscapes have not been addressed on Fort Bliss; however, the Programmatic Agreement provides management guidance once studies are conducted.

A rural historic landscape is defined as a geographical area that historically has been used by people or shaped or modified by human activity, occupancy, or intervention and that possesses a significant concentration, linkage, or continuity of areas of land use, vegetation, building and structures, roads and waterways, and natural features (Ref# 249). The integrity of rural landscapes can be affected by the introduction of new vegetation, such as could occur if there were a shift in land use from cattle grazing to extensive irrigation and planting of fruit trees. Other changes that may reduce the integrity of a landscape include widening and resurfacing roads; changes in land use and management; introduction of nonhistoric land uses like recreational areas, landfills, or utilities; deterioration and abandonment of historic buildings; replacement or alteration of bridges and barns; and the loss of fences and other boundary markers. Military training can alter a rural landscape; for example, training activities can increase erosion or cause re-deposition of sediments, may require the addition of features that alter the viewshed, or may result in increased use of existing roads and facilities.

A historic military landscape reflects the cultural traditions and history of military activity in an area as it: (1) is expressed in the relationships among the buildings, structures, and grounds of an installation; (2) is significantly associated with historically important persons or events; (3) is an important indicator of the broad patterns of history; or (4) represents a significant example of design or construction. To be eligible

for listing in the National Register, it must have sufficient integrity to convey its significance (Ref# 251). Land use history and setting are used to evaluate the integrity of a military landscape. Integrity can be negatively affected by the relocation of buildings or roads; changes in landscape design; and the loss of important topographic features, vegetation, spatial relationships, original materials, or workmanship.

The Army plans to evaluate and focus preservation efforts on historic landscapes that could be affected by uses of the Fort Bliss Training Complex. The revised ICRMP will include plans to complete studies of viewsheds and historic vistas as part of historic landscapes.

4.9.2 Existing Management Plans, Agreements, and Procedures

In 1982, Fort Bliss became the first DoD installation to develop an installation-specific Historic Preservation Plan (HPP) (Ref# 242). An ICRMP replaced the HPP in 1998. In 2005, Fort Bliss entered into consultation with the ACHP and Texas and New Mexico SHPOs in preparation of a Programmatic Agreement addressing Sections 106 and 110 of NHPA historic properties management requirements. This consultation culminated in a signed PA in 2006 (see Appendix B). The ICRMP will be revised to reflect historic property management under the Programmatic Agreement as well as addressing management under laws and regulations governing historic preservation other than NHPA.

The 2006 Programmatic Agreement includes 15 SOPs that provide for consistent, day-to-day management of the various undertakings that may affect historic resources on the installation, without project-by-project review by the SHPO and ACHP. Section 2.1.3 summarizes the SOPs. The complete Programmatic Agreement is provided in Appendix B.

Fort Bliss maintains a Curatorial Facility that meets all standards as outlined in 36 CFR 79 Curation of Federally-Owned and Administered Archaeological Collections. The facility contains a fully functional artifact processing laboratory; a cold collection room that contains project and site information, maps, photographs, and building plans; and a main collection room that houses artifacts, botanical samples, and NAGPRA-regulated objects and remains. The facility also has provisions for accepting materials through Deeds of Gift and through short-term loan agreements as required by 36 CFR 79.

Fort Bliss shares use of portions of McGregor Range with USFS Lincoln National Forest and BLM. The co-use lands shared with USFS are in the Sacramento Mountains foothills on the northern part of McGregor Range. A 1971 Memorandum of Understanding (MOU) between Fort Bliss and USFS specifies that the USFS is responsible for administering all archaeological and paleontological activities on the co-use lands.

A 1990 MOU with BLM regarding the McGregor Range withdrawal specifies that the proponent of an undertaking, whether the BLM or Fort Bliss, is responsible for permitting and oversight of historic resource investigations performed as part of compliance with Section 106 of the NHPA. The MOU further stipulates that both the BLM and Fort Bliss will consult on undertakings involving historic resources on McGregor Range, share information on completed projects, and coordinate future projects annually. This MOU is under revision. The revised agreement will address the agencies' responsibilities under ARPA and NAGPRA, in addition to the current MOU's treatment of NHPA.

As part of early efforts to manage cultural resources on Fort Bliss, restricted and limited-use areas were defined by Fort Bliss archaeologists. These are internal management units established under the installation's 1982 HPP. All military activity is prohibited in restricted areas; limited military activity is allowed in limited-use areas. Both the restricted and limited-use areas are relatively small parcels surrounded by unrestricted areas. Restricted areas tend to contain larger sites with buried materials and dense concentrations of surface artifacts. They also contain representative samples of the type of sites present on Fort Bliss. Limited-use areas contain numerous archaeological sites, but these sites are generally smaller and more scattered than those found in restricted areas. Currently, the South Training Areas contain 29 restricted areas totaling approximately 8,512 acres and 30 limited-use areas totaling 14,016 acres. Doña Ana Range–North Training Areas contain five restricted areas totaling 3,136 acres.

Fort Bliss is in the process of redefining restricted and limited-use areas throughout the Fort Bliss installation, including on McGregor Range, based on resurveys and NRHP eligibility evaluations (Ref# 248).

4.9.3 Historic Resource Inventories

Since the 1920s, there have been hundreds of historic resource studies conducted on Fort Bliss and in the El Paso area. To date, approximately 75 percent of the Fort Bliss installation has been surveyed for historic resources. Investigators have identified over 17,000 historic resource sites on the installation, the vast majority being Native American archaeological sites. Since the 2000 Mission and Master Plan PEIS, NRHP eligibility has been determined for thousands of sites. Almost 88 percent of the sites have been evaluated; although the majority of the sites are not eligible, almost 3,000 sites have been determined to be eligible for the NRHP. **Table 4.9-1** summarizes a 2005 review of the historic resources database of archaeological sites on Fort Bliss. Close to 3,000 historic buildings, structures, archaeological sites, and historic landscapes have also been determined to be NRHP-eligible. Although only eight are listed in the NRHP, all eligible properties are managed to the same standards.

Table 4.9-1. Fort Bliss Historic Properties Database Summary – Archaeological Sites

Location	*Listed in NRHP*	*Eligible*	*Not Eligible*	*Undetermined*	*Fort Bliss Subtotals*
Main Post/Biggs AAF					
Prehistoric	0	3	37	10	50
Historic	1*	6**	11	4	22
South Training Areas (TAs 1-2)					
Prehistoric	6	996	3,128	1,175	5,305
Historic	0	8	43	49	100
North Training Ranges (TAs 3-7)					
Prehistoric	0	1,065	3,856	488	5,409
Historic	0	11	40	15	66
Doña Ana Range					
Prehistoric	0	127	472	49	648
Historic	0	7	10	34	51
Organ Mountains					
Prehistoric	0	5	12	40	57
Historic	0	11	11	14	36
Doña Ana Range Camp					
Prehistoric	0	0	0	0	0
Historic	0	0	0	1	1
Orogrande Range Camp					
Prehistoric	0	0	0	0	0
Historic	0	0	0	0	0
McGregor Range (TAs 8-12 and 24-32)					
Prehistoric	0	454	963	1,362	2,779
Historic	0	48	138	61	247
TA 33-Grapevine					
Prehistoric	0	12	73	8	93
Historic	0	4	3	3	10
Otero Mesa (TAs 13-23)					
Prehistoric	0	85	182	362	629
Historic	0	15	52	21	88

Location	*Listed in NRHP*	*Eligible*	*Not Eligible*	*Undetermined*	*Fort Bliss Subtotals*
McGregor Range Camp					
Prehistoric	0	21	22	1	44
Historic	0	0	2	0	2
Culp Canyon WSA					
Prehistoric	0	5	44	5	54
Historic	0	0	3	0	3
Castner Range					
Prehistoric	1	3	3	11	18
Historic	0	1	3	11	15
Total	**8**	**2,887**	**9,108**	**3,724**	**15,727**

* Historic District comprised of 346 buildings.
** Includes Historic District comprised of 70 buildings.
Source: Ref# 246

The majority of the recent historic resource surveys at Fort Bliss were undertaken either to provide baseline management information (under Section 110 of the NHPA, PL 89-665) or to assess the effects of specific undertakings on historic properties (under Section 106 of the NHPA).

4.9.3.1 Archaeological Inventories

Archaeological investigations in the El Paso area began in the 1920s. During this period, several museum-sponsored projects were undertaken at the pueblos and caves of the region. Shortly after World War II, the La Cueva rockshelter, a pueblo, and a pithouse village site were excavated. In the 1940s, Lehmer's "Jornada Branch of the Mogollon" was based on sites in the Fort Bliss area and is the most significant work in the area for that period. The type site for El Paso phase occupations, the Bradfield Pueblo, was likely located on Fort Bliss land. No major archaeological work was undertaken in the 1950s, although local amateur archaeologists continued exploring the area.

During the 1960s and 1970s a substantial amount of archaeological work was undertaken by the El Paso Archaeological Society (EPAS). This work consisted of excavations and surveys within the South Training Areas, Doña Ana Range–North Training Areas, and McGregor Range. EPAS excavated portions of a number of pueblo sites, including the Sergeant Doyle and McGregor sites and the Escondido and Hot Well Pueblo. Much of the work before 1980 is not thoroughly documented by today's standards and provides less information than is usually required for NRHP evaluations.

Later work by professional archaeologists provided a foundation for understanding historic resources on Fort Bliss. Much of this work was centered in the South Training Areas and Doña Ana Range–North Training Areas. McGregor Range received less focus. These surveys resulted in relatively reliable estimates of the density of historic resources in different portions of Fort Bliss, which are summarized in **Table 4.9-2**.

Table 4.9-2. Summary of Archaeological Resource Density at Fort Bliss

Portion of Fort Bliss	*Archaeological Site Density (sites per acre)*
Main Cantonment Area	.04
South Training Areas	.01–.12
Doña Ana Range–North Training Areas	<.01–.02
McGregor Range	<.01–.08

Source: Ref# 3.

Native American or prehistoric archaeological resources are uncommon within the Main Cantonment Area. However, undiscovered buried materials are likely to remain in some parts of the Main Cantonment Area (Ref# 3). Likewise, Euroamerican archaeological resources relating to early military use of the Main Cantonment Area are known and have been unearthed during construction activities. The installation maintains a map dividing the Main Cantonment Area into archaeological sensitivity zones ranging from low to high. The high-sensitivity zones are those that are likely, based on archival research, to contain subsurface archaeological materials. Before ground disturbance can occur within the Main Cantonment Area, project maps are reviewed by the Fort Bliss Historic Preservation Officer to determine the sensitivity of the project location.

4.9.3.2 Historic Inventories

Fort Bliss has inventoried and evaluated all historic resources that are 50 years of age or older (Ref# 3, 242). The evaluations identified 405 buildings, 12 landscapes, and 5 structures as eligible for inclusion in the NRHP either individually or as part of two NRHP-eligible historic districts. One of these districts, Fort Bliss Main Post Historic District, includes buildings, sites, and structures that contribute to its significance. This district has been listed in the NRHP and is managed according to the following eight thematic groups:

- Initial Construction Period Group, 1891 to 1899;
- Interim Period Group, 1900 to 1912;
- First Expansion Period Group, 1913 to 1917;
- 7th Cavalry Construction Period Group, 1919 to 1921;
- Second Expansion Period Group, 1919 to 1926;
- Depression Era Group, 1927 to 1939;
- World War II Build-up Period Group, 1940 to 1945; and
- Post-World War II Period Group, 1946 to 1950.

In all, these groups encompass 346 buildings, sites, and structures and landscapes that contribute to the district. A number of historic resources from the 1950s and early 1960s have been included within this NRHP-listed historic district. Seventy-two additional properties are inside the boundary of the historic district but do not contribute to its significance.

Historic properties in the William Beaumont General Hospital Historic District area were evaluated separately (Ref# 242). This hospital was constructed in 1920 and included a number of support buildings in addition to the 400-bed main hospital. Seventy historic properties were identified as contributing to the significance of the William Beaumont General Hospital Historic District, which is eligible for inclusion in the NRHP (Ref# 242).

A Nationwide Programmatic Memorandum of Agreement (PMOA) between the Department of Defense, the ACHP, and the National Conference of SHPOs allows the demolition of World War II-era temporary buildings. Because of this PMOA, this building type is not subject to management under the Fort Bliss Programmatic Agreement. If the Army requests additional programmatic comments from ACHP, then additional property types could be subject to specific management actions or exemptions.

Inventory of Cold War resources is currently underway, with some areas completely evaluated. For example, mission critical facilities at the Main Post have been evaluated. Approximately 3,000 buildings date to this period (1946-1991). Additional buildings built prior to 1946 that may have played a role in the Cold War and that have been evaluated for significance under other contexts have not been evaluated for Cold War significance. Of the 3,000 Cold War era buildings, approximately 1,660 are Capehart-Wherry housing that are covered by the U.S. Army Program Comment (Ref# 245).

Another 335 Cold War era buildings have been evaluated for NRHP eligibility, and 65 have been determined eligible under this context. When another 315 buildings have been evaluated during 2006, all buildings built between 1946 and 1963 will have been evaluated for NRHP eligibility under the Cold War context. Most buildings constructed during or after 1964 have not yet been evaluated, including late 20th century base operations facilities. Some Cold War facilities of exceptional importance, associated with the Air Defense Artillery weapons systems and early missiles, have been identified. Future plans are to complete these inventories, including those at Biggs AAF (Ref# 242). Biggs AAF was evaluated under a U.S. Air Force Strategic Air Command historic context covering the years 1948-1966 when it was a Strategic Air Command base. Only Building 1108 (SAC Hangar) was found eligible for inclusion in the NRHP and concurred in by the Texas SHPO.

The following Program Comments remove a number of Cold War Era buildings on Fort Bliss from management as historic properties:

- Program Comment regarding Capehart-Wherry housing provides for the ongoing operations; maintenance; repair; rehabilitation; renovation; mothballing; cessation of maintenance; new construction; demolition; deconstruction and salvage; remediation activities; and transfer, sale, lease, and closure of Cold War Era (1946-1962) family housing without further Section 106 consideration.
- Program Comment regarding Cold War Era Unaccompanied Personnel Housing provides for ongoing operations; maintenance; repair; rehabilitation; renovation; mothballing; cessation of maintenance; new construction; demolition; deconstruction and salvage; remediation activities; and transfer, sale, lease, and closure of Cold War Era (1946-1974) barracks without further Section 106 consideration.
- Program Comment regarding Cold War Era Ammunition Storage Facilities provides for ongoing operations; maintenance; repair; rehabilitation; renovation; mothballing; cessation of maintenance; new construction; demolition; deconstruction and salvage; remediation activities; and transfer, sale, lease, and closure of Cold War Era (1939-1974) ammunition storage facilities without further Section 106 consideration.

4.9.3.3 Inventories of Properties of Traditional Cultural and Religious Importance

Detailed information on traditional beliefs, values, customs, sacred sites, and use areas is often not available, as Native Americans are reluctant to share such information with outsiders. However, the NHPA and EO 13007 require consideration of Native American concerns in the management of historic resources. Fort Bliss has therefore consulted with, and will continue to consult with, Native American groups with traditional ties to the area.

Fort Bliss has contacted the Ysleta del Sur Pueblo (Tigua) regarding their concerns about properties of traditional cultural and religious importance that may be present on the Fort Bliss installation. Although the Ysleta del Sur Pueblo (Tigua) have not yet specifically told Fort Bliss the location of sacred or important areas, consultation will continue. Fort Bliss has initiated consultation with the Mescalero Apache, the Comanche Tribe, and The Navajo Nation to identify sites that may be properties of traditional cultural and religious importance to them.

The entire area surrounding Fort Bliss also falls within the traditional territory of the Mescalero Apache. Generally, several types of topographic features have spiritual significance, including caves, springs, and certain mountain peaks (Ref# 252). To a lesser extent, resource areas containing specific botanical and geological materials used in ceremonies are also considered important by the Mescalero Apache. Consultation efforts related to other undertakings in the region have indicated that the Mescalero Apache have concerns of a general nature about resources on Fort Bliss (Ref# 3).

As part of its responsibilities under NAGPRA, Fort Bliss has completed an initial inventory of all cultural remains previously found on Fort Bliss lands that contain human remains or artifacts associated with these remains. A search of the site record at Fort Bliss and records of the cultural materials collections housed at Fort Bliss and other facilities indicated that 16 recorded sites on Fort Bliss have or had either human remains or suspected human remains. In some cases, the human remains had been removed. As required by NAGPRA, Tribal groups with historic ties to the area (Mescalero Apache and Ysleta del Sur Pueblo [Tigua]) were notified by letter of the materials and asked for their comments (Ref# 3). Fort Bliss has initiated consultation the Comanche Tribe, and The Navajo Nation and reinitiated consultation with the Ysleta del Sur Pueblo (Tigua) and with the Mescalero Apache.

4.9.4 Summary of Cultural Resources on Fort Bliss

As of November 2005, the Fort Bliss cultural resource database contained information on over 17,000 historic resources. The number and management status of historic resources in the different portions of the ROI are summarized in the database.

4.9.4.1 NRHP Listed and Eligible Properties

Information provided by Fort Bliss and supplemented with a search of the NPS listing of NRHP properties for El Paso County, Texas, identified eight properties listed in the NRHP. These are:

- Pershing House. Building 228 is individually listed in the NRHP.
- Fort Bliss Main Post Historic District. This district includes buildings, monuments, and landscapes constructed between 1893 and 1948.
- Sergeant Doyle Site. This site is a multi-room pueblo dating to the El Paso phase of the Formative period.
- Hot Well Site. This archaeological site is a late Formative period multi-room pueblo.
- Fusselman Canyon Rock Art District. This district includes Formative period rock art.
- Escondido Pueblo Ruin. This is an early Formative pueblo.
- Two archaeological sites in the South Training Areas
- Castner Range Archaeological District. This district consists of 53 sites and 100 archaeological isolates dating from the Formative period through the Historic period.

The Fort Bliss cultural resource database (as of November 2005) also lists 2,691 Native American sites that have been determined eligible for listing on the NRHP. These include, among others, Pendejo, Ceremonial, Sandal, and Bishop's Cap caves; Pintada Rockshelter; and McGregor Pueblo. Another 97 historic sites have been determined to be eligible for the NRHP (Ref# 246). Approximately 600 historic buildings and structures dating from the period of the William Beaumont General Hospital Historic District and the Cold War are NRHP-eligible.

4.9.4.2 Main Cantonment Area

The Main Cantonment Area contains a number of historic structures and both Native American and Euroamerican archaeological resources. The earliest of the historic structures date to 1893 and include Victorian buildings originally used for medical purposes, barracks, mess halls, recreational activities, officer's residences, stables, warehouses, and magazines. Many of these buildings are still used today, but for other purposes. A total of 346 buildings, sites, and structures contribute to the NRHP-listed Fort Bliss Main Post Historic District (Ref# 242).

Native American archaeological resources are uncommon within the Main Cantonment Area because of the extensive construction, and none are known on the Main Post, Logan Heights, or William Beaumont General Hospital Historic District. However, 50 sites have been located within Biggs AAF. Three of these are considered NRHP eligible, 37 are not eligible, and 10 remain to be evaluated. Twenty-two

Euroamerican archaeological sites have been identified in the Main Cantonment Area. Most of these Euroamerican archaeological sites are related to occupation of the site by Fort Bliss (Ref# 242). No properties of traditional cultural and religious importance have been identified to date in the Main Cantonment Area.

4.9.4.3 South Training Areas

The South Training Areas contain portions of the Hueco Mountains. These limestone deposits are conducive to the formation of caves and rockshelters, many of which were used by prehistoric people. More than 5,300 prehistoric archaeological sites have been recorded from this area, including six that are listed on the NRHP. The South Training Areas were also used historically. Inventories of historic archaeological sites in the South Training Areas have recorded 125 sites, including a portion of the Butterfield Overland mail route (Ref# 3). No architectural resources or properties of traditional cultural and religious importance have been identified within the South Training Areas, but both could potentially occur.

4.9.4.4 Doña Ana Range–North Training Areas

Complete survey of the Doña Ana Range–North Training Areas has resulted in the identification of over 6,110 prehistoric sites, including Paleoindian (including a possible Clovis site), Archaic, and Formative period sites. Historic resources totaling 154 sites include ranching, Civilian Conservation Corps, and military sites; a portion of the Spanish Salt Trail; historic mines; and the 1920s campsite of early paleontologists. Camp Hueco once contained World War II and Cold War architecture, but only a well house remains (Ref# 3). No properties of traditional cultural and religious importance have been identified within the Doña Ana Range–North Training Areas, although they could potentially occur.

4.9.4.5 McGregor Range

McGregor Range contains a variety of environmental zones and landforms. Its historic resources are diverse and include scatters of Paleoindian, Archaic, and Formative materials, rockshelters, rock art sites, historic ranching sites, the townsite of Turquoise, several of Oliver Lee's pipelines, two reservoirs, a number of railroad-related sites, and military sites, including Cold War-era Nike test sites (Ref# 3). Five pueblos have been identified on McGregor Range. The approximately 200,000 acres inventoried for historic resources to date contain over 4,000 historic and prehistoric sites. Approximately 780 of these are located on Otero Mesa (Ref# 246). No properties of traditional cultural and religious importance have been identified within the range, but they could potentially occur.

4.10 NOISE

This section describes the existing noise environment associated with activities conducted on Fort Bliss, Biggs AAF, and the Fort Bliss Training Complex.

Noise is defined as unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. It may be intermittent or continuous, steady or impulsive, stationary or transient. Stationary sources are normally related to specific land uses (e.g., industrial facilities, firing ranges). Transient sources move through the environment, either along relatively established routes (e.g., highways, aircraft departure and arrival routes), or randomly (e.g., off-road vehicle maneuver area). There is wide diversity in responses to sound that not only vary according to the type of noise and the characteristics of the sound source, but also according to the sensitivity and expectations of the receptor, the time of day, and the distance between the sound source (e.g., an explosion or heavy vehicle) and the receptor (e.g., a person or animal).

The physical characteristics of sound include its intensity, frequency, and duration. Sound is created by acoustic energy, which produces minute pressure waves that travel through a medium, like air, and are sensed by the eardrum. This may be likened to the ripples in water that are produced when a stone is dropped into it. As the acoustic energy increases, the intensity or amplitude of the pressure waves increase, and the ear senses louder noise. Sound intensity varies widely (from a soft whisper to a jet engine) and is measured on a logarithmic scale to accommodate this wide range. The logarithm is a mathematical tool that simplifies dealing with very large and very small numbers.

The frequency of sound is measured in cycles per second, or hertz (Hz). This measurement reflects the number of times per second the air vibrates from the acoustic energy. Low frequency sounds are heard as rumbles or roars, and high frequency sounds are heard as screeches.

Sound measurement is further refined through the use of "weighting." The normal human ear can detect sounds that range in frequency from about 20 Hz to 15,000 Hz. However, not all sounds in this range are heard equally well. Therefore, some sound meters are calibrated to emphasize frequencies in the 1,000 to 4,000 Hz range because the human ear is most sensitive to frequencies in this range. Sounds measured with these instruments are termed "A-weighted" and are shown in terms of A-weighted decibels (dBA).

In contrast, when describing large amplitude impulsive sounds such as a clap of thunder, a gunshot, or an explosion, the actual total amount of acoustic energy created by the event is an important consideration. Sounds of this nature are normally measured on the "C-weighted" scale, which gives nearly equal emphasis to all frequencies but suppresses the very low and very high bands. Values of C-weighted sound are shown in terms of C-weighted decibels (dBC).

Since A-weighted and C-weighted sounds are measured on different scales, it is not appropriate to add them together. Therefore, they are documented separately in this SEIS. The durations of sound events and the number of times they occur are also considerations in assessing noise impacts.

4.10.1 Noise Metrics

A number of different metrics have been developed to represent the effects of environmental noise. The metrics used to assess noise impacts from activities on Fort Bliss include the Sound Pressure Level (SPL), the maximum sound level (L_{max}), the Sound Exposure Level (SEL), and Day-Night Average Sound Levels.

4.10.1.1 Sound Pressure Level

The SPL metric is used to assess noise impacts resulting from impulsive noise, such as explosions and artillery. This is the actual sound level, in decibels, and is identified as dBP. This metric reflects the actual sound pressure associated with the event. The dBP thresholds, associated overpressure in pounds

per square inch (psi), and effects as presented in **Table 4.10-1** serve as guidelines for evaluating the potential impact of impulsive noise.

Table 4.10-1. Acoustic Thresholds for Impulsive Noise Events

Sound Pressure Level (dBP)	*Overpressure (psi)*	*Effect*
115 - 130	0.002 – 0.009	Low to moderate annoyance in 15% of exposed populations.
130 - 140	0.009 - 0.03	Maximum exposure without hearing protection. High risk of noise complaints.
151	0.10	Increased risk of hearing impairment.
185	5.00	Eardrum rupture.
194	15.00	Lung hemorrhage.
201	35.00	Death.

Source: Ref# 67, 517

Meteorological conditions also influence noise propagation, especially impulsive noise. Variations such as changes in wind speed and temperature inversions have a distinct influence on the behavior of sound as it moves through the atmosphere. These climatic variables may concentrate or focus sound waves in a particular direction or reflect or refract sound energy. In general, influences of variable weather conditions at Fort Bliss may be described as favorable or unfavorable as defined below:

- Favorable — no temperature inversions with altitude and light, uniform, east/northeast surface winds with a moderate wind speed gradient aloft.
- Unfavorable — cool season day; low-altitude, layered, or multiple temperature inversions; and strong north/northwest winds.

4.10.1.2 Maximum Sound Level

The L_{max} metric is used to define peak noise levels. L_{max} is the highest sound level measured during a single noise event. For an observer, the noise level starts at the ambient noise level, rises up to the maximum level as the noise source passes closest to the observer, and then returns to the ambient level as the noise source recedes into the distance. Maximum sound level is important in judging interference with conversation, sleep, or other common activities.

4.10.1.3 Sound Exposure Level

L_{max} alone may not represent how intrusive a noise event is because it does not consider the length of time that the noise persists. The SEL metric combines both the intensity and the duration of a noise event in a single measure. It is important to note, however, that SEL does not directly represent the sound level heard at any given time, but rather provides a measure of the total exposure of the entire noise event. Its value represents all of the acoustic energy associated with the event, as though it was present for one second. Therefore, for sound events that last longer than one second, the SEL will be higher than the L_{max}. Conversely, for instantaneous noise events that last less than one second, the SEL will be lower than the L_{max}.

4.10.1.4 Day-Night Average Sound Level

The number of times noise events occur during given periods is also an important consideration in assessing noise impacts. Two cumulative noise metrics support the analysis of multiple time-varying noise events, the Day-Night Average Sound Level for A-weighted noise (ADNL) and the Day-Night Average Sound Level for C-weighted noise (CDNL).

Both metrics sum all individual noise events that occur in a 24-hour period and average the resulting level over that period. Each is a composite metric representing the maximum noise levels, the duration of the events, the number of events, and the time of day during which they occur. These metrics add 10 dB to

those events that occur between 10:00 p.m. and 7:00 a.m. to account for the increased intrusiveness of noise events that occur at night when ambient noise levels are normally lower than during the day time. These cumulative metrics do not represent the variations in the sound level heard, but they do provide a means of comparing environmental noise exposures when there are multiple noise events to be considered.

Day-Night Average Sound Level can be thought of as the continuous or cumulative A- or C-weighted sound level present if all of the variations in sound levels occurring over a 24-hour period were smoothed out so as to contain the same total sound energy. While it provides a single measure of overall noise impact, it does not provide specific information on the number of noise events or the specific individual sound levels experienced. For example, a Day-Night Average Sound Level of 65 dB could result from a very few noisy events, or a large number of quieter events. Although it does not represent the sound level heard at any one particular time, it does represent the total sound exposure in 24 hours. Scientific studies and social surveys have found the Day-Night Average Sound Level to be the best measure to assess levels of community annoyance associated with all types of environmental noise. Therefore, its use is endorsed by the scientific community and governmental agencies (Ref# 254, 307, 311).

Ambient background noise is not considered in environmental noise calculations. There are two reasons for this. First, ambient background noise, even in wilderness areas, varies widely depending on location and other conditions. For example, while ambient noise is usually considered to average approximately 40 dBA, studies conducted in an open pine forest in the Sierra National Forest in California have measured up to a 10 dBA variance in sound levels simply due to an increase in wind velocity (Ref# 357). It is reasonable to assume that ambient background noise would have little or no effect on the calculated Day-Night Average Sound Levels. In calculating noise levels, louder sounds dominate the calculations.

4.10.1.5 Peak Noise Level

A concern often voiced by the public is that people do not hear Day-Night Average Sound Levels; they hear specific events. The DNL metric (both A- and C-weighted) is the primary descriptor for noise exposure. However, since this is a time-averaged metric, it may not always account for human reaction to possibly sporadic and infrequent blast noise events or weapons firing. To account for statistical variation in received noise levels that could be experienced in varying meteorological conditions, the U.S. Army has developed computer models that consider peak noise levels (i.e., the noise actually heard when a weapon is fired). These models calculate a range of peak noise levels expected to be actually experienced at specific points, based on varying weather conditions that favor or hinder sound propagation. The outputs are noise contours that describe the peak noise level expected to be heard. The normal contour plotted is the PK 15(met), which describes the peak noise level expected to be experienced 85 percent of the time. **Table 4.10-2** summarizes the expected risk of public complaint based on the extent and level of the PK 15(met) contour.

Table 4.10-2. Assessment of Risk of Public Complaints

	PK 15(met) Noise Contour	
Risk of Complaints	***Small Arms (50 caliber and below)***	***Large Caliber Weapons (20 mm and greater)***
Low	<87 dB	<115 dB
Moderate	87 – 104 dB	115 – 130 dB
High	>104 dB	>130 dB

Source: Ref# 67

4.10.1.6 Land Use Planning Guidelines

The U.S. Army Center for Health Promotion and Preventive Medicine (CHPPM) has defined three noise zones to be considered in land use planning (**Table 4.10-3)**. These zones are described by the noise levels to which they are exposed and recommendations for compatible land uses (**Table 4.10-4**). In general,

within Zone I, where very few people will be bothered by noise levels, land use is unrestricted. In Zone II, as outdoor noise levels increase and more people become annoyed by the noise, restrictions or qualifications are placed on certain land uses, specifically residential development. In Zone III, as noise levels escalate, fewer and fewer compatible land uses are indicated.

Table 4.10-3. DNL-Based Noise Zones

Noise Zone	*Population Highly Annoyed*	*Transportation (ADNL)*	*Impulsive (CDNL)*	*Small Arms (dBP)*
I	< 15 %	< 65 dBA	< 62 dBC	< 87 dBP
II	15 % - 39 %	65 – 75 dBA	62 – 70 dBC	87 - 104 dBP
III	> 39 %	> 75 dBA	> 70 dBC	> 104 dBP

Source: Ref# 67

As an added consideration, the Federal Interagency Committee on Urban Noise (FICUN) report (Ref# 311) states "Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider." For residential land uses, depending on attitudes and other factors, an ADNL of 60 dB or CDNL of 57dB (5 dBA lower than the outer boundary of the normally incompatible [Zone II] noise zone) may be considered an adverse aspect of the community environment and up to 9 percent of the residents may be highly annoyed. In order to provide a planning tool that can be used to account for days of higher than average training and possible adverse reactions, the Land Use Planning Zone (LUPZ) was developed. It encompasses noise levels between 60 and 65 dB ADNL and 57–62 CDNL and was established as a planning tool for working with communities to prevent encroachment.

Table 4.10-4. Land Use Recommendations in Noise Zones

Land Use	*Noise Zones*		
	Zone I	*Zone II*	*Zone III*
Residential	Acceptable	Generally unacceptable[1]	Unacceptable
Manufacturing	Acceptable	Acceptable	Acceptable[2]
Transportation, communication, and utilities	Acceptable	Acceptable	Acceptable
Trade	Acceptable	Acceptable	Acceptable[2]
Public services	Acceptable	Generally unacceptable[1]	Unacceptable
Cultural, recreational, and entertainment	Acceptable	Generally unacceptable[1]	Unacceptable
Agricultural	Acceptable	Acceptable	Acceptable
Livestock farming and animal breeding	Acceptable	Acceptable	Unacceptable

1. Use is generally discouraged; however, if allowed, sound attenuation techniques should be used.
2. Sound attenuation techniques should be used.

Source: Ref# 307

4.10.2 Noise Levels at Fort Bliss

In January 2005, the Environmental Noise Program Directorate of Environmental Health Engineering at CHPPM and the Directorate of Environment at Fort Bliss prepared an *Installation Environmental Noise Management Plan* (Ref# 67). Data below summarize the results from that document. The plan considers environmental noise resulting from aircraft operations at Biggs AAF and from small arms ranges and large caliber weapons on Doña Ana and McGregor Ranges.

4.10.2.1 Biggs AAF Aircraft Operations

The Army, the Army National Guard, and the Air National Guard use the Biggs AAF for training. The airfield supports a mix of fixed-wing and rotary-wing operations during day and night hours.

Figure 4.10-1 illustrates the noise contours for current operations at Biggs AAF. The data used to generate these contours was provided by the Airfield Tower and represents a maximum (mobilization/deployment period) or reasonable worst case scenario for the airfield. The percentage of operations (departures and arrivals) diverted due to possible unsafe winds could not be obtained from the Airfield Office for this analysis; therefore, the contours represent an equal number of events or operations at both ends of the main runway.

Zones II and III do not extend beyond the installation boundary, thus no off-post land uses are affected by incompatible noise levels from the airfield. The LUPZ extends south of the installation boundary into residential areas of El Paso. The LUPZ also covers a portion of the Main Post, including troop and family housing areas that may be adversely impacted by the noise. However, on a day-to-day basis the activity on Biggs AAF would be significantly lower than is reflected in the contours.

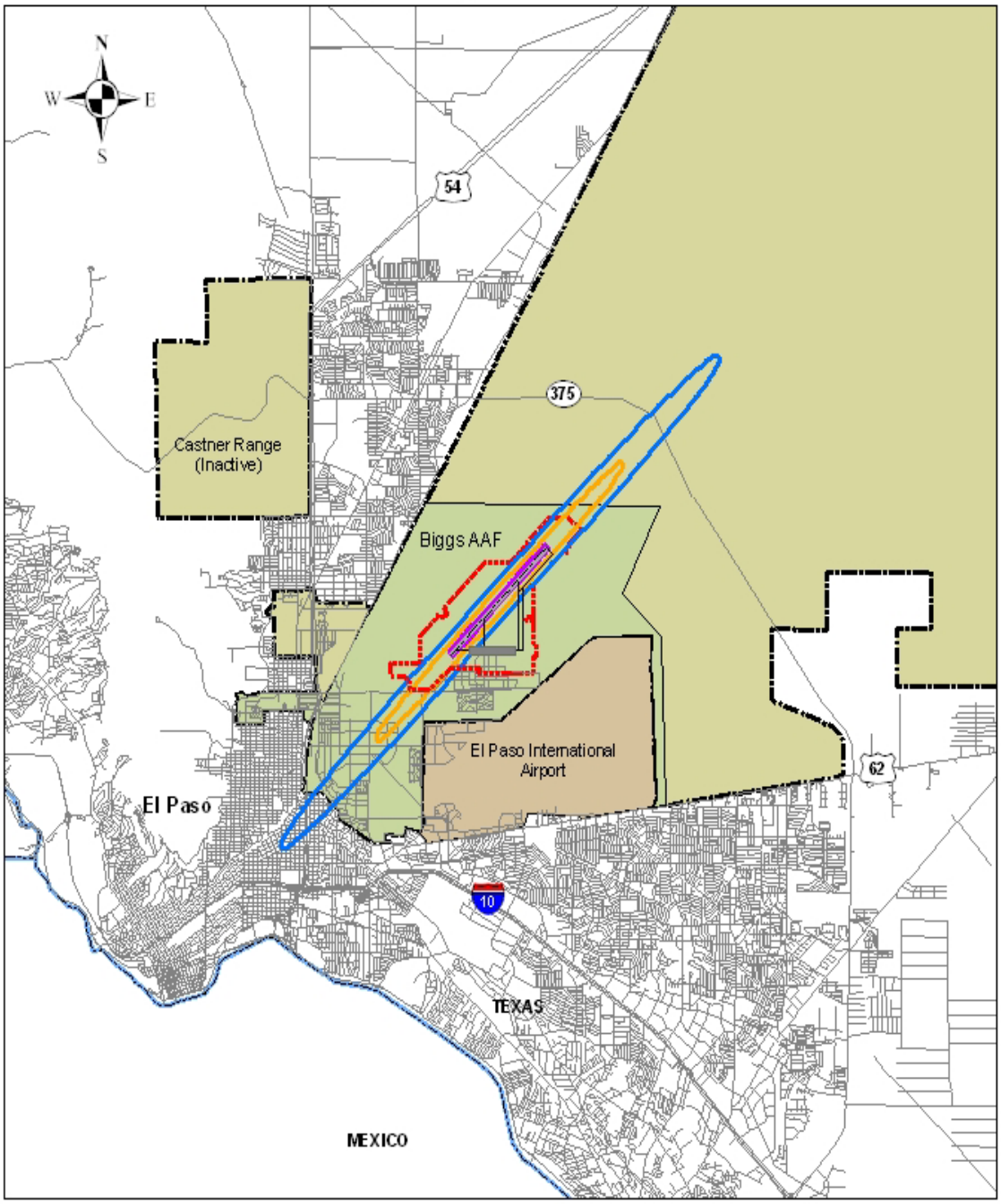
When compared to neighboring EPIA, the operations at Biggs AAF represent a small portion of the overall aircraft noise exposure in El Paso. The 2004 noise exposure map for EPIA is provided in **Figure 4.10-2**. Noise Zones II and III envelop a large area of residential land use within the City of El Paso, as well as extending onto Fort Bliss. The noise from EPIA is not compatible with residential use and does not meet the federal guidelines for noise compatibility. EPIA officials are in the process of preparing a new noise study. All new residential construction on Fort Bliss includes mitigation measures for noise exposure (e.g., increased wall thickness and insulation values, upgraded doors and windows, and seals on all openings and penetrations in the structure).

4.10.2.2 Small Arms Ranges

The small arms weapons firing on Fort Bliss takes place in several locations across the installation including Meyer Range, Doña Ana Range, SHORAD Range, and McGregor Range. Activities at the SHORAD and McGregor Ranges were not large enough to generate noise contours. The noise contours associated with activities at Meyer and Doña Ana Ranges are shown in **Figure 4.10-3**. All noise zones are within the installation boundary, and the land use of areas affected is compatible with federal guidelines.

4.10.2.3 Large Caliber Weapons

The large caliber weapons training on Fort Bliss involves of a variety of weapons systems from grenade, mortars, artillery (105, 155 Howitzer), and M1 Tank fire to anti-tank rockets, guided missiles, and ADA training. All large caliber weapons training takes place at either the Doña Ana Range Complex or McGregor Range, with the exception of demolitions that take place on Meyer Range. Rather than present each range separately, combined noise contours were generated to offer a more accurate assessment of the total noise picture based on annual operations. The activity data used to generate the contours represent the maximum number of operations and the reasonable worst-case scenario as far as noise is concerned. **Figure 4.10-4** shows CDNL contours for existing large caliber weapons use at Fort Bliss. **Figure 4.10-5** shows peak level contours.



Source: Ref# 200

Figure 4.10-1. Existing Biggs Army Airfield Noise Contours

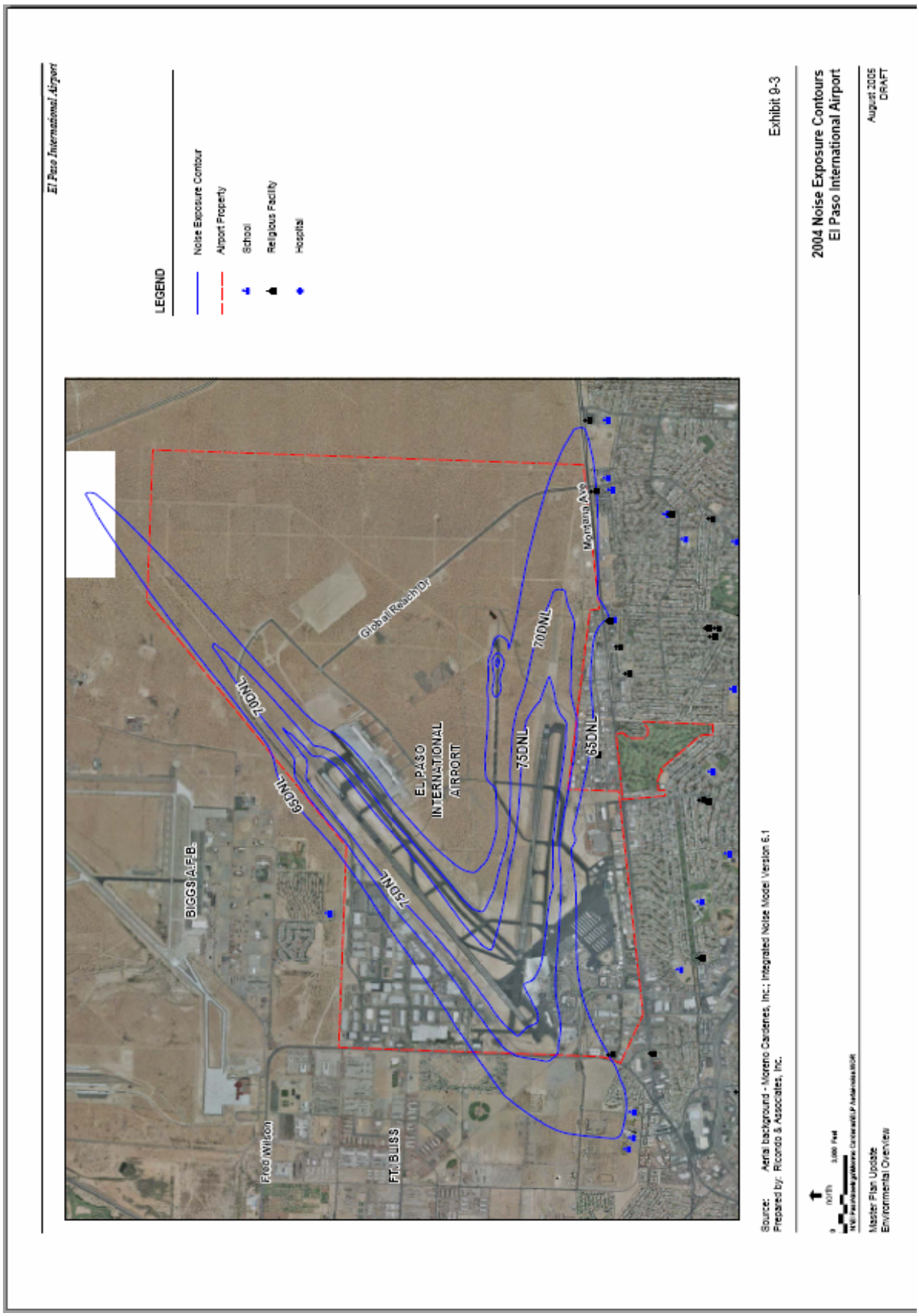


Figure 4.10-2. 2004 EPIA Noise Contours

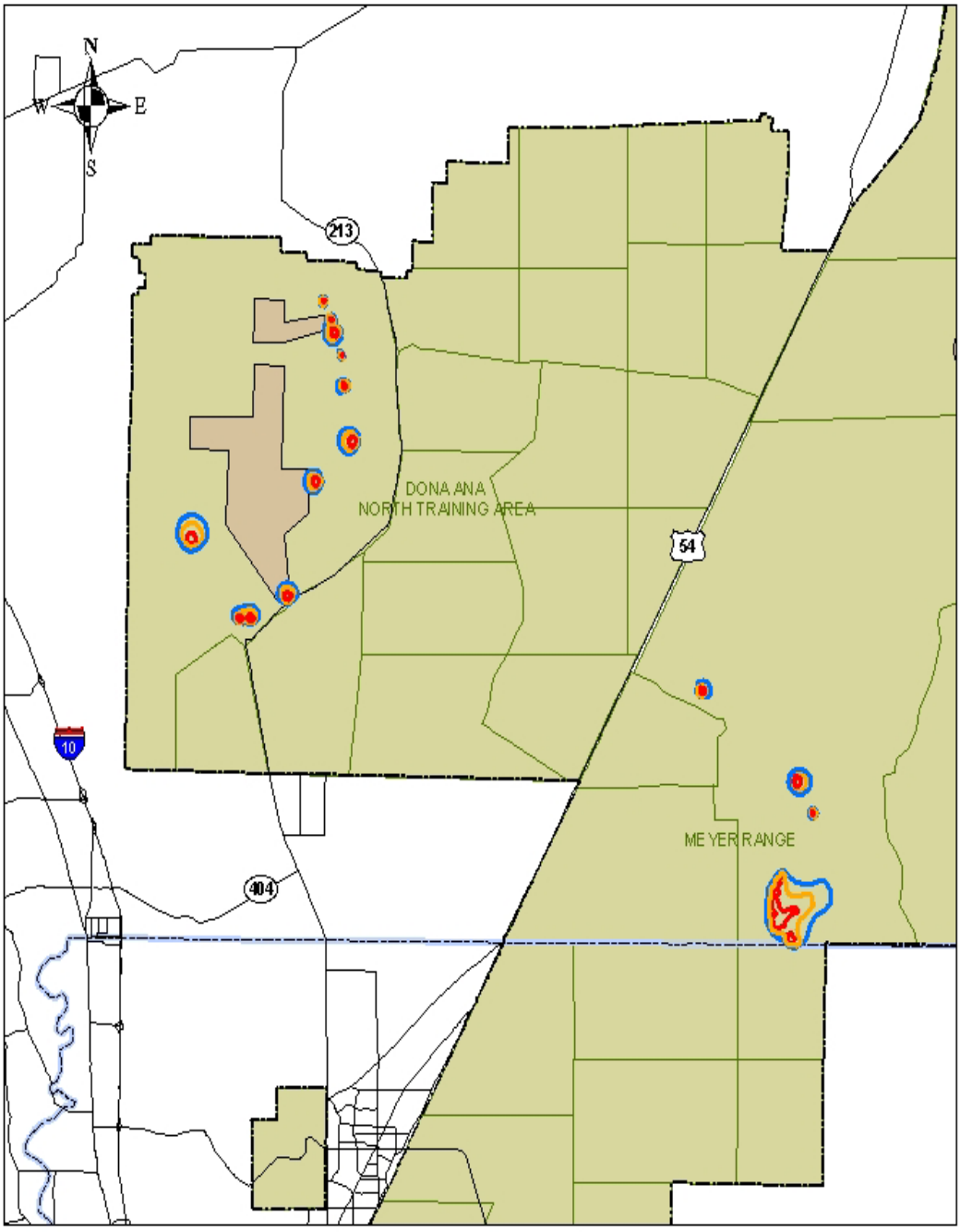


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Figure 4.10-3. Existing Small Arms Noise Contours at Fort Bliss

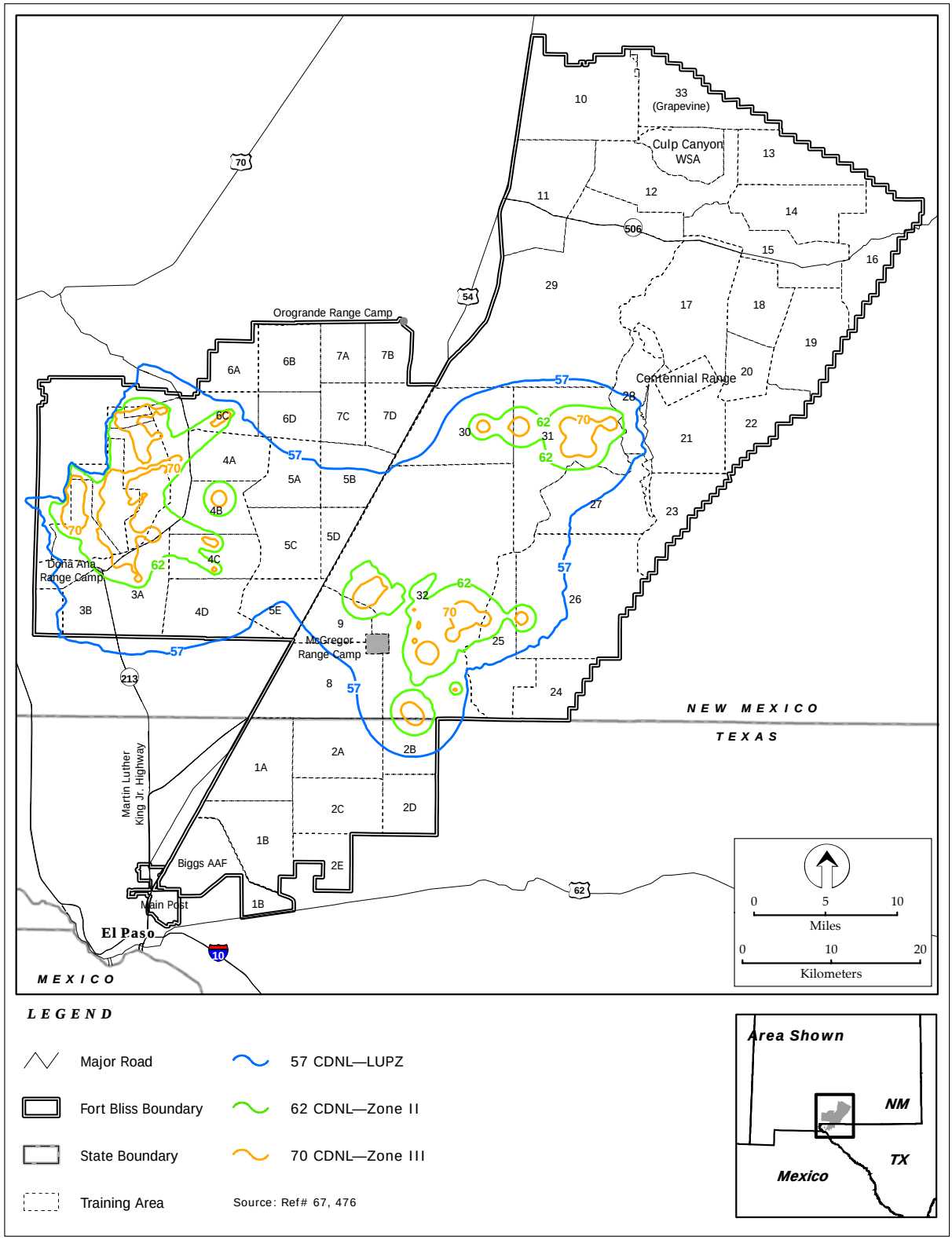

Figure 4.10-4. Existing Large Caliber Weapons Noise Contours at Fort Bliss

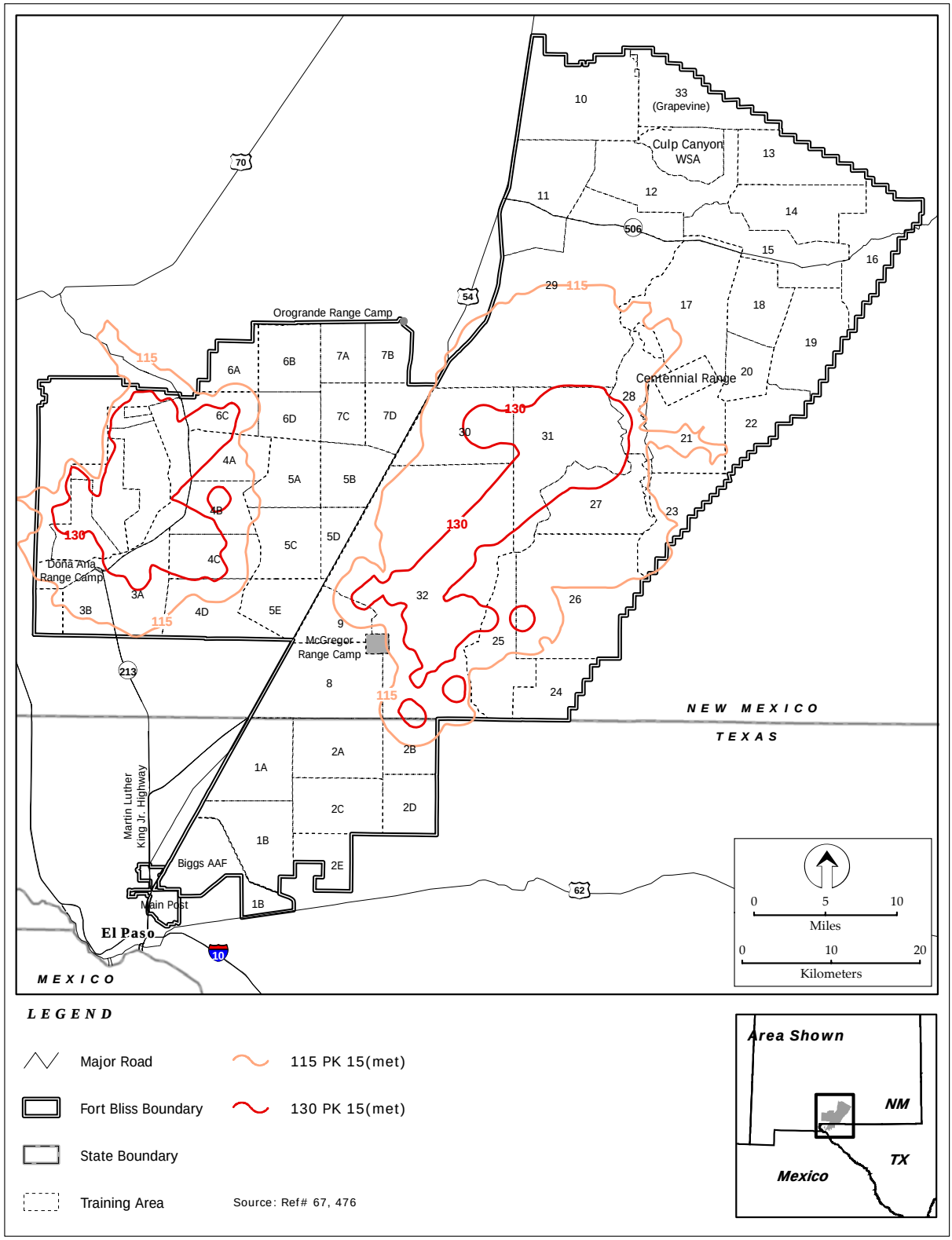

Figure 4.10-5. Existing Large Caliber Weapons Peak Noise Contours at Fort Bliss

The contours in Figure 4.10-4 reflect the barrier effect of the Organ Mountains operations on the west side of Doña Ana Range. Noise Zones II and III are completely contained within the installation boundary, while the LUPZ extends beyond the boundary in four areas. Fort Bliss has a distinct advantage in that the terrain (i.e., mountain ranges) on the installation serves as a natural barrier to low-frequency sound waves emitting from noise generating activities. This is apparent when looking at activity at the Doña Ana Range complex. The Organ Mountains adjacent to the impact area serve as one of those barriers.

Although the LUPZ from large caliber weapons operations extends beyond the boundary in four places, Fort Bliss receives few noise complaints. Between 2000 and 2004, Fort Bliss received one to three noise complaints per year. The majority of land uses contained within the LUPZ consist of grasslands, shrub lands, and barren land with little residential use. The area north of Doña Ana Range extends into WSMR where there are no concerns about incompatibility. The area south of Doña Ana Range stretches to the northern edge of the town of Chaparral, which may be exposed to elevated noise levels during heavy training periods.

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4.11 SAFETY

The topics addressed in this section include ground safety, flight safety, explosive safety, and installation compatible use. The ROI for the safety analysis includes the Main Cantonment Area and Fort Bliss Training Complex. Ground safety includes activities associated with ongoing operations and maintenance, fire safety, and demolition and construction. Aircraft flight safety addresses the risk of aircraft mishaps from both rotary- and fixed-wing aircraft activities. Explosive safety considerations involve storage, processing, handling, and use of ordnance. Installation compatible use addresses potential hazards associated with airfield operations and delivery of ordnance on weapons ranges.

The U.S Army classifies accidents, incidents, and injuries in one of six classes based on the severity and type of the event. A Class A accident is one in which the total cost of property damage is $1,000,000 or more; an Army aircraft or missile is destroyed, missing, or abandoned; or an injury and/or occupational illness results in a fatality or permanent total disability. A Class B accident is one in which total cost of property damage is $200,000 or more, but less than $1,000,000; an injury and/or occupational illness results in permanent partial disability; or when five or more personnel are hospitalized as inpatients as the result of a single occurrence. A Class C accident is one in which the total cost of property damage is $10,000 or more, but less than $200,000; a nonfatal injury that causes any loss of time from work beyond the day or shift on which it occurred; or a nonfatal occupational illness that causes loss of time from work. A Class D accident is one in which the total cost of property damage is $2,000 or more, but less than $10,000. A Class E Aviation Incident is one in which the resulting damage cost and injury severity do not meet the criteria for a Class A-D accident. A Foreign Object Damage (FOD) Aviation Incident (Class F incident) is one where damage is confined to the aircraft turbine engine (Ref# 257). This SEIS focuses on Class A accidents due to their severity and high cost.

4.11.1 Ground Safety

All day-to-day operations and maintenance activities on Fort Bliss are performed by trained, qualified personnel in accordance with applicable equipment technical directives, approved occupational safety and health standards, and sound maintenance practices. The handling, processing, storage, and disposal of hazardous by-products resulting from demolition, construction, operations, or maintenance are accomplished in accordance with all federal and state requirements applicable to each substance.

Fire suppression on Fort Bliss is the responsibility of the Fort Bliss Fire Department. It is staffed by trained firefighters and is capable of responding to fires that may occur within the Main Cantonment Area. The Fort Bliss Fire Department is party to a Mutual Support Agreement (MSA) with the City of El Paso. If required, augmented support for fire suppression would be available from the city. The Fort Bliss Fire Department also has a Mutual Aid Agreement with BLM for responding to fires on both withdrawn land and Army fee-owned land in the Fort Bliss Training Complex.

From 1993 through 2002, a total of 205 fires were recorded on the Fort Bliss Training Complex, burning a total of 94,627 acres (Ref# 557). The most number of fires occurred in 2001 (56) and burned a total of 23,221 acres. The smallest number of fires was recorded in 1998 (3). The largest acreage burned was in 1993 (33,949), which had only 12 fires but included the single largest fire recorded during the period (20,314 acres) (Ref# 557).

The largest number of fires (110) were in the south Tularosa Basin portion of McGregor Range. Most (101) stayed within the Tularosa Basin; five also extended into the southeast training areas and four up to Otero Mesa. Sixty-two, including the four mentioned above, were on Otero Mesa, including 10 of the 14 largest fires, as well as the single largest fire. Twenty-two of the fires burned in the southeast training areas. The North and South Training Areas combined only account for seven of the fires. It is likely that the cause of these fires is predominantly due to missile firings (Ref# 557).

In the McGregor RMPA, BLM has identified two areas that present potential fire safety hazards: (1) the impact areas below Otero Mesa and on Centennial Range and (2) the urban interface area between the northern part of the range and private lands and communities such as Timberon (Ref# 21). Neither Centennial Range nor the urban interface is proposed for off-road vehicle maneuvers or other land use changes. All fires in the grazing units on McGregor Range are suppressed (Ref# 21). Fort Bliss is participating with BLM in implementing a fire reduction program in the urban interface around Timberon. The Army has invested nearly $118,000 in thinning and controlled burning of 1,220 acres to reduce fuel loading and create a fire break between McGregor Range and Timberon.

Day-to-day operations and maintenance activities performed at Biggs AAF include limited aircraft maintenance. Detailed safety processes and procedures for ramp access, aircraft movement, and fueling and defueling are in place. Two parking areas are designated for loading and unloading of hazardous cargo, which includes munitions.

Overall, throughout the U.S. Army over the last 10 years, on-duty personnel have been involved in an average of 64 Class A accidents per year. Based on personnel strengths over that same 10-year period, this represents an average of 0.098 Class A accidents per 1,000 soldiers, or one event for every 10,200 soldiers (Ref# 303).

4.11.2 Flight Safety

While it is impossible to predict the precise location of an aircraft accident, in considering potential impact to persons and private property, several factors are relevant: the ROI and immediate surrounding areas have relatively low population densities; pilots of aircraft are instructed to avoid direct overflight of population centers at very low altitudes; and the limited amount of time the aircraft is over any specific geographic area limits the probability of impact from a disabled aircraft in a populated area.

Possible effects of an aircraft crash include the potential for injury, property damage, fire, and environmental contamination. Weather and surface conditions (topography, vegetation, etc.) will determine the extent of fire hazard. When an aircraft crashes, it may release hydrocarbons. Those petroleum, oils, and lubricants not consumed in a fire could contaminate soil and water, depending on the physical characteristics of the area where the crash occurred.

Based on historical data of mishaps at all U.S. military installations worldwide, and under all conditions of flight, the military services calculate Class A mishap rates per 100,000 flying hours. Combat losses due to enemy action are excluded from these statistics. These data are only statistically indicative. Class A mishaps result from many factors, not simply the amount of flying time of the aircraft.

Recent operations at Biggs AAF have been approximately 43 percent Army rotary-wing aircraft and 57 percent Army, Air Force, and Civil fixed-wing aircraft. Overall, during the last ten years, Army aviation activities have experienced an average of 17.4 Class A mishaps per year. This equates to an average Class A mishap rate of 1.71 per 100,000 flying hours (Ref# 303).

4.11.3 Explosive Safety

All explosives stored on Fort Bliss are stored in fully licensed and approved storage areas and facilities. All quantity-distance criteria are satisfied except one rail load facility operating on a waiver. Biggs AAF has two approved “Hot Pads” that support trans-shipment of hazardous cargo. These locations satisfy all requirements for temporary processing of explosive material.

The South Training Areas contain no explosive storage facilities. This area has been widely used for off-road vehicle training, and while no archive search report has been done for these areas, the training experience makes the probability of explosive ordnance hazards low.

There are several areas on the Doña Ana Range complex that have high potential for ordnance or explosive debris contamination. Historical documentation indicates that almost the entire complex has

been used for ordnance-related activities. Many areas, especially the ranges west of War Highway, have been repeatedly used with various weapons systems. In addition, the entire complex has been subjected to possible contamination from artillery activities.

Ordnance and explosives are stored on McGregor Range in approved and licensed storage facilities. Areas on McGregor Range with the highest potential for ordnance or explosive debris are anti-aircraft artillery ranges, missile and rocket firing areas, Cane Cholla, SHORAD Range, MLRS areas, and Meyer Range Complex. Besides the historical use of specific locations, the overall range has been subjected to possible ordnance and explosive hazards from high- and medium-altitude missiles (Ref# 3).

During use of the ranges, temporary storage for ordnance is available at the range camps. The unit using the range is responsible for ordnance safety and security during transport, storage, and use. During training, use of ordnance on the range is guided by SOPs that provide detailed direction on the handling of explosives and explosive safety (Ref# 165). When feasible, after an exercise, the area used is groomed to ensure proper disposal and disposition of ordnance that is considered a hazard. The impact areas are not sanitized on a regular basis. Therefore, ordnance or explosive hazards may exist in those areas. Detailed instructions in SOPs provide for designating and marking ordnance or explosive hazards if encountered. When necessary, explosives ordnance disposal (EOD) specialists are available to render the ordnance safe. It is either destroyed in-place, or removed for demolition on an EOD range.

4.11.4 Installation Compatible Use

4.11.4.1 Biggs AAF

The Army has an Installation Compatible Use Zone (ICUZ) program to recommend land use compatibility guidelines for areas exposed to increased safety risk and noise in the vicinity of airfields. Three zones are delineated at both ends of the runway: Clear Zones (CZs), Accident Potential Zone (APZ) I and APZ II. In addition, safety zones have been established around the airfield. Within clear and safety zones, construction is either prohibited or limited in terms of placement and height (safety zones). Areas around the airfield where experience has shown most aircraft accidents occur are designated as APZs. In developing these zones, Biggs AAF is considered to have a Class B runway. These zones are shown in **Figure 4.11-1**.

The CZ for Class B runways is an area 1,000 feet wide by 3,000 feet long located at the immediate ends of the runway. The accident potential in this area is so high that no building is allowed. For safety reasons, the Army is authorized to purchase the land for these areas if not already part of the installation (Ref# 305).

APZ I for Class B runways is 1,000 feet wide by 5,000 feet long and located just beyond the CZ. Land use compatibility guidelines for this zone allow a variety of industrial, manufacturing, transportation, communication, utilities, wholesale trade, open space, and agricultural uses. However, uses that concentrate people in small areas are not acceptable (Ref# 305).

APZ II for Class B runways is 1,000 feet wide and extends 7,000 feet beyond APZ I. Compatible land uses include those for APZ I, as well as low density single family residential and personal and business services and commercial retail trade uses with low intensity or scale of operation. High density functions such as multi-story buildings, places of assembly (e.g., theaters, schools, churches, and restaurants), and high density offices uses are not considered compatible (Ref# 305).

Military heliports are similar to military airfields in that both have runways for takeoff and landing of aircraft. As a general rule, however, the length of the runway at a heliport is much shorter than an airfield runway since helicopters, characteristically, need less distance to take off or land. The Takeoff Safety Zone at a heliport corresponds to the Clear Zone at an airfield for land use planning purposes. Similarly, for land use planning, the Approach-Departure Zone for heliports corresponds to APZ I at military airfields. Heliports do not have an equivalent to APZ II.

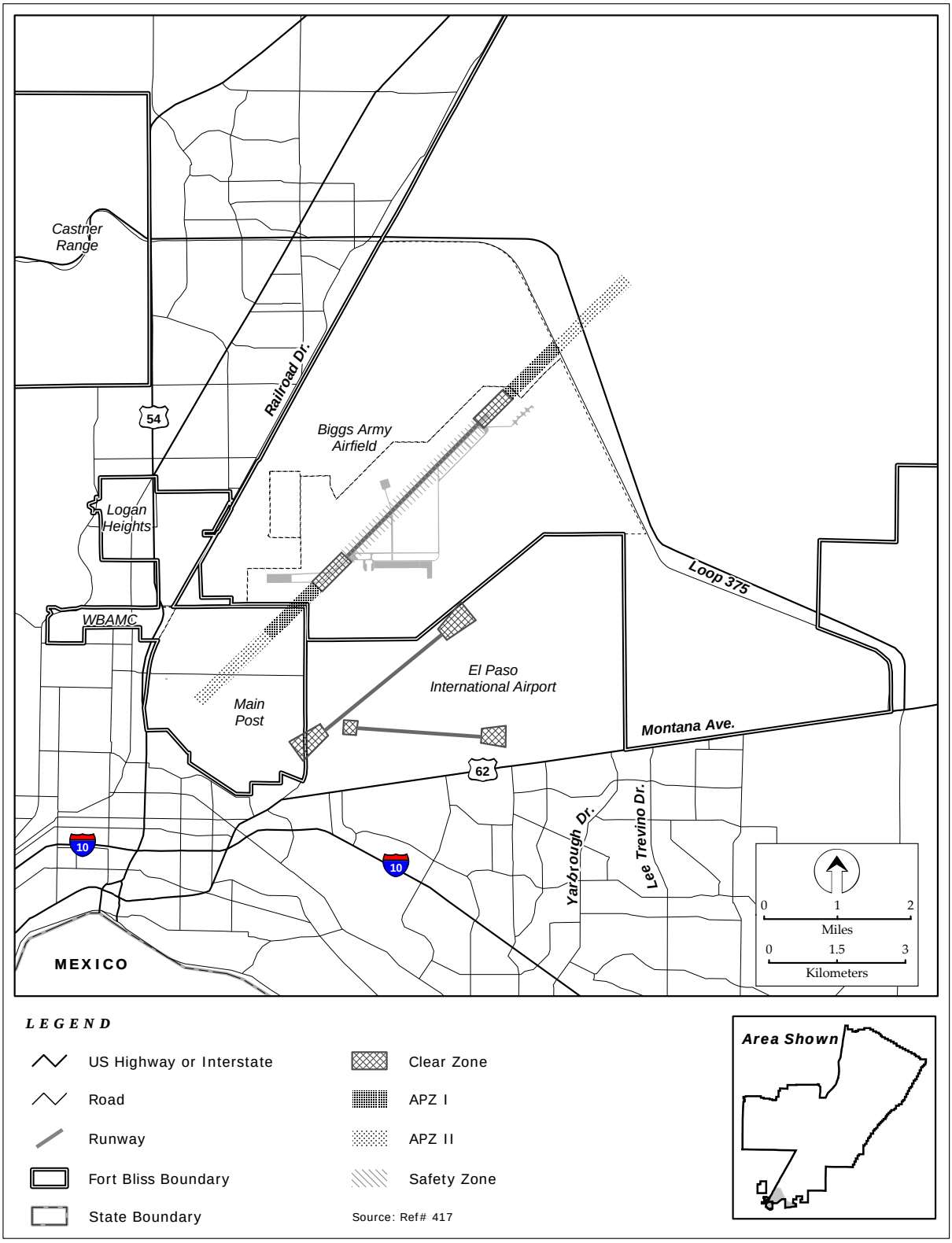

Figure 4.11-1. Airfield Safety Zones at Biggs AAF and EPIA

4.11.4.2 Live Fire Ranges in the Fort Bliss Training Complex

U.S Army firing ranges are managed in accordance with processes and procedures required by AR 385-63, Range Safety. Specific details are contained in Department of the Army Pamphlet 385-63. Fort Bliss has published detailed SOPs addressing all aspects of range use. The focus of range management is on ensuring the safe, effective, and efficient operation of all ranges.

A good deal of the Fort Bliss Training Complex provides safety buffers for the expenditure of ordnance. These safety zones include areas where ordnance or fragments of ordnance are expected to impact. As a result of years of use, Fort Bliss impact areas have been categorized for management purposes as either permanent or temporary.

Doña Ana Range–North Training Areas are used for small arms, heavy and light automatic weapons, mortars, artillery, rockets, armor, mechanized infantry, and aerial gunnery. Impact areas are in the Organ Mountains and the TAs.

McGregor Range supports delivery of a wide variety of ground-to-ground, ground-to-air, and air-to-ground ordnance. The Orogrande Range is used primarily by TEXCOM's ADA Test Directorate for weapons system testing. The range can support use of missiles, 81 mm mortars (illumination only), and laser operations. Weapons supported by the SHORAD Range include missiles and 25 mm, 7.62 mm, and .50 caliber ammunition.

The Meyer Range complex on McGregor Range supports small arms; hand grenades; M-60 machine guns; Claymore mines; and M249, M203, AT-4, and M79 grenade launchers.

4.11.4.3 Centennial Range

Centennial Range is a U.S. Air Force operated air-to-ground range located on Otero Mesa at McGregor Range. Safety processes and procedures for Air Force air-to-ground ranges are defined in Air Force Instruction (AFI) 13-212. These requirements ensure that Air Force ranges are planned, operated, and managed in a safe manner; all required equipment and facilities are available to support range use; and proper security for range assets is present. Specific direction on different range activities is contained in AFI 13-212, Volume 1 Range Planning and Operations, Volume 2 Range Construction and Maintenance, and Volume 3 SAFE-RANGE Program Methodology (Ref# 420).

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4.12 HAZARDOUS MATERIALS AND ITEMS OF SPECIAL CONCERN

This section provides a description of the hazardous materials, items of special concern, and related management programs at Fort Bliss. The ROI for hazardous materials and environmental media management programs includes the Main Cantonment Area, including Biggs AAF, and the Fort Bliss Training Complex.

The 2000 Mission and Master Plan PEIS (Ref# 3) documents impacts associated with hazardous materials and items of special concern. This SEIS focuses on changes that have occurred since completion of that document.

4.12.1 Hazardous Materials

This section discusses hazardous chemicals, hazardous waste, and ordnance and explosives used, stored, and managed at Fort Bliss.

4.12.1.1 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, lubricants, fire retardants, photographic chemicals, alcohols, insecticides, sealants, and ordnance.

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 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 local fire department (Ref# 287).

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, amount stored, and storage locations. The chemicals on Fort Bliss are categorized as EPCRA Section 313, and the reporting threshold varies by TRI chemical (for example, lead reporting threshold is 100 pounds and diisocyanates is 10 pounds) (see Appendix C). 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. 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 (Ref# 289).

4.12.1.2 Hazardous Waste

The Fort Bliss hazardous waste management program includes an Installation Hazardous Waste Management Plan and SOP 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. Fort Bliss is categorized as a Large Quantity generator of hazardous waste as defined by 40 CFR Parts 262 and 264 and is permitted by TCEQ to operate as a HWSF (permit #50296). 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.

The Fort Bliss HWSF is located in the Building 11614 area at Biggs AAF and is currently managed by the Directorate of Environment and the DRMO. Wastes generated throughout Fort Bliss, including the McGregor, Doña Ana, and Orogrande Range Camps, are brought to the Building 11614 area for classification, labeling, and storage. 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, Disposal Facility (Ref#177).

The HWSF consists of a fenced area approximately 280 feet by 480 feet (approximately 3 acres) with the following facilities (Ref# 177):

- Unit 1, a permitted container storage area for storing containers of free liquids. Ignitable and corrosive wastes are only stored in this building if TCEQ permit requirements are satisfied. Wastes that may not be stored in Unit 1 include lithium batteries, nickel-cadmium batteries, oxalic acid powder, and paint filters. The permitted storage capacity for this building is 8,600 gallons.
- Unit 2, a permitted container storage area for storing containers that do not contain free liquids. The permitted storage capacity for Unit 2 is 31,900 gallons.
- Unit 4, a permitted container storage area for wastes with no free liquids. It has a capacity of 13,440 gallons.
- Units 5, 6, and 7, 500 SF modular buildings permitted for storage of hazardous liquid wastes. The units are fully enclosed to prevent rainwater from impacting containment capacity. Ignitable wastes are stored in Units 5 and 6; corrosive wastes in Unit 7. Permitted storage capacity is 6,600 gallons for each unit.
- Unit 8, a permitted area for storing containers with no free liquids. It has a permitted storage capacity of 47,520 gallons.

The paved area between the modular buildings and Unit 8 serves as a staging area for loading and unloading waste containers. Absorbent materials are available for immediate spill response during loading/unloading to prevent a spill or other release from impacting the surrounding soil.

In addition to these hazardous waste storage units, two modular buildings for polychlorinated biphenyl equipment storage are located in the southeast corner of the facility (Ref# 177).

Hazardous wastes are generated by various military and civilian entities at Fort Bliss. Before wastes are transferred to the permitted storage facility, they are accumulated in the following permit-exempt, temporary storage areas:

- Hazardous Waste Accumulation Points – wastes generated at vehicle-maintenance facilities, paint shops, etc., are accumulated at or near the point of generation. Waste generators are limited to accumulating no more than 55 gallons per waste stream. Once the 55-gallon threshold is reached, the wastes are transferred to the HWSF within 72 hours. These accumulation sites at Fort Bliss are called Waste Accumulation Points (WAPs) and are under control of the operator of the process generating the waste.
- 90-Day Storage Areas – 90-day storage sites are located in the Main Cantonment Area and at McGregor, Doña Ana, and Orogrande Range Camps. The 90-day sites are fenced, and each is equipped with two climate-controlled modular buildings designed for hazmat storage. The 90-day storage sites are used only during field training exercises. Wastes are transferred to the HWSF within 90 days.

All waste streams are recertified when waste-generating processes change. Waste stream composition can be altered by operational changes and changes in material suppliers; such changes are identified during compliance inspections at generator facilities. If available, process knowledge will be the primary method for confirming waste stream classification, but recertification may also be based on MSDSs and/or sampling data. Waste streams are validated, as required through laboratory sampling and analysis. Waste streams that require initial analysis or re-analysis include newly generated waste streams and waste streams resulting from process changes. **Table 4.12-1** lists waste streams considered for annual re-analysis.

Table 4.12-1. Waste Streams Considered for Annual Re-Analysis

Waste Stream	*Analytical Parameter*
Antifreeze	VOCs RCRA metals
Adhesives	Flash point, VOCs
Waste oil	VOCs, flash point, TOX, RCRA metals
Waste paint	VOCs, RCRA metals
Contaminated fuel	flash point, VOC
Rags	VOCs
Soil contaminated with POL	Total petroleum hydrocarbons, pH, BTEX
Photographic fixer, developer	pH, total metals (Silver)
Spent battery electrolyte, potassium hydroxide from nickel-cadmium batteries	pH, total metals (Cadmium)
Sludge from oil-water separators	VOCs, flash point, TOX, RCRA metals
Oil in abandoned containers	VOCs, flash point, TOX, RCRA metals

BTEX = benzene, toluene, ethyl benzene, and xylenes; POL = petroleum, oil, and lubricants; TOX = total organic halogens; VOC = volatile organic compounds
Source: Ref# 177

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 TCEQ in every even-numbered year and covers the activities for the previous odd-numbered years, per 40 CFR 262.41. These reports detail information on the hazardous wastes generated, including the DOT hazard class, USEPA hazardous waste identification number, quantity of waste, the USEPA Identification (ID) Number of each TSDF the waste was sent to, and a description of the Fort Bliss waste minimization program. A summary of amounts of hazardous and universal waste generated by Fort Bliss operations during the period 1997-2004 is provided in Appendix C.

4.12.1.3 Ordnance and Explosives

At Fort Bliss, ordnance is expended in a variety of grenades, mortars, howitzers, artillery, rockets, and missiles during training exercises and testing activities. Currently, the Fort Bliss EOD unit eliminates explosives hazards on Fort Bliss ranges by detonation in place or, if safe to do so, by removing the hazard to the EOD range and detonating there. If an emergency permit is required (for example, to destroy a batch of unused but deteriorated munitions), it is obtained from New Mexico Environment Department (Ref# 284).

Fort Bliss did not renew the permit for the Open Detonation Treatment Unit when the permit expired July 2005 and ceased operations. In December 2006, the New Mexico Environment Department issued a Notice of Approval for clean closure of the unit. A Corrective Actions Only Permit will be issued with the remaining Solid Waste Management Units attached.

4.12.2 Items of Special Concern

Items of special concern include medical and biohazardous waste, radioactive waste, asbestos, lead-based paint, pesticides, PCBs, and petroleum storage tanks.

4.12.2.1 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. Biohazardous waste can typically include human blood and blood products, cultures and stocks of infectious agents and associated biologicals, isolation wastes, contaminated and unused sharps, animal carcasses, contaminated bedding material, and pathological wastes. Radioisotopes used for medical purposes are discussed in Section 4.12.2.

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. 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 (Ref# 3).

4.12.2.2 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 (H3), 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 in Building T2550 on Fort Bliss. 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 Main Cantonment Area. Over recent years, Fort Bliss has drastically reduced the amount of low-level radioactive waste generated. 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 will transport the waste from Fort Bliss to the assigned waste deposit site (Ref# 241).

4.12.2.3 Asbestos

Fort Bliss has a Draft Asbestos Management Plan for the identification and removal of friable asbestos. The plan is in draft form but conformance with it is ongoing (Ref# 197).

Approximately 80 percent of all buildings on Fort Bliss contain some form of asbestos. Many of the buildings at Fort Bliss were built or renovated between 1940 and 1975, when the use of asbestos was common. 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 nonfriable, it is not considered a health risk (Ref# 176).

It is Fort Bliss policy to presume all buildings built before 1980 contain asbestos. 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 NESHAP asbestos requirements. Complete building surveys are conducted for those buildings identified for demolition (Ref# 295).

As of July 2005, all housing at Fort Bliss was turned over to a private contractor, which is responsible for identifying all areas of ACM within its area of responsibility. 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 of in the Fort Bliss Municipal Solid Waste Landfill. The landfill permit from TCEQ allows disposal of regulated and non-regulated ACM in the landfill. The material is disposed of at the bottom of the working cell and is covered by three feet of solid waste. Fort Bliss has an Asbestos Program Manager (APM) who is the primary contact for all asbestos-related projects at Fort Bliss (Ref# 176).

4.12.2.4 Lead-Based Paint

Potential sources of lead in the environment include lead-based paint, lead in water, and lead-contaminated soil. Flaking and peeling paint is an exposure concern in homes, day care centers, schools, and playgrounds. Toddlers and young children may chew on painted surfaces such as window sills while teething. Other hazards include lead-containing dust generated during renovation, demolition, sanding, and stripping of painted surfaces. Lead-containing dust can also be generated when surface abrasion occurs during routine activities such as opening and shutting doors and windows (Ref# 179).

Soil can represent a potential lead exposure concern in urban areas where past auto and industrial emissions have left lead residues. Lead-tainted soil is found near homes where deteriorated exterior paint has leached into the soil from rain. At Fort Bliss, very high levels of lead in soil have been found around steel structures such as bridges, water towers, and shooting ranges (Ref# 179).

Many of the houses and facilities at Fort Bliss were constructed before 1978 and are likely to contain lead-based paint. A risk-based assessment has been completed on all family housing, and a project for encapsulating 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 (Ref# 295).

As of July 2005, all housing at Fort Bliss was turned over to a private contractor, which is responsible for identifying areas of deteriorated paint and dust accumulation and providing recommendations to the Family Child Care Office for either in-place management measures or lead-based paint abatement. The contractor is 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 (Ref# 295).

4.12.2.5 Pesticides

The Pest Management Plan for Fort Bliss describes the installation's pest management requirements, outlines the resources necessary for surveillance and control, and describes the administrative, safety, and environmental requirements of the program. Adequate records of all pest management operations performed by Fort Bliss personnel are maintained by the Installation Pest Management Coordinator (Ref# 286).

Fort Bliss utilizes Integrated Pest Management (IPM), 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 (Ref# 286).

Pesticides are stored and mixed at two facilities on the Main Post, Buildings 2509 and 3008. Material Safety Data Sheets 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.

Precautions are taken during pesticide application to protect personnel. Pesticides are not applied outdoors when the wind speed exceeds five miles per hour. Whenever pesticides are applied outdoors, care is taken to make sure that any spray drift is kept away from individuals, including the applicator, and other non-target sites. Pesticide application indoors is accomplished by individuals wearing the proper personal protective clothing and equipment. At no time are other personnel permitted in a treatment area during pesticide application.

Sensitive areas listed on pesticide labels are considered before pest control operations are conducted. No pesticides are applied directly to wetlands or areas subject to flooding unless use in such sites is specifically approved on the label and the proposed application is approved by the Directorate of Environment. No pest management operations will be conducted that are likely to have a negative impact on endangered or other species of special concern or their habitats without prior review and approval.

Pesticide use on Fort Bliss was 884 pounds of active ingredients in FY 2000, 809 pounds in FY 2001, 788 pounds in FY 2002, 1,174 pounds in FY 2003, 2,618 pounds in FY 2004, and 1,768 pounds in FY 2005.

4.12.2.6 Polychlorinated Biphenyls

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 from "cradle-to-grave."

Fort Bliss has completed three PCB survey, testing, and labeling projects since 1990. 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 (Ref# 293). 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

4.12.2.7 Petroleum Storage Tanks

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 to 110. By 1996, Fort Bliss had identified 366 petroleum storage tanks. Records indicate that 110 USTs and 132 above ground storage tanks (ASTs) are currently in use for storing diesel fuel, unleaded gasoline, used oil, antifreeze, JP-8 jet fuel, and heating oil. These tanks range in size from 55 to 250,000 gallons. 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 six USTs and 18 ASTs are located on McGregor Range (Ref# 296).

Fort Bliss has identified 34 sites that formerly had leaking petroleum storage tanks, of which four were ASTs. All but one have been remediated and closed and two new tank sites have been added to the list, leaving three open and under remediation. The sites were reported to TCEQ and NMED, as required, and remedial actions were performed in consultation with the respective agency (Ref# 296).

4.12.3 Related Management Programs

4.12.3.1 Installation Restoration Program

The Installation Restoration Program (IRP) is the DoD program designed to identify, characterize, and remediate the environmental contamination on military installations. The program was implemented in response to the Comprehensive, Environmental Response, Compensation and Liability Act (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 high-risk sites 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. Soils with slightly elevated analysis are removed and properly disposed of; however, further delineation of the sites that have slightly elevated chemicals of concern is required by TCEQ.

Fort Bliss may be required to maintain a Corrective-Actions Only Permit because there are several Solid Waste Management Units in New Mexico that have not yet been granted No Further Action status (Ref# 284).

4.12.3.2 Military Munitions Response Program (MMRP)

Fort Bliss has five MMRP sites which are described below.

FTBLS-005-R-01, the New Mexico National Guard Impact Area on Doña Ana Range, has not been physically investigated (only historical record search) but is probably fairly contaminated with UXO. 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 Chevron Oil Refinery in the City of El Paso. 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 2008 and execute follow-on phases/actions as required by the individual site cleanup strategies.

4.12.3.3 Compliance-Related Cleanup (CC)

Petroleum products are contaminates of concern at two of the five open CC sites. Because the drinking water aquifer for the City of El Paso, Texas; Juárez, Mexico; and Fort Bliss is a minimum of 385 feet below the ground surface and the draw depth of all water wells is over 650 feet from the surface, surface and near surface (+/- 65 feet below the ground surface) areas of trapped free petroleum product have little chance of reaching the drinking water supply. The sediments that underlie Fort Bliss contain numerous horizontal aquitards of fat clay, which act as barriers to the vertical migration of any substance. The vadose zone is dry, due to the small amounts of rainfall in the region (average 9 inches per year) and the high evaporation rate of 105 inches per year.

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 aquitards, and sparse rainfall also protect it from a chance of environmental release.

The Open Detonation Unit and the Engineer Demolition Range at Doña Ana Range have had soil tests taken and all results are at least below USEPA industrial soil screening levels (SSL) and most likely also below New Mexico residential SSLs. However, most Fort Bliss sites will show elevated arsenic levels in the soil, when compared to New Mexico residential SSL. This is a known characteristic of the native soils in this region, and NMED requires Fort Bliss to conduct a widespread testing program producing a robust group of statistically valid soil samples to document the background level of arsenic in the military property at each site, unless the sites are within ½ mile of each other.

4.12.3.4 Pollution Prevention

The PPA established pollution prevention as the nation's preferred approach to environmental protection and waste management. Other EOs, Army regulations, and state environmental laws have been enacted to supplement the PPA by providing the method and means by which federal facilities will prevent pollution and reduce wastes. A basic requirement of these regulations is the creation of a P2 plan (Ref# 287). As part of the Fort Bliss P2 Program, PPOAs are periodically conducted on various processes across the installation.

The Fort Bliss P2 Plan complies with current Army regulations and TCEQ requirements. The success of Fort Bliss' P2 Program is measured against the Army's P2 Program reduction goals. In accordance with the Texas Waste Reduction Policy Act (WRPA) and Army Pamphlet 200-1, the P2 Plan is revised either every five years or upon any occurrence of change to a function or process at Fort Bliss (Ref# 296).

The objective of Fort Bliss P2 Program is to reduce or eliminate use of hazardous materials, generation of wastes, and emissions of pollutants to the environment, and to conserve resources. To meet this objective, Fort Bliss has established the goals listed in **Table 4.12-2**. Various factors were considered in developing the P2 goals including the federal, state, DoD, and Army regulatory requirements, the volume and relative hazards of materials used and wastes generated on post, and procurement and waste disposal costs.

In response to the amount of waste produced on the installation and an increased awareness of the environmental impact of this waste and its liabilities, Fort Bliss developed a Hazardous Waste "Curbside" Service. This service seeks to address the particular challenges facing waste management at Fort Bliss, a large installation with numerous waste generation points and high personnel turnover. The "Curbside" service applies professional resources at the front end of the waste management process, proactively collecting waste rather than relying upon voluntary drop-off and infrequent inspections for compliance. This is accomplished by:

- Providing monitoring, on-the-spot corrections, and guidance related to waste handling;
- Preparing waste for collection, transportation, storage, and disposal;
- Recycling waste and reissuing recovered product; and
- Providing spill protection equipment and response care.

In addition, both new and existing P2 initiatives have been centralized into a single Sustainability Center, which has resulted in significant reduction of waste disposal and increased cost savings.

Fort Bliss has a central recycling center and one drop-off point that has containers for cardboard, papers, magazines, newspapers, toner cartridges, cell phones, and plastics. Mandatory workplace recycling was implemented in November 1996 and a Fort Bliss Recycling Policy, U.S. Army Garrison Regulation 200-2, was signed on 8 March 2005 making recycling mandatory. 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. A fluorescent tube-crushing

operation is also in place to save space at the landfill and to control the disposal of mercuric compounds contained in the tubes (Ref# 296).

Table 4.12-2. P-2 Program Goals

Goal	*Source of Goal*	*Baseline Year*	*Target Year*
Reduce Toxic Release Inventory releases 10% annually or 40% by 2006.	EO 13148	2001	31 Dec 2006
Reduce use of USEPA priority chemicals (cadmium, lead, PCBs, mercury, and naphthalene) by 50%.	EO 13148	2004	31 Dec 2006
Continually reduce the quantity on non-hazardous solid waste generated (excluding construction and demolition debris), increase percentage of non-hazardous solid waste diverted from disposal facilities, and increase economic benefit of solid waste diversion.	DOD MOM	N/A	December 2005
Reduce greenhouse gas emissions from facility energy use 30%.	EO 13123	1990	2010
Continuous annual reductions in air emissions.	DOD MOM	On-going	On-going
Continuous annual reductions in hazardous waste disposal.	DOD MOM	On-going	On-going
Reduce facility energy consumption 30% per square foot by 2005 and 35% by 2010.	EO 13123	1985	2005/2010
Phase out Class I Ozone Depleting Chemicals (ODC).	EO 13148	N/A	31 Dec 2010
Reduce water consumption and related energy use in facilities.	EO 13123	On-going	On-going
Reduce vehicle petroleum consumption 20%.	EO 13149	1999	2005
Increase USEPA fuel economy of cars and light trucks by at least 1 mile per gallon by 2002 and 3 miles per gallon by 2005.	EO 13149	1999	2002/ 2005
Use at least 50% alternative fuels in alternative/dual-fuel vehicles.	EO 13149	N/A	2005
Ensure at least 75% of all cars and light trucks procured after the target year are alternatively fueled vehicles.	EO 13149	N/A	2005
Train procurement officers and implement affirmative procurement into developing plans, work statements and specifications.	EO 13148	On-going	On-going
Implement acquisition programs aimed at procuring products that are environmentally preferable, energy efficient or contain post-consumer recovered materials.	EO 13101	On-going	On-going

EO = Executive Order; DODMOM = Department of Defense Measures of Merit; N/A = not applicable
Source Ref# 287

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4.13 SOCIOECONOMICS

Socioeconomic resources addressed in this document include population, economic development (employment and earnings), housing, education (public schools), law enforcement, fire protection, public finance, governmental structure, medical facilities, and quality of life. The ROI is defined as the geographical area within which the principal direct and indirect socioeconomic effects of actions at Fort Bliss are likely to occur and where most consequences for local jurisdictions are expected. The ROI is resource-specific (employment, law enforcement, housing, etc.) and the geographic extent varies from one socioeconomic resource to another.

The 2000 Mission and Master Plan PEIS reported that about 96 percent of civilians who work at Fort Bliss live in El Paso County, about 3 percent live in Doña Ana County, New Mexico, and less than one percent live in Otero County, New Mexico and other areas of Texas. Interviews with personnel at Fort Bliss and the City of El Paso indicate a trend in new development to the east of Fort Bliss in the Clint school district. Growth is also occurring to the west in the Anthony and Canutillo districts and is planned in the area directly north of Castner Range. All these locations are within El Paso County. Active-duty military personnel living off-post are encouraged to live within reasonable distance of the installation in order to respond to emergency events or other calls to action. It is therefore likely that El Paso County will remain the primary place of residence for Fort Bliss personnel, even as the City of El Paso and suburbs expand and commuting distances increase, and the great majority of socioeconomic effects from Fort Bliss mission changes are expected to be concentrated in these jurisdictions.

Consequently, the ROI for each of the resource areas addressed in this section is defined as follows:

- The three-county region comprised of El Paso County, Texas, and Doña Ana and Otero Counties in New Mexico for population, economic development, and housing.
- El Paso Independent School District (ISD) and Ysleta ISD (both in El Paso County) for education (public schools) with consideration of Anthony, Canutillo, Socorro, and Clint ISDs in El Paso County, Las Cruces and Gadsden ISD in Doña Ana County, and Alamogordo ISD in Otero County.
- City of El Paso Police Department and El Paso County Sheriff's Department 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, Doña Ana, and Otero Counties for quality of life.

4.13.1 Population

4.13.1.1 Fort Bliss Related Population

The population associated with Fort Bliss remained relatively stable between 1996 and 2001, although the number of retirees increased substantially. Since then, employment on post has increased steadily, and active duty military personnel grew by over 80 percent between 2001 and 2005 (**Table 4.13-1**). As of the third quarter of FY 2005, actual active duty personnel numbered 21,712. This represented an increase over FY 2004 of about 23 percent, the largest single-year increase over the past six years. Growth in military assignments has outpaced that of civilian jobs, and the ratio of civilian to military personnel decreased from 0.56 in FY 2000 to approximately 0.34 in FY 2005. The ratio of military dependents to active duty military personnel has also decreased over the past five years, likely reflecting the increase in Fort Bliss' mobilization mission.

44 **Table 4.13-1. Fort Bliss Personnel and Dependents, Fiscal Years 1996 and 2000-2005**

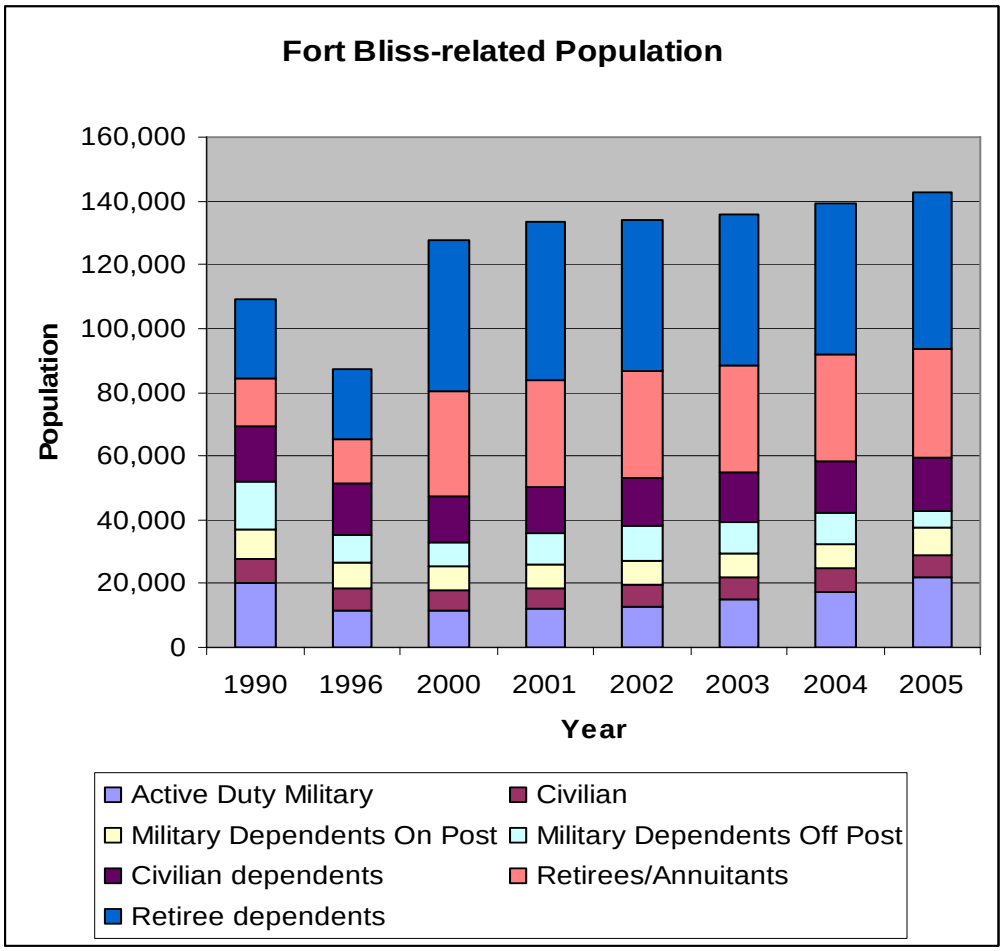
FY	*Employees*			*Dependents*				*Retirees*			*Grand Total*
	Active Duty Military[8]	*Civilian*	*Subtotal*	*Military On/Post*	*Military Off/Post*	*Civilian*[9]	*Subtotal*	*Retirees/ annuitants*	*Retiree dependants*	*Subtotal*	
1996[1]	11,530	7,140	18,670	8,069	8,371	16,065	32,505	14,299	21,900	36,199	87,374
2000[2]	11,594	6,507	18,101	7,577	7,328	14,641	29,546	32,447	47,787	80,234	127,881
2001[3]	11,992	6,513	18,505	7,675	9,434	14,654	31,763	33,484	49,565	83,049	133,317
2002[4]	12,739	6,714	19,453	7,489	11,316	15,107	33,912	33,484	47,207	80,691	134,056
2003[5]	15,055	7,102	22,157	7,254	9,677	15,980	32,911	33,484	47,207	80,691	135,759
2004[6]	17,605	7,362	24,967	7,219	9,779	16,565	33,563	33,464	47,207	80,671	139,201
2005[7]	21,712	7,383	29,095	8,216	5,720	16,612	30,548	33,726	49,296	83,022	142,665

1. From Mission and Master Plan PEIS
2. Fourth Quarter FY 2000
3. Fourth Quarter FY 2001
4. Fourth Quarter FY 2002
5. Second Quarter FY 2003
6. First Quarter FY 2004
7. Second Quarter FY 2005
8. Includes permanently party, student, and TDY personnel
9. Based on multiplier of 2.5 per employee

Source: Ref# 3, 227

The estimated total population supported by Fort Bliss (defined as the number of active duty military personnel and civilian employees and their respective dependents) has ranged from a high of 59,643 persons in FY 2005 to a low of 47,647 in FY 2000, an increase of 25 percent, with an average of 2,000 additional people per year. In contrast, the current population supported by Fort Bliss is 16 percent lower than in FY 1991, when it was at its highest level in the last 15 years (Ref# 3). In FY 1991, the Fort Bliss population, estimated at 71,399, represented approximately 9 percent of the total population contained in the three-county ROI and 12 percent of the El Paso County population. By FY 2005, Fort Bliss population comprised about 6 percent and 8 percent, respectively, of the population of the ROI and El Paso County.

The overall Fort Bliss-related population, including retirees, annuitants, and their dependents in the area, has grown from 127,811 in FY 2000 to 142,665 in FY 2005, an increase of almost 12 percent. In 2004, the Fort Bliss-related population represented about 15 percent of the population in the three-county ROI, compared to 14 percent in 1990 and 10 percent in 1996. **Figure 4.13-1** illustrates the fluctuation in Fort Bliss-related population between 1990 and 2005.



Source: Ref# 227

Figure 4.13-1. Fort Bliss Population Changes from 1990 to 2005

4.13.1.2 Population in the Region of Influence

Current Population

The population in the three-county ROI increased over the period 1980-2004 from 620,904 persons to 962,503 persons, at an average annual rate of 1.84 percent. The highest growth rate occurred in the 1980s (at an average annual rate of 2.29 percent), followed by the 1990s (at an average rate of 1.64 percent), and the 2000s (at an average rate of 1.23 percent), as shown in **Table 4.13-2**. With the exception of the 1990s, these growth rates exceeded that of both Texas and New Mexico, as well as the nation.

Of the three counties in the ROI, the most rapid growth was experienced in Doña Ana County, New Mexico, where the average annual rate of change was 2.78 percent over the period 1980-2004. The population nearly doubled from 96,340 in 1980 to 186,095 in 2004. The population of El Paso County, Texas, grew at an average annual rate of 1.66 percent over the 24-year period, increasing from 479,899 in 1980 to 713,126 in 2004. The least rapid growth occurred in Otero County, New Mexico, where the number of residents increased from 44,665 in 1980 to 63,282 in 2004, at an average annual rate of 1.46 percent.

In 2000, nearly 83 percent of the population in El Paso County lived in the City of El Paso. Other urban areas contained an additional 14 percent of the total county population, and 3 percent resided in rural areas. In Doña Ana County, over 20 percent of the total county population resides in rural areas. The largest incorporated community (the City of Las Cruces) contained almost 43 percent of the county population, with other urban areas containing 37 percent. Chaparral is an unincorporated community of about 6,100 persons in Doña Ana and Otero Counties just north of the El Paso County border. Most of the residents work in El Paso. In Otero County, over half (57 percent) of the county population resides in the City of Alamogordo. An additional 14 percent resides in other smaller urban areas, with the remaining 29 percent of the population residing in rural areas of the county.

Population Projections

Population projections for the years 2010, 2015, 2020, 2025, 2030, 2035, and 2040 are presented in **Table 4.13-3** for the states of New Mexico and Texas; each of the three counties in the ROI; and the cities of Alamogordo, El Paso, and Las Cruces. The annual population growth in the three-county ROI is projected to average 1.30 percent over the period 2010- 2040, compared to 2.31 percent for Texas and 1.05 percent for New Mexico. These projections do not include upcoming changes at Fort Bliss.

These projections indicate the population of El Paso County was anticipated to increase at a rate considerably less than projected for the State of Texas. The average annual growth rate was projected to decline from 1.75 percent during the period 2010-2020, to 1.32 percent over the period 2020-2030, and to 1.01 percent over the period 2030-2040. Population growth in Doña Ana County is expected to exceed the anticipate growth rate for the State of New Mexico, while projected growth in Otero County is expected to be less. The forecasts project average annual growth over the 30-year period from 2010 to 2040 to be 1.30 percent in Doña Ana County and 0.45 percent in Otero County, compared to 1.05 percent in New Mexico overall.

100 **Table 4.13-2. Population of Region of Influence, Counties, States, and Nation (1980 to 2004)**

Geographical Area	*Population*				*Average Annual Percentage Growth Rate*			
	1980	*1990*	*2000*	*2004*	*1980–1990*	*1990-2000*	*2000-2004*	*1980-2004*
United States	226,542,204	248,718,291	281,421,906	293,655,404	0.94%	1.24%	1.07%	1.09%
State of New Mexico	1,303,302	1,515,069	1,819,046	1,903,289	1.52%	1.85%	1.14%	1.59%
Doña Ana County	96,340	135,510	174,682	186,095	3.47%	2.57%	1.59%	2.78%
Otero County	44,665	51,928	62,298	63,282	1.52%	1.84%	0.39%	1.46%
State of Texas	14,225,513	16,986,335	20,851,820	22,490,022	1.79%	2.07%	1.91%	1.93%
El Paso County	479,899	591,610	679,622	713,126	2.11%	1.40%	1.21%	1.66%
Three-County ROI	620,904	779,048	916,602	962,503	2.29%	1.64%	1.23%	1.84%

Source: Ref# 238.

101 **Table 4.13-3. Population Projections, 2000 to 2030**

Geographic Area	*Year*							*Annual Rate of Change*		
	2010	*2015*	*2020*	*2025*	*2030*	*2035*	*2040*	*2010-2020*	*2020–2030*	*2030-2040*
Texas [1]	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 [1]	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 [4]	684,058	750,250	813,845	872,381	927,964	980,186	1,025,963	1.75%	1.32%	1.01%
New Mexico [2,3]	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 [2,3]	218,523	238,044	255,057	270,761	286,741	304,571	321,486	1.56%	1.18%	1.15%
City of Las Cruces [4]	92,906	101,206	108,439	115,116	121,909	129,490	136,682	1.56%	1.18%	1.15%
Otero County [2,3]	67,018	68,896	70,508	71,981	73,348	75,074	76,648	0.51%	0.40%	0.44%
City of Alamogordo [4]	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%

1. Source: Ref# 235, 236.
2. Source: Ref# 235.
3. Projections past 2030 assume continuation of 2010-2030 growth rate.
4. Assumes community continues to represent same share of county population as in 2000.

The El Paso Metropolitan Planning Organization (MPO) develops population projections and their spatial distribution in order to anticipate future regional transportation needs. The MPO has revised its projections to include an estimate of personnel increases at Fort Bliss. These overall population projections are broken down by planning areas. **Table 4.13-4** provides the most recent MPO projections. **Table 4.13-5** shows the share of projected population that is expected to reside within six MPO planning areas shown in Figure 4.1-6. This information reveals that growth is expected to occur primarily in east, west, and northeast El Paso and in the New Mexico portion of the planning region (Ref# 412). A reduction in population share in the central El Paso and lower valley areas reflects static conditions, as these areas are mostly fully developed. (The region encompassed in the MPO planning does not coincide directly with the three-county ROI).

Table 4.13-4. El Paso MPO Demographic Projections

Demographic Category	*2000*	*2005*	*2015*	*2025*	*2030*	*Change 2000-2030*
Population	698,283	768,420	945,186	1,145,148	1,266,028	81%
Households	215,257	240,561	302,189	371,860	414,541	93%
Household size	3.24	3.19	3.13	3.08	3.05	-6%
Employment	330,235	346,674	435,761	528,065	579,816	76%

Source: Ref# 412

Table 4.13-5. El Paso MPO Projected Planning Area Population Share

Planning Area	*Percent of Population in Region*					
	1990	*2000*	*2005*	*2015*	*2025*	*2030*
Central	25.8	19.3	15.8	13.4	10.6	9.7
East	20.0	26.9	30.6	31.4	28.5	27.5
Lower Valley	24.5	22.7	22.0	20.4	20.0	19.6
Northeast	14.2	13.1	12.8	13.2	16.6	18.3
Westside	13.5	15.3	15.7	17.9	19.7	20.4
New Mexico	2.0	2.7	3.0	3.7	4.6	4.6

Source: Ref# 412

4.13.2 Economic Development

4.13.2.1 Economic Setting

The economy of the three-county ROI is dominated by the City of El Paso. The economy of El Paso, as well as the ROI, is heavily influenced by government employment and expenditures and the city's location along the United States-Mexico border across the Rio Grande from Ciudad Juárez, Chihuahua, Mexico.

From 1990 through about 1994, El Paso experienced relatively strong growth in terms of both birth rate and in-migration. After 1994, El Paso had a negative in-migration rate. This trend toward out-migration is probably attributable to the attraction of higher salaries in other metropolitan areas and El Paso's relatively high unemployment rate, typically 2-3 percentage points above the national and state rates. As of December 2002, El Paso's unemployment rate was 9.1 percent (seasonally adjusted), well above the 6.5 percent for the State of Texas.

For close to two decades (1970s and 1980s), the community tied its economic future to the low-wage garment industry, which eventually left the area in search of even lower wages, and few El Paso businesses were prepared to develop a new economic base. Recovery is slow, and unskilled or mismatched skill sets in the workforce remain an impediment.

Ciudad Juárez and the State of Chihuahua are major economic contributors to the broader (international) economic region (Ref# 146). Maquiladora manufacturing in Juárez principally supports automotive parts and higher-end electronic components and their integration with the U.S. auto industry. El Paso businesses and residents take advantage of the convenient access to Mexico, with frequent imports and exports through the Port of El Paso (Ref# 256).

4.13.2.2 Employment and Income

Table 4.13.6 exhibits aggregate trends for the three-county ROI from 1969 through 2003 for employment and income, extracted from the Economic Impact Forecast System (EIFS) (Ref# 178, 354). The yearly change is shown, and the income values are adjusted to constant 2005 dollars using the Consumer Price Index (CPI).

Overall, the ROI has exhibited growth in employment and income. The negative yearly changes indicated in the Bureau of Economic Analysis (BEA) data are isolated and generally last for only one year, indicating no periods of sustained decline in the local economy.

This section reports projections for the economic region taken from research performed at the University of Texas at El Paso (UTEP) Institute for Policy and Economic Development (IPED) (Ref# 164). These projections are derived through the use of the Border Model, a tailored Regional Economic Models, Inc (REMI) model designed specifically for the U.S./Mexico border region.

The general trends in the three-county ROI tend to indicate a close correlation between population and employment, as well as a gradual increase in income (per capita and per employee) in the region. Declines in employment at Fort Bliss between 1996 and 2005 were generally not reflected in similar declines in the regional economic indicators, indicating that the three-county ROI is supported by a broader economic base, beyond Fort Bliss, that also stimulates economic growth. Over this same time period, El Paso County and the three-county ROI have experienced substantially higher unemployment rates than the state of Texas and the United States.

Table 4.13-6. Employment and Income in the Three-County ROI

Year	*Employment*		*Income*		
	No.	*Change*	*Value ($)*	*Adjusted Value ($)*[1]	*Change ($)*
1969	200,881	NA	1,339,691	7,046,775	NA
1970	195,525	-5,356	1,418,354	7,063,403	16,628
1971	201,228	5,703	1,558,400	7,433,568	370,165
1972	206,123	4,895	1,696,395	7,837,345	403,777
1973	221,933	15,810	1,926,011	8,378,148	540,803
1974	228,575	6,642	2,184,783	8,542,502	164,354
1975	233,935	5,360	2,336,704	8,388,767	-153,735
1976	242,588	8,653	2,628,796	8,937,907	549,139
1977	250,860	8,272	2,912,376	9,290,480	352,573
1978	260,276	9,416	3,271,696	9,684,220	393,741
1979	270,114	9,838	3,720,264	9,895,903	211,682
1980	276,776	6,662	4,170,980	9,760,093	-135,810
1981	286,190	9,414	5,01,5864	10,683,791	923,698
1982	288,627	2,437	5,463,861	10,927,722	243,931
1983	288,815	188	5,943,154	11,529,719	601,997
1984	300,363	11,548	6,541,883	12,167,902	638,183
1985	307,548	7,185	7,089,555	12,761,199	593,296
1986	311,968	4,420	7,426,183	13,070,082	308,883

Year	Employment		Income		
	No.	Change	Value ($)	Adjusted Value ($)[1]	Change ($)
1987	325,384	13,416	7,776,094	13,219,360	149,278
1988	337,801	12,417	8,271,561	13,482,644	263,284
1989	348,202	10,401	9,013,767	14,061,476	578,832
1990	353,222	5,020	9,736,106	14,506,798	445,322
1991	357,542	4,320	10,126,018	14,378,945	-127,853
1992	369,184	11,642	11,126,373	15,354,395	975,450
1993	377,786	8,602	11,674,835	15,644,279	289,885
1994	385,646	7,860	12,294,496	15,982,844	338,565
1995	39,3964	8,318	13,007,501	16,519,526	536,682
1996	394,384	420	13,508,523	16,615,484	95,958
1997	403,771	9,387	14,418,275	17,301,931	686,447
1998	412,172	8,401	15,285,783	18,190,083	888,152
1999	420,341	8,169	15,752,526	18,272,930	82,847
2000	429,107	8,766	16,823,640	18,842,477	569,547
2001	428,794	-313	18,093,019	19,721,391	878,914
2002	437,027	8,233	18,818,797	20,136,114	414,722
2003	443,083	6,056	19,686,846	20,671,187	535,074

1. Adjusted to 2005 dollars
NA = Not Applicable
Source: Ref# 382

A large portion of employment in the three-county ROI (29.5 percent) is associated with government and government-related organizations, including federal civilian, military, and state and local organizations. In the non-governmental employment sectors, shown in **Table 4.13-7**, the largest employers are health care and social assistance with 11.2 percent, retail trade with 10.3 percent, manufacturing with 8.6 percent, and accommodation and food services with 7.9 percent of jobs. Due to Fort Bliss, Holloman AFB, and state and local government, the share of government jobs is substantially greater in the ROI than in Texas (14.6 percent) and the U.S. overall (14.0 percent) (Ref# 3). In this data, the difference in percentages between El Paso County and the three-county ROI is due to different sectoral composition in Doña Ana and Otero Counties, such as the contribution of an active construction sector in Doña Ana County and active military sector in Otero County (i.e., Holloman AFB).

Table 4.13-7. Regional Non-Government Employment by Sector in 2004

Sector	El Paso County	ROI	Texas	U.S.
Retail Trade	12.4%	10.3%	11.0%	11.0%
Health care and social assistance	9.3%	11.2%	8.9%	9.7%
Manufacturing	8.5%	8.6%	7.7%	9.5%
Accommodation and food services	7.0%	7.9%	6.7%	6.5%
Administrative and waste services	6.7%	7.3%	6.0%	5.7%
Other services	6.1%	3.6%	6.0%	5.5%
Construction	5.4%	3.7%	6.6%	5.9%
Transportation and warehousing	4.5%	2.8%	3.6%	3.2%
Finance and insurance	3.4%	2.8%	4.9%	4.7%
Wholesale trade	3.4%	3.1%	4.0%	3.7%

Source: Ref# 178, 382.

The changing dependence of the regional economy on military activities is shown by the changing military share of total employment, which declined from 14.1 percent in 1970 to 10.4 percent by 1980, 6.8 percent by 1990, and 5.0 percent by 1995, comprised primarily of military staff at Fort Bliss and Holloman AFB. In 2002, military employment was approximately 7.2 percent of the region (Ref# 58). The decline in the military employment share is attributable to down-sizing of the military and increasing economic diversification in the ROI as other industry sectors are established or grow (Ref# 3). However, Fort Bliss remains the single largest employer in the ROI, exerting substantial direct influence on the local economy.

Baseline employment, excluding the announced changes at Fort Bliss, is projected to increase to 564,410 jobs in 2015 at an average annual increase of approximately 1.3 percent, slightly more than the anticipated growth rate for the State of Texas (Ref# 3). This growth will occur more in Doña Ana County (1.6 percent per year) and less in Otero County (0.9 percent per year), compared to an average projected rate of 1.4 percent for the State of New Mexico. A more recent study using the Border Model (Ref# 164) estimates annual compound rate of growth (ACRG) in employment of 0.95 percent. This compares to a much larger estimated employment ACRG of 2.39 percent for Texas and 0.90 percent for the U.S., projecting a total 6.9 percent increase in employment (23,000 jobs) between 2003 and 2010. This projection is primarily (85 percent) attributable to private sector growth and includes moderate increases in employment at Fort Bliss.

Both state and local employment are expected to remain relatively flat between 2003 and 2010. A slight increase of over 200 new jobs may be attributed to the public education sector, due to population increases in the school system. Federal military growth reflects troop increases at Fort Bliss associated with the wars in Afghanistan and Iraq.

The Border Model (Ref# 164) estimates an ACRG in population of 0.34 percent, compared to a much larger estimated population ACRG of 1.84 percent for Texas and 0.90 percent for the U.S. According to the output of the Border Model, El Paso's population is expected to grow at approximately the same rate as historical trends between 2003 and 2010, resulting in an increase of approximately 17,000 persons by 2010.

4.13.2.3 Earnings and Expenditures

Fort Bliss continues to contribute significantly to the local economy both directly and indirectly through payrolls and local purchases. These contributions produce a “multiplier effect” as goods and services are purchased and continue to circulate in the ROI until they are locally unavailable and must be purchased outside the ROI.

The regional economy is based primarily on manufacturing, retail trade, transportation and warehousing, administrative support, health care and social assistance, and accommodation and food services, in addition to federal, state, and local government activities. Major private sector employers in the El Paso area include WalMart, Sierra Providence Health Network, Las Palmas Del Sol Regional Healthcare System, and Echostar Satellite Corporation (Ref# 429).

As of 2000, 65.8 percent of El Paso residents had high school degrees, compared to 75.7 percent for the state and 80.4 percent nationally. Only 16.6 percent of residents had four-year college degrees, compared to 23.2 percent for the state and 24.4 percent national average. These statistics are accompanied by lower overall incomes and higher poverty rates in El Paso. El Paso’s median household income is 75 percent of state and national levels, and the per capita income level is 62 percent of the national level. In the 2000 Census, 23.8 percent of El Paso residents fell below the federal poverty limit, compared to 15.4 percent for the state and 12.4 percent for the U.S.

The Border Model (Ref# 164) estimates an ACRG of 2.84 percent for personal income and 2.47 percent for disposable income, compared to an ACRG of 4.64 percent for personal and 2.95 percent for disposable income for Texas, and 2.58 percent for personal and 2.12 percent for disposable income for the

U.S. Total personal and disposable income will likely grow 36.6 and 36.4 percent, respectively, between 2003 and 2010.

Fort Bliss affects earnings in the ROI through salaries (both civilian and military) and local procurements (contracts, supplies, construction, etc.). **Table 4.13-8** shows the breakout of Fort Bliss expenditures (in millions of dollars) for military pay, civilian pay, local purchases, non-local purchases, utilities, military construction, foreign purchases, and student impact aid. Fort Bliss also distributes payments to military retirees and annuitants, but these are independent of the level of activity on the installation and are not included in the table.

Table 4.13-8. Fort Bliss Expenditures ($million)

	Military Pay	*Civilian Pay*	*Local Purchases*	*Non-Local Purchases*	*Utilities*	*Military Construction*	*Foreign Purchases*	*Student Impact Aid*	*Total*
1990	337.38	149.66	82.37	126.35	13.31	17.71	21.34	2.33	750.46
	45.0%	20.0%	11.0%	16.8%	1.8%	2.4%	2.8%	0.3%	100.0%
1996	350.04	168.42	128.46	105.52	12.72	72.30	32.07	2.46	872.02
	40.2%	19.3%	14.8%	12.1%	1.5%	8.3%	3.6%	0.3%	100.0%

Source: Ref# 3

Table 4.13-9 shows growth in earnings over the period from 1990 to 2003 (both per job and per capita) in the region (Ref# 256). Numbers are adjusted to reflect constant 2005 dollars:

Table 4.13-9. Earnings in El Paso County

	1990	*1995*	*2000*	*2003*
El Paso County				
Earnings per Job	$29,305	$30,919	$33,610	$36,783
Per Capita Income	$16,750	$17,731	$20,375	$21,718
Texas				
Earnings per Job	$34,570	$36,233	$43,891	$44,618
Per Capita Income	$23,756	$25,175	$31,079	$30,247
United States				
Earnings per Job	$36,220	$37,512	$42,817	$44,270
Per Capita Income	$26,560	$27,661	$32,760	$32,742

Source: Ref# 256

As shown in the table, the rate of earnings growth in both Texas and the U.S. declined (leveled off) in the 2000-2003 timeframe. By comparison, the rate of growth in El Paso County has continued to rise, although earnings remain much lower than comparable state and national figures.

4.13.2.4 Impacts of Fort Bliss on the Region

In 1989 and 2002, Fort Bliss commissioned studies to evaluate the effects of Fort Bliss on the local economy (Ref# 101, 272). These analyses were completed using a modified and calibrated REMI model (Ref# 164), a leading and widely-accepted economic impact and forecasting model. The model has been adapted and tailored to the El Paso region by UTEP.

The 2002 study compared the estimates of impacts in 2002 with those in 1989. **Table 4.13-10** provides a summary of results for key economic statistics. It also shows the adjusted change when accounting for effects of inflation (using CPIs) and average yearly adjusted change.

Table 4.13-10 indicates that Fort Bliss fits into a regional economy that has continued to exhibit consistent and moderate growth, in spite of the Fort Bliss personnel reductions over the 1989-2002 time period. While there was a 38 percent drop in the number of active duty military personnel, Fort Bliss

remained the region's principal employer in 2002, including over 6,600 civilian employees, a decline of 23 percent since the 1989 study. In addition to employment, Fort Bliss supported a retirement community of more than 10,000 former military, a source of further economic activity for the broader economic region, and more than 49,000 family members. Fort Bliss troops, civilian employees, and their families added more than 78,000 individuals to the 2002 El Paso population and more than 17,500 students to El Paso area schools. While the population and school enrollments associated with Fort Bliss declined over the subject time period, they remained a substantial economic influence.

Table 4.13-10. Comparison of Fort Bliss Economic Impact Indicators for 1989 and 2002

	1989	*2002*	*Change*	*Adjusted[1]*	*Yearly*
Fort Bliss Key Statistics					
Active Duty Military	19,234	12,021	-38%		
Civilian Employment	8,616	6,620	-23%		
Retired Military	14,614	10,398	-29%		
Fort Bliss Community Population	90,582	78,196	-14%		
Students in El Paso Schools	22,166	17,570	-21%		
El Paso Key Statistics					
Gross Income	$7.8 billion	$15.6 billion	+100%	+68%	+5.6%
Retail & Wholesale Sales	$5.4 billion	$10.1 billion	+87%	+60%	+5.0%
Employed Civilian Labor Force	216,200	284,800	+32%	+22%	+1.8%
Business Effects					
Increased Sales Volume	$822.8 mil	$1,698.9 mil	+106%	+73%	+6.0%
Expanded Credit Base	$676.8 mil	$659.6 mil	-3%	-2%	-0.2%
Increase Sales/El Paso Sales	15.2%	16.8%			
Individual Effects					
Increased Personal Income	$1,462.9 mil	$1,715.8	+17%	+12%	+1.0%
Employment	29,242	16,156	-45%		-3.8%
Increased Income/ EP Gross Income	18.7%	11.0%			
Impact on Unemployment Rate	+4.6% points	+1.5% points			
Governmental Effects					
Net Govt. Outlays to Provide	$55.1 mil	$112.5 mil	+104%	+72%	+6.0%
Municipal Services					
Supporting Base					
Operations					
Capital Required by Local Govt. to Provide Public Goods and Services	$300.6 mil	$175.3 mil	-42%	-29%	-2.4%
Increased Sales/Net Local Govt. Outlays	15 to 1	15 to 1			
Increased Income/Net Local Govt. Outlays	27 to 1	15 to 1			

1. Adjusted by CPI
Source: Ref# 501

The REMI model addressed aggregate effects on three components of the local economy, as described below.

Businesses. The impact on the local business sector was estimated to be an increase in business sales volume of $1,699 million, which would not occur without Fort Bliss. Between 1989 and 2002, these effects increased 106 percent (73 percent when adjusted for inflation and at a yearly adjusted rate of 6 percent). The local economy also benefited from the addition of $659.6 million to the credit base of local depository institutions in 2002, a source of loanable funds that would be unavailable without the presence of Fort Bliss. Overall, Fort Bliss accounted for 16.8 percent of total retail and wholesale sales in El Paso, representing an increase from 1989 and confirming the importance of the military to the regional economy. In addition, the use of business property has grown by approximately 36 percent (25 percent

when adjusted for inflation and at a yearly adjusted rate of 2 percent) since 1989. More than $824.1 million worth of business property was added to the regional inventory in 2002, resulting in significant increases in tax revenues from property and added sales.

Individuals. In spite of an overall decrease in personnel at Fort Bliss, personal income increased 17 percent (12 percent when adjusted for inflation and at a yearly adjusted rate of 1 percent) from 1989, resulting in a $1,716 million flow into the regional economy in 2002. While the regional workforce related to Fort Bliss declined approximately 45 percent (or 3.8 percent per year) from 1989 to 2002, the 2002 workforce (16,156 jobs) was still substantial. Approximately 11 percent (or $1 of every $9) in regional personal income in 2002 was linked to Fort Bliss. Fort Bliss employment opportunities reduced the effective unemployment level by approximately 1.5 percent in 2002. While the effect of Fort Bliss jobs on unemployment in 2002 was less than in 1989, when more jobs were associated with the installation, they are still important to the stability of the labor market.

Governments. While the local government in El Paso receives revenues from the economic effects of Fort Bliss operations, it must provide public schools and other municipal services and, over the long term, must allocate capital and other property to support these needs. Between 1989 and 2002, government outlays for municipal services increased 104 percent (72 percent when adjusted for inflation and a yearly adjusted rate of 6 percent) to $112.5 million, a cost that must be offset through taxes from regional residents, including Fort Bliss employees and soldiers living off-post. These services required more than $175 million of government capital outlays in 2002, a decline of 42 percent (a 29 percent decrease when adjusted for inflation and at a yearly adjusted reduction of 2.4 percent) since 1989.

The comparisons between the 1989 and 2002 analyses, in spite of Fort Bliss downsizing over the time period, show the significant economic impact of the installation, indicating that Fort Bliss accounts for approximately 16.8 percent of regional retail and wholesale trade.

4.13.3 Housing

This section addresses both military and civilian housing resources in the ROI. For military housing, the description distinguishes between on- and off-post housing units and, for the on-post housing, between family and unaccompanied housing (barracks).

4.13.3.1 Fort Bliss

Fort Bliss provides housing for active duty personnel permanently assigned to the installation (both with and without dependents) and personnel on temporary duty assignment at the installation.

Military Family Housing

As of October 2004 there are a total of 2,752 military family housing units under the control of Fort Bliss (Ref# 223). The main housing areas include Logan Heights, George Moore Park, Lindquist Heights, Upper and Lower Beaumont, Hayes, Aero Vista, Corregidor, Leyte, Pershing Heights, and Van Horne Park. A new area of housing called Paso De Norte Heights is being built at Logan Heights. Military family housing on Fort Bliss has been privatized under the Residential Communities Initiative.

Unaccompanied Housing

Unaccompanied housing is located primarily on the Main Post (4,748 units) with some (2,320 units) at Doña Ana, McGregor, and Orogrande Range Camps for use during training operations. Since October 2004, 70 unaccompanied housing units on the Main Post have been deactivated and are slated to be demolished, and approximately another 30 units are undergoing renovations (Ref# 223).

Transient Housing Facilities

Fort Bliss maintains 1,124 units for TDY personnel, including the 156-unit Fort Bliss Inn. Most of these facilities are located on the Main Post, with at least 16 units located at McGregor Range and Doña Ana

Range Camps. The Fort Bliss Inn is primarily for families undergoing a permanent change of station and is located on the Main Post (Ref# 271). An additional 52 rooms for military families are available at the Armed Forces Young Men's Christian Association (YMCA).

4.13.3.2 Housing in the ROI

Current Housing Stock

The number of housing units in the three-county ROI increased from 259,798 in 1990 to 318,929 in 2000 at an average annual growth rate of 2.1 percent (Ref# 259, 260). The largest growth occurred in Doña Ana County where the number of housing units grew 2.9 percent per year between 1990 and 2000. Housing units in Otero County increased 2.4 percent annually, and El Paso County experienced the smallest growth with an average annual increase in housing units of 1.8 percent from 1990 to 2000 (**Table 4.13-11**).

Table 4.13-11. Housing Units by County and Region of Influence, 1990 and 2000

	Total Housing Units		*Change (percent per year)*	*Percent Owner Occupied*	
	1990	*2000*	*1990–2000*	*1990*	*2000*
Doña Ana County	49,148	65,210	2.9	59	62
Otero County	23,177	29,272	2.4	49	53
El Paso County	187,473	224,447	1.8	56	60
Total Three-County ROI	259,798	318,929	2.1	N/A	N/A

N/A = Not Applicable.
Source: Ref# 204, 260

Table 4.13-12 provides housing characteristics for the counties and communities in the ROI. At the time of the 2000 Census, the large proportion (65 percent) of the housing supply in the ROI was comprised of single family units. Multifamily units represented 21 percent of the total number of housing units, and mobile homes represented 13 percent. Renter-occupied units represented 35 percent of the total occupied units (Ref# 204). The vacancy rate of units for sale has hovered around 1.5 to 1.6 percent since 1990. The vacancy rate of rentals has fluctuated from 5.3 percent in 1990 to 7.9 percent in 2000 and about 6.0 percent in 2005 (Ref# 256).

The median value for occupied units was highest in Doña Ana County ($90,900) compared to Otero County ($78,800) and El Paso County ($69,600) (Ref# 260). The median gross monthly rent, which includes an average monthly cost for utilities, was highest in El Paso County ($468) and lower in Doña Ana County ($445) and Otero County ($441) (Ref# 204).

More recent data from El Paso County (**Table 4.13-13**) shows the total number of housing units increased from 224,447 in 2000 to 240,600 in 2004, an increase of 1.8 percent (Ref# 261). The proportion of single family housing units declined slightly from 68 to 65 percent. In 2004, 39 percent was occupied by renters, compared to 36 percent in 2000. The median value of occupied housing in 2004 was $73,647, representing an increase of 1.4 percent per year between 2000 and 2004. Median gross monthly rent, which includes the average monthly cost of utilities, increased from $468 in 2000 to $493 in 2004, representing an increase of 1.3 percent per year (Ref# 261). More recent data were not available for Doña Ana County or Otero County.

332 **Table 4.13-12. Housing Characteristics of Communities in the Region of Influence, 2000**

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	NA	421	NA	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
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

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 +*			
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**

CDP = Census Designated Place, an unincorporated community; N/A = not applicable.

Source: Ref# 204

Table 4.13-13. Housing Units by Type, El Paso County, 2000-2004

Housing Characteristics	*El Paso County 2000*	*El Paso County 2004*	*Annual Change 2000-2004*
Total Units	224,447	240,600	1.8%
Single Family Units	153,241	157,432	0.7%
Detached	141,646	149,462	1.4%
Attached	11,595	7,970	-8.9%
Percent	68.3%	65.4%	-1.1%
Multiple Family Units	54,447	63,506	3.9%
2 Units	5,388	2,353	-18.7%
3 or 4 Units	8,271	10,312	5.7%
5–9 Units	11,083	17,679	12.4%
10 or more Units	29,705	33,162	2.8%
Percent	24.3%	26.4%	2.1%
Mobile Home or Trailer	16,479	19,662	4.5%
Percent	7.3%	8.2%	2.7%
Occupied Housing Units	210,022	226,172	1.9%
Owner-occupied	133,596	138,490	0.9%
Renter-occupied	76,426	87,682	3.5%
Percent	36.4%	38.8%	1.6%
Median Value	$69,600	$73,647	1.4%
Median Gross Rent	$468	$493	1.3%

Source: Ref# 261

Housing Projections

As an indication of the level of housing construction activity, building permits issued in the three-county ROI between 1990 and 2004 averaged 4,432 permits per year (**Table 4.13-14**). The number ranged from a high of 7,206 permits issued in 2003 to a low of 2,651 permits issued in 1991. The majority of these permits were for single family housing units, comprising on average 83.7 percent of the total number of building permits issued. Multi-family housing units comprised on average 16.3 percent. The most construction activity occurred in El Paso County with 3,266 average annual building permits compared to 1,020 average annual permits in Doña Ana County and 146 average annual building permits for Otero County (Ref# 268).

Assuming the ratio between number of residents and number of housing units in 2000 remains constant, the number of housing units in the three-county ROI is estimated to grow to approximately 425,300 by 2005; 567,100 by 2010; 756,200 by 2020; and 1,793,100 by 2030.

346 **Table 4.13-14. New Private Housing Units in the ROI Authorized by Building Permit, 1990 to 2004**

Year	*Doña Ana County, NM*			*Otero County, NM*			*El Paso County, TX*			*Three-County ROI*		
	Total	*Single Family Units*	*Percent Single Family Units*	*Total*	*Single Family Units*	*Percent Single Family Units*	*Total*	*Single Family Units*	*Percent Single Family Units*	*Total*	*Single Family Units*	*Percent Single Family Units*
1990	553	433	78.3	52	52	100.0	2,111	1,851	87.7	2,716	2,336	86.0%
1991	685	484	70.7	57	57	100.0	1,909	1,631	85.4	2,651	2,172	81.9%
1992	875	710	81.1	113	113	100.0	2,761	2,270	82.2	3,749	3,093	82.5%
1993	1,008	905	89.8	132	132	100.0	2,681	2,296	85.6	3,821	3,333	87.2%
1994	1,105	936	84.7	138	138	100.0	3,797	2,323	61.2	5,040	3,397	67.4%
1995	983	812	82.6	154	152	99.0	2,629	2,259	85.9	3,766	3,223	85.6%
1996	890	765	86.0	205	99	48.3	3,333	2,347	70.4	4,428	3,211	72.5%
1997	740	673	91.0	173	103	59.5	2,713	2,316	85.4	3,626	3,092	85.3%
1998	913	796	87.2	345	61	17.7	3,290	3,039	92.4	4,548	3,896	85.7%
1999	920	756	82.2	100	98	98.0	4,196	3,472	82.7	5,216	4,326	82.9%
2000	982	754	77.0	144	96	66.7	3,203	2,879	89.9	4,329	3,729	86.1%
2001	994	744	75.0	79	79	100.0	3,438	3,317	96.5	4,511	4,140	91.8%
2002	1,213	906	75.0	104	104	100.0	3,710	3,459	93.2	5,027	4,469	88.9%
2003	1,767	1,231	70.0	168	168	100.0	5,271	4,829	91.6	7,206	6,228	86.4%
2004	1,675	1,355	81.0	223	209	93.7	3,942	3,407	86.4	5,840	4,971	85.1%
Annual Average	1,020	817	80.7	146	111	85.5	3,266	2,780	85.1	4,432	3,708	83.7

Source: Ref# 268

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4.13.4 Public Schools

The majority of Fort Bliss military personnel reside within three independent school districts in El Paso County. In the 2004/2005 school year, there were approximately 6,000 military dependent school-aged children, about 70 percent of which attended schools in the El Paso ISD, 15 percent in the Socorro ISD, and 12 percent in the Ysleta ISD. A small number of military dependents attended schools in the Canutillo and Clint ISDs. Attendance in other districts in El Paso County was negligible (Ref# 75). School districts in New Mexico serving Fort Bliss employees (primarily civilians) include the Las Cruces and Gadsden school districts in Doña Ana County and the Alamogordo school district in Otero County. Each district is described below.

El Paso ISD. The El Paso ISD serves students residing in the City of El Paso, including school-age dependents of military personnel residing on post. The district has about 90 campuses, including 13 high schools, 14 middle schools, 56 elementary schools, and 6 auxiliary facilities. **Table 4.13-15** shows that enrollments grew about 1 percent between school year 1999/00 and 2003/04. Looking back to the 1990s, enrollments were at about 64,700. This reflects the relatively stable population in this part of El Paso where most residential neighborhoods are older with little new residential development. This trend is expected to continue.

Three elementary schools in the El Paso ISD are located on Fort Bliss: Bliss (on the Main Post), Milam (on Biggs AAF), and Logan (in Logan Heights). The catchment areas for these schools extend off the post and include civilian residences. The proportion of students from military families in those three schools in the 2004/2005 school year was 66, 91, and 71 percent, respectively. Since 2000, El Paso ISD has gained one new high school, Chapin High School, located on a leased parcel in the Logan Heights area of Fort Bliss. It serves about 1,700 students, of which 17 percent are from military households.

Table 4.13-15. School District Enrollment and Staffing, 1999/00 to 2004/05 School Years

El Paso ISD				*Ysleta ISD*			*State of Texas*		
School Year	***Enrolled***	***Certified Teachers***	***Student-Teacher Ratio***	***Enrolled***	***Certified Teachers***	***Student-Teacher Ratio***	***Enrolled***	***Certified Teachers***	***Student-Teacher Ratio***
1999/00	62,306	3785	16.5	46,950	3,043	15.4	3,991,783	267,922	14.9
2000/01	62,325	4,078	15.3	46,394	2,979	15.6	4,059619	274,817	14.8
2001/02	62,739	4,163	15.1	46,742	2,986	15.7	4,146,653	282,583	14.7
2002/03	62,048	4,434	14.2	46,668	2,939	15.9	4,239,911	288,386	14.7
2004/05	63,216	4,417	14.3	46,394	3,075	15.1	4,505,572	302,148	14.9

Source: Ref# 558, 559, 560, 561

Overall, 7 percent of the students in the El Paso ISD were from military households in the 2004/05 school year. In the same year, El Paso ISD received about $3 million in impact aid for federally connected students. Off-post schools that had 20 percent or more of enrolled students with one or more active duty military parents included Austin and Andress High Schools; Basset Charles, Richardson, and Ross Middle Schools; and Burnet, Hughey, Nixon, and Travis Elementary Schools.

Ysleta ISD. The Ysleta ISD serves students residing in the City of El Paso, including school-age dependents of military personnel residing off post. The district has 7 conventional high schools, 5 special campuses, 11 middle schools, and 36 elementary schools (Ref# 430). Like El Paso ISD, the Ysleta ISD enrollments have been relatively stable since 2000, declining by less than 1 percent. The Ysleta ISD accommodates a moderate number of school-age dependents of military personnel assigned to Fort Bliss, all of whom reside off post. As of school year 2004/05, the school district received about $200,000 in federal impact aid (Ref# 320). The schools with the largest concentrations of military-connected students

are Parkland and Eastwood High Schools; Parkland and Eastwood Middle Schools; and Desertaire, Edgemere, Tierra Del Sol, Pebble Hills, and Dolphin Terrace Elementary Schools.

Socorro ISD. The Socorro ISD is located in the eastern and southeastern portion of El Paso County. The school district had 29,919 students in the 2002/03 school year, an increase of 41 percent from 1996/97 levels. The number of schools has also increased. The district has 21 elementary schools, 7 middle schools, 4 high schools, and one alternate school. Fort Bliss-related students attend both El Dorado and Americas High Schools.

Clint ISD. The Clint ISD consists of 11 schools serving almost 8,600 students. Like Socorro ISD, this district is experiencing rapid expansion in enrollment, reflecting development of new suburbs to the east of El Paso.

Canutillo ISD. The Canutillo ISD consists of six schools (four elementary, one middle, and one high school) serving almost 4,900 students (Ref# 431). Higher-than-average growth is expected to continue in this district.

Anthony ISD. The Anthony school district has three schools, one each for elementary, middle, and high school level. The district had 777 students in the 2002/2003 school year.

Gadsden ISD. The Gadsden ISD has 20 campuses, including 2 high schools, 3 middle schools, 12 elementary schools, and 3 alternative schools. According to the 2004-2005 district report card, the current student enrollment is about 13,800 (Ref# 106). The students are overwhelmingly Hispanic (95 percent). The individual schools that could be affected by actions at Fort Bliss include Anthony Elementary School, La Union Elementary School, Chaparral Elementary School, Gadsden Middle School, Chaparral Middle School, Anthony Texas Junior/Senior High School, and Gadsden High School.

Las Cruces. The Las Cruces School District is the second largest school district (after Albuquerque) in the State of New Mexico. It has 30 campuses with over 23,100 students in the 2004/05 school year (Ref#110).

Alamogordo. The Alamogordo Public School District has 16 campuses, including 2 high schools, 4 middle (or intermediate) schools, and 10 elementary schools. Total enrollment in the 2004/05 school year was about 6,800. Three of the schools are located on Holloman Air Force Base and primarily serve military-related children.

4.13.5 Law Enforcement

There are two types of law enforcement jurisdiction on Fort Bliss: areas of exclusive or concurrent federal jurisdiction to enforce civilian law, and areas of proprietary jurisdiction. Proprietary jurisdiction refers to use of the land and differs from exclusive or concurrent federal jurisdiction, which deals with law enforcement authority on the land.

Fort Bliss has exclusive federal jurisdiction within the Main Cantonment Area, the South Training Areas (except for TA 2), and throughout the Doña Ana Range–North Training Areas. In these areas, the Military Police of the Provost Marshal's Office have complete police powers, including apprehension and detention. The Military Police do not, however, have the authority to incarcerate civilians apprehended in these areas. For situations warranting immediate incarceration, appropriate civilian law enforcement agencies are contacted and the case is transferred to them for further processing.

Areas on Fort Bliss under proprietary jurisdiction include a portion of Logan Heights, which is government-owned, but within which the El Paso Police Department retains normal police jurisdiction; TA 2, which is government-owned (and previously leased from the State of Texas); and McGregor Range, which is government-owned, but within which New Mexico State Police and New Mexico county authorities retain normal police jurisdiction. In these areas, civilian law enforcement agencies retain primary jurisdiction to apprehend, cite, investigate, and prosecute violations of civilian law. However,

Military Police may patrol these areas, assess a situation, and hand it over to the appropriate civilian agents.

4.13.5.1 Fort Bliss Law Enforcement

The Fort Bliss Law Enforcement Battalion is responsible for the entire extent of the federal installation encompassing 1.12 million acres. Operations are housed at a facility located on the Main Post. The number of personnel totaled 533 in FY 2005 (Ref# 198). The battalion is currently equipped with 43 marked patrol cars, 3 unmarked cars, and 5 vans. Currently, there is one law enforcement officer for every 100 persons on post (including dependents), compared to one for every 76 persons in 1996. All military housing areas and WBAMC are patrolled by Military Police. Leased military family housing areas located off the Main Cantonment Area are under the jurisdiction of the City of El Paso Police Department but are patrolled by both military and city police.

BLM enforces federal laws that pertain to the use, management, and development of withdrawn public land on McGregor Range. BLM exercises enforcement authority over military personnel on the range in coordination with the Fort Bliss Provost Marshal's Office. Similarly, Fort Bliss notifies BLM if persons not conducting military purposes are found causing resource damage.

The U.S. Border Patrol maintains a station in Alamogordo and a checkpoint on U.S. Highway 54 between New Mexico Highway 506 and Orogrande. The Fort Bliss Law Enforcement Battalion calls Border Patrol when illegal immigrants are apprehended on the installation.

4.13.5.2 County Sheriffs' Departments

The El Paso County Sheriff's Department has jurisdiction within the limits of El Paso County and covers an area of 1,150 square miles. The department operates out of four facilities and has a full-time staff (as of 2005) of 1,021. The staff has grown from 659 personnel in 1995. The department is equipped with 72 marked cars, 62 unmarked cars, 8 vans, and 11 motorcycles. The Sheriff's Department operates the El Paso County Detention Facility (with a capacity for 1,024 inmates) and the County Juvenile Detention Center (with a capacity for 64 juveniles). An Annex to the County Detention Facility was completed in September 1997 with a capacity for 879 inmates.

In New Mexico, the Doña Ana County Sheriff's Department includes approximately 100 officers and a number of sheriff reservists. Law enforcement personnel operating in Otero County include 23 personnel from the Sheriff's Department and 13 state police.

4.13.5.3 City Police Departments

The City of El Paso Police Department has jurisdiction within the limits of the City of El Paso and covers an area of 248 square miles. The department operates out of six facilities and has over 1,100 commissioned officers and about 300 civilian support personnel. The city is a national leader in adopting Community Based Policing practices to prevent crime and create a safer environment (Ref# 186). The department uses the El Paso County Jail, operated by the Sheriff's Office, and the County Juvenile Detention Center for detention.

The City of Las Cruces Police Department has 144 uniformed officers and 7 volunteers. The Alamogordo community is served by a Department of Public Safety, which incorporates fire protection, law enforcement, and emergency medical services into one function. The City of Alamogordo currently has a staff of 105 persons who are cross-trained to handle both police and firefighting duties (Ref# 184).

4.13.6 Fire Protection

4.13.6.1 Fort Bliss Fire Department

The Fort Bliss Fire Department is responsible for the Main Cantonment Area and training areas within 5 miles of the Main Post. USACAS is responsible for fires caused by military operations on the remainder

of Fort Bliss. Operations are housed in four facilities on the Main Post, McGregor Range Camp, and Biggs AAF. The department had 71 personnel in 1996, a hazardous materials response team, and the following machinery: four active and one reserve engine, one supply tanker, three command vehicles, five small pumper vehicles, one aerial ladder truck, two P-19 crash vehicles, one light rescue truck, one air support vehicle, two support vehicles, one brush-fire truck, and one hazardous materials response vehicle. The Fort Bliss Fire Department has a formal mutual aid agreement with the City of El Paso Fire Department; use of the agreement is rare.

4.13.6.2 City of El Paso Fire Department

The City of El Paso fire department provides fire protection services to an area coincident with the city limits (248 square miles) and operates out of 31 neighborhood fire stations (with one more under construction), a 24-hour station at EPIA, and six support facilities. In 2000, the city's Emergency Medical Services and Fire Department merged to provide better response. In 2003, the department had 858 personnel. The department possesses a wide range of equipment, including 31 pumpers, 7 ladder trucks, 6 rescue trucks, 6 quints (pumper/ladder trucks), 19 ambulances, 4 aircraft firefighting vehicles, and a 24-hour hazardous materials unit (Ref# 185). The department maintains formal mutual aid agreements with Fort Bliss and El Paso County.

4.13.7 Public Finance

4.13.7.1 El Paso County, Texas

Services provided by El Paso County are funded principally through the general fund, with additional support from special revenue funds. The most important special revenue funds are grants (mainly intergovernmental transfer), road and bridge, and tourist and convention-related funds. In FY 2005, revenues from all government fund types were projected at $216 million, compared to $105 million in FY 1996, an increase of 49 percent over the nine-year period after adjusting for inflation. Principal revenue sources were taxes (55.4 percent of total revenues) and charges for services (20.5 percent), as shown in **Table 4.13-16** (Ref# 553).

Table 4.13-16. El Paso County, Texas Budgeted Revenues and Expenditures, Fiscal Year 2005

Revenue Source	*Amount*	*Percent of Total Revenue*	*Expenditure Category*	*Amount*	*Percent of Total Expenditures*
Taxes	$119,871,396	55.4%	General Government	$33,275,851	14.2%
Licenses and Permits	$177,500	0.1%	Administration of Justice	$39,391,656	16.8%
Intergovernmental Revenue	$21,717,608	10.0%	Public Safety	$90,852,448	38.8%
Service Revenues	$44,339,469	20.5%	Health and Welfare	$10,773,608	4.6%
Fines and Forfeitures	$6,110,041	2.8%	Community Services	$1,327,805	0.6%
Interest	$1,333,151	0.6%	Resource Development	$815,782	0.3%
Miscellaneous Revenues	$5,367,277	2.5%	Culture and Recreation	$6,053,297	2.6%
Other Financing Sources	$17,539,056	8.1%	Public Works	$5,323,686	2.3%
			Capital Outlays	$12,567,552	5.4%
			Debt Service	$16,319,551	7.0%
			Other Financing Uses	$17,656,904	7.5%
Total Revenues	**$216,455,498**	**100.0%**	**Total Expenditures**	**$234,358,140**	**100.0%**

Source: Ref# 553

Expenditures in FY 2005 were projected at $234 million, compared to $110 million in FY 1996, an increase of 49 percent over the nine-year period after adjusting for inflation. Major expenditure categories were public safety (38.8 percent of total annual expenditures), administration of justice (16.8 percent), and general government (14.2 percent) (Ref# 553).

4.13.7.2 City of El Paso

Services provided by the City of El Paso are funded principally through the general fund, which was the source of 49 percent of all revenues in FY 2005 compared to 76 percent of all revenues in FY 1996. Additional support is generated from special revenue funds, the most important of which are enterprise funds (airport and mass transit). In FY 2005, revenues from all government fund types totaled $526 million, compared to $271 million in FY 1996, an increase of 33 percent over the nine-year period after adjusting for inflation. Principal revenue sources were taxes (44 percent of total revenues) and service revenues (16 percent), as shown in Table **4.13-17** (Ref# 552).

Expenditures in FY 2005 totaled $534 million, compared to $289 million in FY 1996, an increase of 35 percent over the nine-year period after adjusting for inflation. Major expenditure categories were public safety (30.7 percent of total annual expenditures), non-departmental (17.2 percent), and transportation (17.0 percent). The combined fund balance stood at $66,369,604 as of September 1, 2005, or 12 percent of total expenditures, representing a substantial drop from the relative fund balance of 48 percent in August 1996 (Ref# 552).

Table 4.13-17. City of El Paso, Texas Revenues and Expenditures, Fiscal Year 2005

Revenue Source	*Amount*	*Percent of Total Revenue*	*Expenditure Category*	*Amount*	*Percent of Total Expenditures*
Taxes	$233,717,327	44.4%	General Government	$35,740,352	6.7%
Franchise Fees	$45,880,134	8.7%	Public Safety	$163,932,299	30.7%
Service Revenues	$78,811,272	15.0%	Quality of Life Services	$43,437,924	8.1%
Operating Revenues	$85,501,010	16.3%	General Services	$24,083,863	4.5%
Non-Operating Revenues	$21,267,061	4.0%	Development & Infrastructure	$66,764,366	12.5%
Intergovernmental Revenue	$21,491,381	4.1%	Public Health & Welfare	$17,462,328	3.3%
Transfers In	$39,246,832	7.5%	Non-Departmental	$91,936,771	17.2%
			Transportation	$90,520,832	17.0
Total Revenues	**$525,915,017**	**100.0%**	**Total Expenditures**	**$533,878,735**	**100.0%**

Source: Ref# 552

4.13.8 Government Structure

4.13.8.1 El Paso County

The El Paso County governmental system is the same as described in the 2000 PEIS. Like all counties in Texas, it has a Commissioners' Court composed of four County Commissioners and a single County Judge, all publicly elected. The County Judge is elected at large and serves a 4-year term, while County Commissioners are elected from each of four precincts and serve a 2-year term. Elections are staggered, with three positions available at one election and two positions at the following election.

The county had 2,765 employees in 2003, increased from 1,912 in 2000. It was ranked as the eighth largest government sector employer in El Paso County, following the El Paso ISD, Ysleta ISD, and Fort Bliss as the top three employers of county residents. The large majority of the county's staff assists in the court system administered by the county (Ref# 232).

4.13.8.2 City of El Paso

The City of El Paso recently adopted the Council–Manager form of government through a City Charter approved on February 7, 2004. The voters continue to elect a Mayor and City Councilors who hold 4-year terms and retain political leadership. The Mayor and City Council appoint a City Manager who has a managerial role. The City Manager and three deputies carry out Council directives and oversee delivery of public services (Ref# 432).

The city had a total of 6,280 employees in 2005. Of the various departments of city government, the following employ the largest number of personnel: police (1,440 persons), fire (890 persons), water utilities (671 persons), mass transit (580 persons), and parks and recreation (547 persons). Since 1996, increases in employment occurred in the fire department, parks and recreation department, and police department (Ref# 353).

4.13.9 Medical Services

4.13.9.1 Fort Bliss Medical Services

Located just west of the Main Post, WBAMC is one of 38 U.S. Army Medical Centers. The facility serves an estimated 85-90 percent of the local eligible population, comprised mainly of active duty military and their dependents, retired military and their dependents, and some federal employees with occupational injuries or illness. It also serves as one of two trauma centers for El Paso County. WBAMC serves the health care needs of more than 400,000 beneficiaries in the southwest region.

Fort Bliss also provides healthcare at a consolidated Troop Medical Center on the Main Post and at several small facilities located with individual units. A small medical clinic also serves troops and family members associated with the Sergeants Major Academy on Biggs AAF. There is a dental clinic on the Main Post and a veterinary clinic.

4.13.9.2 El Paso County Medical Services

El Paso County has six general hospital medical facilities. In addition, there are five specialty medical facilities, excluding WBAMC. **Table 4.13-18** shows selected statistics for the general and specialty facilities. In comparison to 1995, the number of staffed beds for inpatient care at the six general hospitals in 2004 has declined by 4 percent, from 1,627 to 1,564, even though the population of El Paso County has increased by 7 percent. The number of annual outpatient visits has increased by 59 percent, from 656,861 to 1,046,344. The annual inpatient numbers have increased by 24 percent from 60,651 to 74,947, while the average number of daily patients has increased only slightly by 3 percent.

Considering the decline in beds, this information indicates that the average inpatient stay has declined in length. These data partially reflect trends to administer health care primarily through outpatient, day, and specialty facilities.

The number of employees at the general hospital facilities has increased by 9 percent since 1995, fairly consistent with the population growth for the time period. Payrolls and expenses have increased by 57 and 72 percent, respectively, over nine years.

The specialty facilities tend to have fewer beds but high occupancy rates for inpatients. Rio Vista Physical Rehabilitation Hospital serves 5 percent of outpatient visits for El Paso County.

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Table 4.13-18. Medical Facilities in El Paso County 2004

Facility	*Beds*[1]	*Admissions (Inpatients)*	*Average Bed Occupancy Rate*	*Outpatient Visits*	*Employees*	*Payroll ($000)*	*Expenditures ($000)*
General Hospitals							
Sierra Medical Center	334	13,213	54%	109,258	1108	52.9	163.6
Providence Memorial Hospital	389	20,105	70%	205,535	1,741	80.8	194.0
Del Sol MC-East	293	15,224	76%	144,166	1,125	50.5	125.4
Las Palmas-West	221	9,528	56%	74,269	789	31.1	94.8
Southwestern General	53	1,863	40%	21,754	203	6.4	133.8
RE Thomason General	274	15,014	64%	491,362	1,869	69.3	220.0
Subtotal	1,564	74,947	64%	1,046,344	6,835	291	932
Specialty Medical Facilities							
Rio Vista Rehab	45	1,576	100%	57,946	239	11.7	251.1
EP Psychiatric	52	ND	ND	ND	ND	ND	ND
EP Specialty Hosp	31	843	23%	8,586	117	4.3	16.8
NCED Mental Health center	49	526	16%	3,235	56	1.8	3.7
Mesa Hills Specialty Hospital	32	431	91%	0	80	2.7	6.4
Del Sol Rehab	40	ND	ND	ND	ND	ND	ND
Total for El Paso County[2]	1,813	78,323	60%	1,116,111	7,327	312	1,210
WBAMC	209	ND	ND	ND	ND	ND	ND
Total with WBAMC	2,022						

1. Staffed beds.
2. Totals do not include categories with no reported data.

ND = no data

Source: Ref# 228

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Currently, El Paso County and border counties have relatively low numbers of health care providers, including primary care physicians, specialists, registered nurses, and dentists, according to a report prepared by the Institute for Policy and Economic Development in 2002. The ratio of healthcare providers to population is much lower in El Paso and other border counties than in selected urban counties in Texas. Overall, in 2001, El Paso County had 759 direct patient care physicians and 308 primary care physicians. In 2000, the county had 31 physician assistants, 3,387 registered nurses, and 119 dentists (Ref# 255, 272). These professionals served a general population of about 680,000.

4.13.10 Quality of Life

Quality of life is subjective. The analysis of quality of life, therefore, focuses on what is important and valued by the affected community. This section summarizes quality of life issues identified in scoping and data collection to the extent that they can be related to projected changes at Fort Bliss. The following description also cross-references other sections of the SEIS that describe current issues or trends in the region relevant to quality of life. Relevant findings from a quality of life study conducted by the UTEP are also cited.

For analysis purposes, quality of life issues have been divided into three broad categories: cost of living, convenience/access, and physical environment.

Topics of concern related to cost of living include:

- Water rates — impact of higher water rates on existing residents, especially given recent experience with drought contingency planning/implementation and conservation (water supply and demand are addressed in Section 4.7).
- Housing costs — increases in housing costs as a result of project-related growth and new development (housing is addressed in Section 4.13.3).

Topics of concern related to convenience and access include:

- Traffic/commuting — increases in congestion, commuting times, and heavy truck traffic in neighborhoods (traffic and level of service on roadways in the vicinity of the Main Cantonment Area are discussed in Section 4.2.1).
- Access to services — school overcrowding (public schools are discussed in Section 4.13.4.)
- Recreation — reduction in recreation access to the Fort Bliss Training Complex and indirect effects on recreation access from growth in demand and new development (recreation is discussed in Section 4.1).

Topics of concern related to the physical environment include:

- Open space — likely reductions in open space due to population growth and development (open space is discussed in section 4.1).
- Landscape — changes in urban and rural landscapes due to development and urbanization (availability of land to accommodate growth and development is discussed in Section 4.1; Section 4.1.3 discusses the appearance of the landscape).
- Dust — increased dust from construction, off-road vehicle training activities, and other sources (Section 4.6 discusses air quality).

In 2002, The Institute for Policy and Economic Development at UTEP published a report titled *Quality of Life in El Paso: Citizen's Perceptions – 2002* (Ref# 118). The study was based on 514 valid surveys obtained and weighted by ZIP code. The survey was undertaken to define what the citizens of El Paso like and dislike about El Paso life. The 2002 survey replicated a previous study done in 1999.

The study addressed ten topic areas affecting quality of life. Each of the ten areas was surveyed through a set of questions, individually reported, and then placed into an index providing an overall, composite measure. All questions relating to quality of life were rated on a five-point scale ranging from 1 (Completely Satisfied) to 5 (Completely Dissatisfied), with a Neutral mid-point of 3. These ten areas and their scores in the 2002 study are shown in **Table 5.13-19**.

Table 4.13-19. Quality of Life Survey Results

Topic	*Score*
Environment	2.97
Transportation	3.13
Public Safety	2.90
Education	2.7
Entertainment/Services	3.06
Business/Industry	3.37
Cost of Living	3.37
Community Relations	2.83
Health Care	3.26
City Planning	3.32

Source: Ref# 118

In general, the results indicated that overall satisfaction with El Paso quality of life had declined in almost all areas between 1999 and 2002. However, considering the smaller 2002 sample size and a confidence level of 5 percent (plus or minus), the findings are relatively consistent between the two studies.

Study findings relevant to topics addressed in the SEIS are summarized below.

- Cost of living. Overall perceptions indicate that the cost of living in 2002 was in the unsatisfactory range but had improved slightly since 1999. Cost of housing was perceived as reasonable, reflecting El Paso's housing market relative to other communities. Cost of utilities fell in the unsatisfactory range.

- Convenience/access. Commute times were viewed positively. There was satisfaction with the quality of public schools. Perceptions of the number of public parks and their quality were in the neutral range.

- Physical environment. Overall lack of satisfaction about city planning prevailed among survey participants and increased between 1999 and 2002. Growth management, downtown planning, and suburban planning each rated in the unsatisfactory range. Overall, respondents perceived a slight decrease in the quality of the environment between 1999 and 2002; however, the 2002 rating was in the neutral range. Air quality was perceived as generally unsatisfactory to the survey participants.

4.14 ENVIRONMENTAL JUSTICE

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations, requires that the Army make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. For this SEIS, census data were used to estimate the number of persons in minority populations and low-income populations living in areas that could potentially be affected by the Proposed Action and other alternatives.

EO 13045, Protection of Children From Environmental Health Risks and Safety Risks, requires that federal agencies 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.

The ROI for environmental justice considerations in this SEIS consists of El Paso County, Texas and Doña Ana and Otero Counties, New Mexico. For purposes of this analysis, minority populations and low-income populations are defined as follows:

- Minority populations — persons of Hispanic origin of any race plus Blacks; American Indians, Eskimos, and Aleuts; and Asian or Pacific Islanders (without double-counting persons of Hispanic origin who are also contained in the latter groups).
- Low-income populations — as reported in the 2000 Census, persons living below the poverty level, which is $18,104 for a family of four in 1999 and varies depending on family size.

An environmental justice outreach program was conducted as part of the SEIS process. The purpose of this program is to expand participation of potentially affected populations in the process and to identify public concerns.

Estimates of minority and low-income populations were developed using data from the 2000 Census of population and housing, which estimates each of the separate categories contained in these definitions. Minority populations were estimated using Census data that report Hispanic or Latino populations, by race and separately, and populations not Hispanic or Latino by race (Ref# 203). Low-income populations were estimated using Census data that report poverty status in 1999 by age (Ref# 205). Data on the percent of population of Hispanic or Latino origin and the percent of population by race for El Paso, Doña Ana, and Otero Counties were obtained from Census profiles of general demographic characteristics (Ref# 204).

There are 171 census tracts in the three-county ROI, including 126 in El Paso County, 32 in Doña Ana County, and 13 in Otero County. **Table 4.14-1** presents data on minority populations and low-income populations in the ROI for each census tract. In 2000, the ROI contained 916,602 persons, of whom 709,651 persons (77.4 percent) were minorities and 213,513 persons (23.8 percent) were living below the poverty level.

El Paso County contained 679,622 persons, of whom 564,087 persons (83.0 percent) were minorities and 158,722 (23.8 percent) were living below the poverty level. Persons of Hispanic or Latino origin comprised 531,654 persons (78.2 percent of the total population). A total of 20,809 persons (3.1 percent) were Black or African American; 5,559 persons (0.8 percent) American Indian and Alaskan Native; 6,633 persons (1.0 percent) Asian; 669 persons (0.1 percent) Native Hawaiian and Other Pacific Islander; 121,721 persons (17.9 percent) some other race; and 21,652 persons (3.2 percent) two or more races. For each county, some persons in the latter categories are also included in the subtotal for persons of Hispanic or Latino origin. To avoid double-counting these persons, they are added in only once when the minority population total is calculated.

Doña Ana County contained 174,682 persons, of which 117,994 (67.5 percent) were minorities and 43,054 (25.4 percent) were living below the poverty level. Persons of Hispanic or Latino origin comprised 110,665 persons (63.4 percent of the total population). A total of 2,723 persons (1.6 percent) were Black or African American; 2,580 persons (1.5 percent) American Indian and Alaskan Native; 1,330 persons (0.8 percent) Asian; 117 persons (0.1 percent) Native Hawaiian and Other Pacific Islander; 43,209 persons (24.7 percent) some other race; and 6,245 persons (3.6 percent) two or more races.

Otero County contained 62,298 persons, of which 34,728 (44.3 percent) were minorities and 11,737 (19.3 percent) were living below the poverty level. Persons of Hispanic or Latino origin comprised 20,033 persons (32.2 percent of the total population). A total of 2,440 persons (3.9 percent) were Black or African American; 3,614 persons (5.8 percent) American Indian and Alaskan Native; 728 persons (1.2 percent) Asian; 82 persons (0.1 percent) Native Hawaiian and Other Pacific Islander; 7,273 persons (11.7 percent) some other race; and 2,242 persons (3.6 percent) two or more races. The Mescalero Apache Reservation is located in northeastern Otero County, with small, unpopulated portions also located in Lincoln County, New Mexico. Approximately 3,156 persons lived on the reservation in 2000, of which 96.7 percent were minority and 35.7 percent were living below the poverty level.

Figure 4.14-1 shows the counties and census tracts in the ROI, and **Figure 4.14-2** provides detailed data for El Paso, Alamogordo, and Las Cruces. Individual census tracts are highlighted if either of two criteria are met for minority populations: if the percentage of persons in minority population exceeds 50.0 percent, indicating that in the census tract, minorities constitute a majority of the persons who could potentially be affected by the project, and if the minority population exceeds 77.4 percent, which is the ROI average. Individual census tracts are also highlighted if the percentage of persons living below the poverty level in the census tract exceeds 23.8 percent, the ROI average.

Minorities comprise more than 50 percent of the total population in 152 census tracts in the ROI, or 88.9 percent of all census tracts. The minority population percentage exceeds the ROI average in 97 (56.7 percent) of the census tracts. The percentage of the population living below the poverty level exceeds the ROI average in 81 (47.4 percent) of the census tracts.

Table 4.14-1. Minority and Low-Income Populations by Census Tract

Geographic Area / Census Tract	*Percent Minority*	*Census Tract Exceeds 50 Percent Minority*	*Census Tract Exceeds ROI Percent Minority*	*Percent Low Income*	*Census Tract Exceeds ROI Percent Low Income*
ROI	77.4	N/A	NA	23.8	N/A
El Paso County	83.0	N/A	NA	23.8	N/A
Doña Ana County	67.5	N/A	NA	25.4	N/A
Otero County	44.3	N/A	NA	19.3	N/A
El Paso County, Texas					
1.01	64.3	Y		11.8	
1.06	59.6	Y		11.4	
1.07	77.7	Y	Y	19.3	
1.08	70.3	Y		21.4	
1.09	80.9	Y	Y	23.0	
1.10	70.0	Y		27.3	Y
1.11	55.6	Y		6.8	
1.12	73.1	Y		15.0	
2.03	78.2	Y	Y	21.0	
2.04	70.9	Y		22.9	
2.05	78.4	Y	Y	40.4	Y

Geographic Area / Census Tract	*Percent Minority*	*Census Tract Exceeds 50 Percent Minority*	*Census Tract Exceeds ROI Percent Minority*	*Percent Low Income*	*Census Tract Exceeds ROI Percent Low Income*
2.06	75.2	Y		20.5	
3.01	87.6	Y	Y	39.4	Y
3.02	88.5	Y	Y	31.8	Y
4.01	49.7			4.9	
4.03	77.9	Y	Y	16.7	
4.04	92.9	Y	Y	64.6	Y
6.00	89.8	Y	Y	34.2	Y
8.00	92.0	Y	Y	32.5	Y
9.00	90.0	Y	Y	30.5	Y
10.01	91.8	Y	Y	24.8	Y
10.02	93.7	Y	Y	31.0	Y
11.04	66.9	Y		14.4	
11.05	76.3	Y		29.2	Y
11.07	53.8	Y		9.8	
11.09	39.4			3.2	
11.10	52.5	Y		13.0	
11.11	66.9	Y		17.5	
11.12	56.3	Y		12.8	
11.13	62.5	Y		9.4	
12.01	89.4	Y	Y	37.0	Y
12.02	72.8	Y		11.2	
12.03	95.6	Y	Y	48.8	Y
13.01	45.4			5.4	
13.02	47.2			6.7	
14.00	85.9	Y	Y	35.3	Y
15.01	60.2	Y		14.2	
15.02	60.3	Y		20.3	
16.00	87.8	Y	Y	38.9	Y
17.00	91.3	Y	Y	53.4	Y
18.00	97.2	Y	Y	53.5	Y
19.00	97.7	Y	Y	72.3	Y
20.00	98.2	Y	Y	55.3	Y
21.00	97.0	Y	Y	70.0	Y
22.01	85.1	Y	Y	41.7	Y
22.02	93.8	Y	Y	51.1	Y
23.00	92.6	Y	Y	28.9	Y
24.00	90.7	Y	Y	33.7	Y
25.00	88.3	Y	Y	23.8	
26.00	96.5	Y	Y	32.7	Y
28.00	98.2	Y	Y	53.1	Y
29.00	99.0	Y	Y	57.9	Y
30.00	97.2	Y	Y	48.4	Y
31.00	97.2	Y	Y	31.2	Y
32.00	98.2	Y	Y	37.9	Y

Geographic Area / Census Tract	*Percent Minority*	*Census Tract Exceeds 50 Percent Minority*	*Census Tract Exceeds ROI Percent Minority*	*Percent Low Income*	*Census Tract Exceeds ROI Percent Low Income*
33.00	90.8	Y	Y	20.6	
34.01	90.2	Y	Y	23.4	
34.03	78.5	Y	Y	16.7	
34.04	64.3	Y		6.9	
35.01	93.5	Y	Y	28.9	Y
35.02	94.8	Y	Y	33.8	Y
36.01	96.7	Y	Y	29.0	Y
36.02	94.9	Y	Y	40.1	Y
37.01	95.6	Y	Y	27.8	Y
37.02	96.4	Y	Y	34.3	Y
38.01	97.1	Y	Y	24.2	Y
38.03	94.3	Y	Y	26.3	Y
38.04	95.1	Y	Y	26.7	Y
39.01	94.5	Y	Y	32.7	Y
39.02	96.9	Y	Y	28.4	Y
39.03	97.9	Y	Y	37.4	Y
40.02	97.0	Y	Y	31.7	Y
40.03	98.1	Y	Y	30.4	Y
40.04	97.7	Y	Y	19.2	
41.03	94.0	Y	Y	36.1	Y
41.04	94.8	Y	Y	13.1	
41.05	96.9	Y	Y	29.4	Y
41.06	96.5	Y	Y	24.0	Y
41.07	89.2	Y	Y	12.6	
42.01	96.9	Y	Y	32.2	Y
42.02	95.3	Y	Y	22.3	
43.03	72.9	Y		12.4	
43.05	70.8	Y		9.1	
43.07	70.6	Y		6.6	
43.09	80.2	Y	Y	10.2	
43.10	80.5	Y	Y	22.2	
43.11	71.5	Y		7.3	
43.12	73.5	Y		13.9	
43.13	73.8	Y		17.9	
43.14	86.4	Y	Y	14.7	
43.15	88.8	Y	Y	13.3	
43.16	91.4	Y	Y	16.4	
102.03	87.5	Y	Y	25.9	Y
102.04	57.8	Y		11.2	
102.06	67.7	Y		7.9	
102.07	66.1	Y		15.9	
102.08	92.4	Y	Y	32.8	Y
102.09	65.6	Y		10.4	
103.03	75.8	Y		13.0	

Geographic Area / Census Tract	*Percent Minority*	*Census Tract Exceeds 50 Percent Minority*	*Census Tract Exceeds ROI Percent Minority*	*Percent Low Income*	*Census Tract Exceeds ROI Percent Low Income*
103.07	85.2	Y	Y	22.3	
103.09	93.0	Y	Y	36.2	Y
103.10	94.1	Y	Y	31.5	Y
103.11	81.9	Y	Y	20.2	
103.12	77.3	Y		6.8	
103.13	92.2	Y	Y	12.6	
103.14	82.6	Y	Y	11.2	
103.15	85.9	Y	Y	4.0	
103.16	82.0	Y	Y	16.0	
103.17	84.3	Y	Y	18.5	
103.18	82.1	Y	Y	23.1	
103.19	80.4	Y	Y	29.1	Y
103.20	88.0	Y	Y	23.1	
103.21	91.0	Y	Y	7.5	
104.01	98.8	Y	Y	31.2	Y
104.02	97.1	Y	Y	24.9	Y
104.03	98.6	Y	Y	40.1	Y
104.04	94.8	Y	Y	34.8	Y
105.01	94.6	Y	Y	46.9	Y
105.02	91.5	Y	Y	35.4	Y
105.03	95.9	Y	Y	39.3	Y
105.04	95.9	Y	Y	35.2	Y
Doña Ana County, New Mexico					
1.01	56.1	Y		18.1	
1.02	55.6	Y		17.2	
2.00	63.4	Y		20.4	
3.00	50.1	Y		15.5	
4.01	91.0	Y	Y	36.6	Y
4.02	71.0	Y		20.7	
5.00	69.7	Y		34.4	Y
6.00	80.7	Y	Y	27.3	Y
7.00	69.4	Y		30.9	Y
8.00	52.2	Y		32.1	Y
9.00	65.2	Y		48.2	Y
10.00	56.1	Y		53.1	Y
11.01	63.5	Y		20.0	
11.02	56.4	Y		10.9	
12.01	46.2			10.7	
12.02	35.6			16.0	
13.01	56.5	Y		16.1	
13.02	72.0	Y		28.7	Y
13.03	54.9	Y		10.3	
14.00	82.0	Y	Y	37.3	Y
15.00	45.2			12.2	

Geographic Area / Census Tract	*Percent Minority*	*Census Tract Exceeds 50 Percent Minority*	*Census Tract Exceeds ROI Percent Minority*	*Percent Low Income*	*Census Tract Exceeds ROI Percent Low Income*
16.00	85.9	Y	Y	31.1	Y
17.01	60.9	Y		6.9	
17.02	82.4	Y	Y	34.9	Y
17.03	73.2	Y		20.6	
17.04	98.4	Y	Y	41.9	Y
17.05	97.3	Y	Y	32.0	Y
18.01	88.8	Y	Y	32.1	Y
18.02	92.4	Y	Y	35.9	Y
18.03	96.9	Y	Y	38.4	Y
18.04	68.1	Y		31.3	Y
19.00	37.3			2.6	
Otero County, New Mexico					
1.00	60.5	Y		27.1	Y
2.00	42.3			19.8	
3.01	32.0			12.9	
3.02	32.0			10.1	
4.01	35.4			9.8	
4.02	50.9	Y		20.8	
5.00	48.8			21.5	
6.01	30.6			11.0	
6.02	20.8			21.7	
6.03	30.2			10.6	
7.00	46.4			20.0	
8.00	96.7	Y	Y	35.7	Y
9.00	46.9			30.0	Y

Notes: Low income is measured by identifying the number of persons below poverty level ($18,104 for a family of four in 1999, as report in the 2000 Census of Population and Housing).
The ROI is comprised of 171 census tracts.
The table represents data for 167 individual census tracts. Four census tracts in El Paso County that comprise the Main Post are excluded from the list because the environmental justice analysis does not evaluate effects on populations living on military installations. Data presented at the top of the table for the three-county ROI and for El Paso County as a whole, represent totals including the four census tracts.

N/A=Not applicable.

Source: Ref# 203, 205

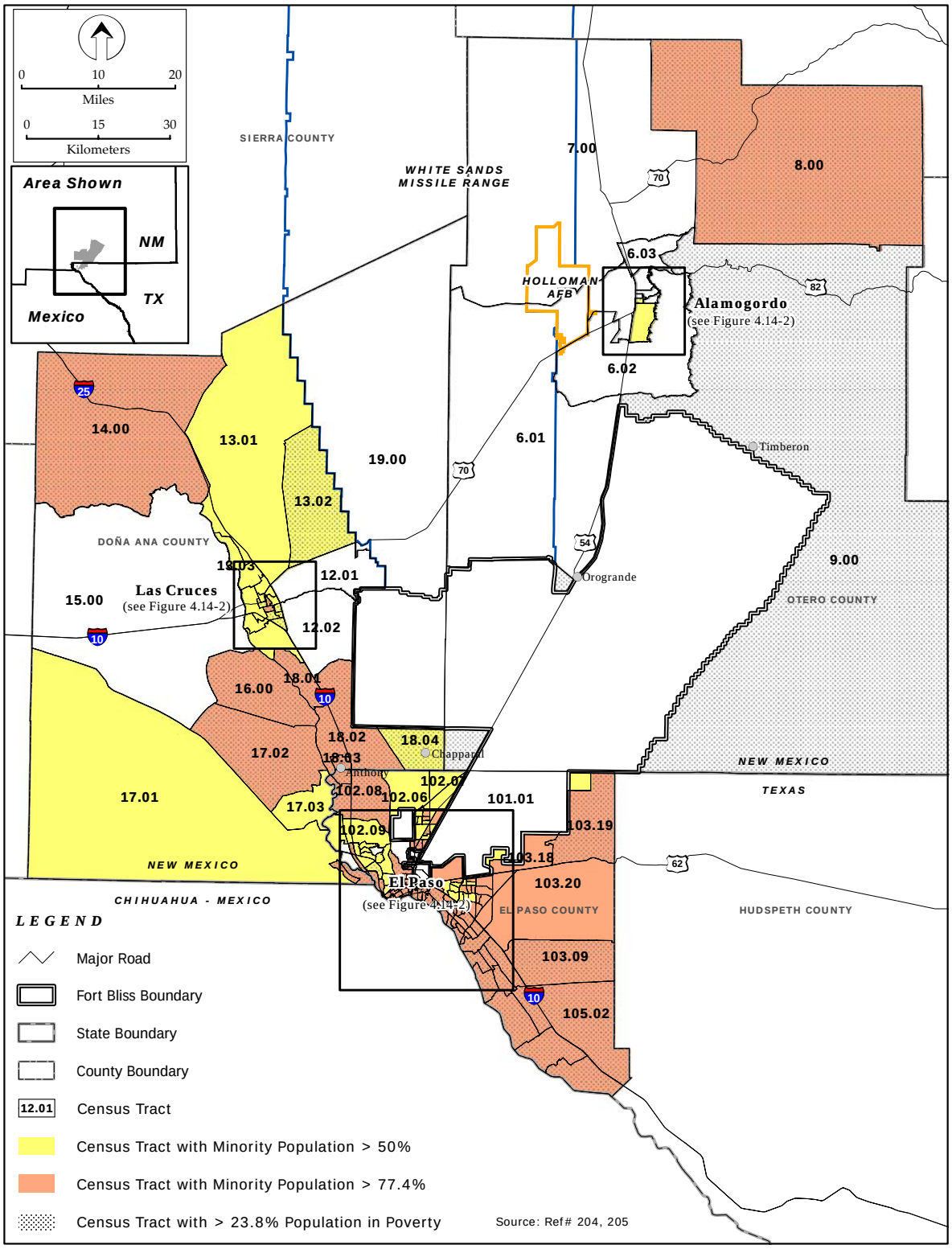

Figure 4.14-1. Census Tracts with Minority and Low-Income Population Percentages Exceeding the ROI Average

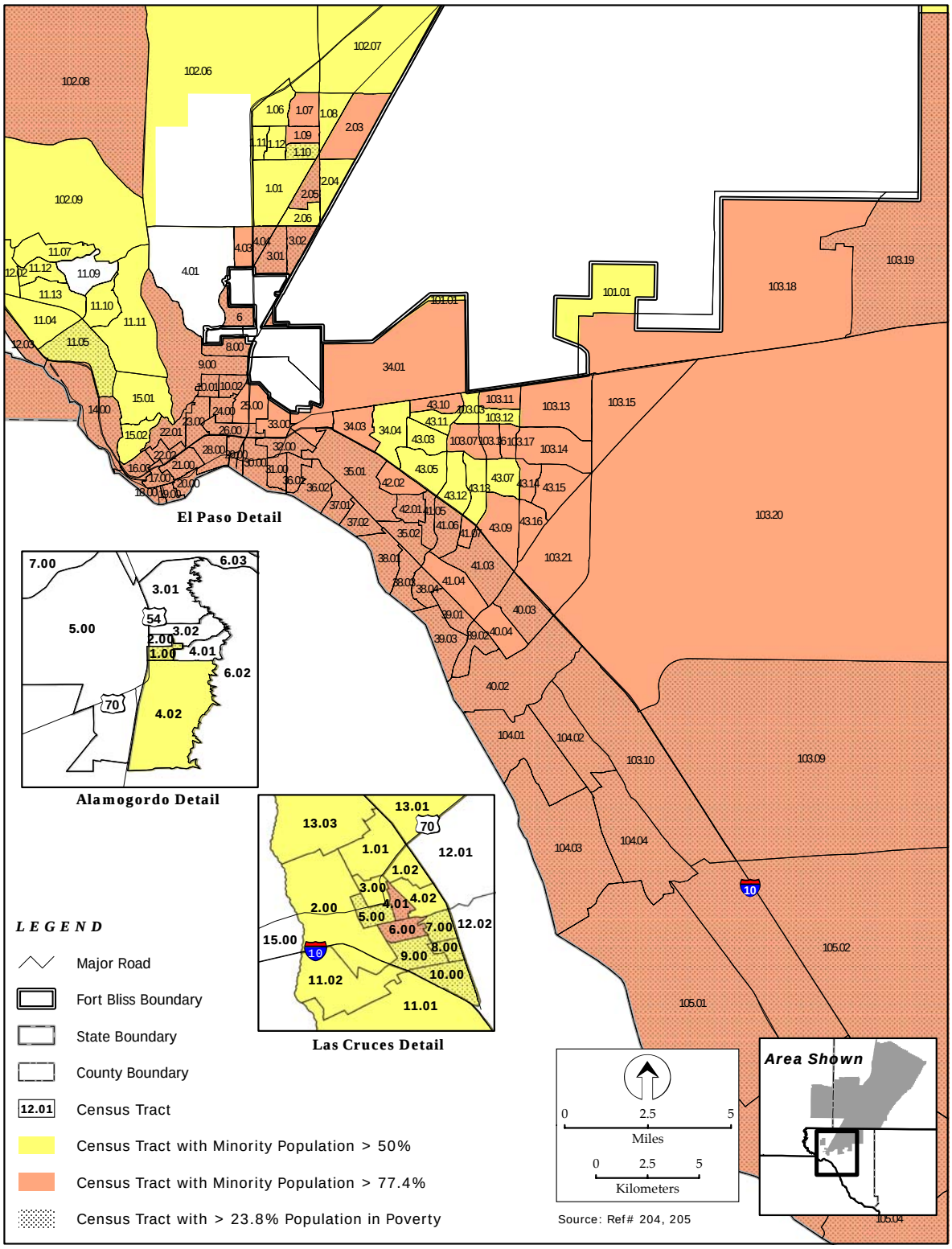

Figure 4.14-2. Detail of Census Tracts in El Paso, Alamogordo, and Las Cruces

5.0 ENVIRONMENTAL CONSEQUENCES

This chapter presents the direct and indirect effects of implementing each of the five alternatives described in Chapter 3: the No Action Alternative, Alternative 1, Alternative 2, Alternative 3, and Alternative 4–Proposed Action. The findings are organized by the same 14 resource topics presented in Chapter 4. Direct effects are impacts directly related to and caused by the proposed activities that occur in the same time and place. Indirect effects are impacts that are related to the proposed activities but occur later in time or farther removed in distance. For example, impacts from construction of facilities at Fort Bliss would be a direct effect associated with the alternatives, while an increase in local spending by construction workers would be an indirect effect. In addition, this chapter describes potential cumulative impacts of implementing the proposed land use changes in combination with other past, present, and reasonably foreseeable future actions in the region of influence and summarizes irreversible and irretrievable commitments of resources, the relationship between short-term use of the environment and long-term productivity; and probable adverse impacts that cannot be avoided if the proposed land use changes are implemented.

Each section of this chapter addresses impacts from proposed actions in the Main Cantonment Area and in the Fort Bliss Training Complex. In general, effects in the Fort Bliss Training Complex are presented for the following geographic areas (see Figure 1-2):

- South Training Areas – TAs 1A, 1B, 2A, 2B, 2C, 2D, and 2E
- Doña Ana Range
- North Training Areas – TAs 3A, 3B, 4A, 4B, 4C, 4D, 5A, 5B, 5C, 5D, 5E, 6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D, and Assembly Area
- McGregor Range
    - South Tularosa Basin portion – TAs 8, 9, 25, 30, 31, 32, and portions of TAs 11 and 29 south of Highway 506
    - North Tularosa Basin portion – TA 10, western half of TA 12, and portions of TAs 11 and 29 north of Highway 506
    - Southeast Training Areas – TAs 24, 26, and 27
    - Remainder of McGregor Range – TAs 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 28, 33, and the eastern half of TA 12
- Range Camps – Doña Ana, Orogrande, and McGregor.

Ongoing effects of Fort Bliss' mission described in the 2000 PEIS that are still applicable are incorporated by reference and not repeated. The impacts of each alternative are presented relative to existing conditions described in Chapter 4; however, projects and actions included in the No Action Alternative have previously been evaluated to comply with NEPA, in accordance with the procedures described in the PEIS.

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5.1 LAND USE

5.1.1 Introduction

Potential land use issues related to the Proposed Action and other alternatives include the following:

- Compatibility of proposed changes in land use designation with existing and projected on-post land uses.
- Potential for proposed training activities to displace or curtail non-military uses, activities, and infrastructure (such as grazing operations, recreation, and utility rights-of-way) on Fort Bliss land.
- Compatibility of on-post land uses with adjacent off-post land use.
- Potential for development resulting from increase in Fort Bliss personnel and induced population growth in the region to negatively affect land uses in the region or to conflict with municipal and county planning goals and objectives.
- Potential for land use changes on McGregor Range to conflict with BLM plans for the range.
- Potential for proposed development and training activities to alter the landscape and adversely affect sensitive visual resources.
- Potential for on-post development and training activities to indirectly impact off-post lands by affecting ground transportation and access, through generation of dust and noise, or by increasing safety risks that may reduce the suitability of those lands for their current or planned uses.

This section addresses direct and indirect impacts on the Main Cantonment Area and surrounding areas and the Fort Bliss Training Complex and surrounding areas for each of the alternatives. Direct effects on land use include changes in land use designations and in military and non-military uses of Fort Bliss land. Indirect effects include impacts on land use surrounding Fort Bliss due to population changes associated with mission and unit changes at the installation, and off-post effects of on-post activities that may result in land use incompatibilities. This section focuses on direct land use effects, the compatibility of on-post land use designations with adjacent off-post areas, impacts on visual resources, and indirect effects associated with Fort Bliss-related population changes. Other off-post impacts that can indirectly affect land use are addressed in subsequent sections of this SEIS, including:

- Transportation impacts are addressed in Sections 5.2 and 5.3.
- Impacts on utility lines and rights-of-way in the Fort Bliss Training Complex are addressed in Section 5.3.
- Impacts from dust emissions are addressed in Section 5.6.
- Off-post impacts of elevated noise levels are addressed in Section 5.10.
- Safety impacts are addressed in Section 5.11.

5.1.2 No Action Alternative

5.1.2.1 Main Cantonment Area

On-Post Land Use

Under the No Action Alternative, land use in the Main Cantonment Area would remain as designated in the RPMP adopted pursuant to the ROD for the Mission and Master Plan PEIS. Since the ROD, construction and demolition projects have been implemented in accordance with the procedures described in the PEIS, including development for one BCT on open land on the east side of Biggs AAF. Projects listed for the No Action Alternative primarily address known deficiencies, replacement of substandard facilities, and expansion to meet mission and welfare needs of the additional military personnel. The No

Action Alternative responds to the overall Master Planning goals and objectives, and specific issues such as access, traffic, and efficiency will continue to be addressed in site planning for each project.

Land Use in Surrounding Areas

The effects of Fort Bliss development and mission activities on surrounding land uses under the No Action Alternative will remain essentially the same as under the current conditions. Development for one BCT is compatible with adjacent uses of EPIA. The increase in personnel does not significantly affect land use in the ROI.

5.1.2.2 Fort Bliss Training Complex

Military Land Use

The No Action Alternative will not change the land use designations in the Fort Bliss Training Complex from those established through the TADC pursuant to the ROD for the Mission and Master Plan PEIS. Training units will use the South Training Areas, North Training Areas, and TA 8 on McGregor Range for off-road vehicle maneuver training by a Heavy BCT and other users. The remainder of McGregor Range will continue to be used for On-Road Vehicle Maneuver, Weapons Firing/Safety Danger Zone, Dismounted Training, Aircraft Operations, and Mission Support Facility as designated in the TADC.

Non-Military Land Use

The No Action Alternative will not alter existing public access to and use of the training areas currently open to public access by permit, including the joint-use areas of McGregor Range. An increase in mobilization training in recent years has resulted in a decrease in the time available for public access for recreation in the South and North Training Areas. Public access for recreation is low in number and managed through a permitting system requiring approval for each entry onto the range. Public access will still be available most weekends.

Land Use in Surrounding Areas

Areas adjacent to the Fort Bliss Training Complex will be exposed to increased dust and noise associated with training by one Heavy BCT (see Sections 5.6 and 5.10).

5.1.2.3 Visual Resources

Under the No Action Alternative, the visual character of the Main Cantonment Area will be maintained in accordance with the RPMP and Mission and Master Plan PEIS. Fort Bliss will continue to use the Installation Design Guidelines to achieve an integrated appearance for the installation, in response to varying functional needs. Consideration of visual changes from demolition and new construction on historic districts and facilities will also follow requirements of the National Historic Preservation Act. EUL development in the WBAMC area will include restoration and reuse of historic facilities and landscape features to mitigate the loss of some historic structures. This will provide a strong visual image for the redeveloped area that is respectful of the surrounding neighborhood context. Several projects will upgrade and modernize existing facilities, providing the positive benefit of well-maintained surroundings.

New development on the east side of Biggs AAF changes open land into urbanized forms. Some of this will be visible from Loop 375 and the expanded Sergeants Major Boulevard. The development for a new BCT is consistent with the existing surrounding context of Biggs AAF, EPIA, and long-established areas of El Paso.

New live-fire ranges being constructed in the training areas involve clearing and leveling to provide sites for structures, stands, roads, and targets. Some new sites may be visible from adjacent roadways at locations that are slightly higher in elevation or where there are no intervening terrain features. These areas will be similar to other existing sites on the Fort Bliss Training Complex. The projects on

McGregor Range will be located in VRM Class IV areas, which are least sensitive to visual change due to lack of visual resource value.

5.1.3 Alternative 1

5.1.3.1 Main Cantonment Area

On-Post Land Use

Under Alternative 1, land use designations in the Main Post and Biggs AAF portions of the Main Cantonment Area would be changed to a single mixed-use designation, and the Main Cantonment Area would be expanded to include all of the installation south and west of Loop 375, as well as a small portion of TA 1B east of Loop 375. This would enhance the capability and flexibility of the Main Cantonment Area to accommodate mission requirements in a manner that maximizes functional adjacencies. By increasing the efficiency of facility and infrastructure siting, including locating unaccompanied personal quarters near work locations, this approach to land use planning has the potential to decrease traffic and congestion within the Main Cantonment Area and reduce consumption of fuel and other resources. It would also improve the responsiveness of the installation infrastructure to evolving mission requirements and increase training efficiency by locating functions such as vehicle fueling and maintenance closer to training areas. Land use compatibility on post would be maintained by using Army compatibility criteria in siting new facilities and other development. Major development and redevelopment would occur on about 4,000 acres within the Main Cantonment Area to provide needed mission and support facilities for new troops, their dependents, and additional civilian personnel.

In addition to the projects being implemented under the No Action Alternative, about 1,500 acres on the east side of Biggs AAF and along the existing ramp areas would be developed for a new CAB and three additional BCTs. This location is favorable from a land use perspective because it can be connected to the existing infrastructure through extensions of utility distribution lines, and it is adjacent to the South Training Areas. Convenient access to training areas would reduce the time and cost of operations and maximize time for training. Troops would have access to the existing services on the Main Post as well as new support facilities built near the main BCT complex (e.g., fitness facilities, chapel, medical clinics, shopping centers, and service centers). Existing explosive storage areas on Biggs AAF would be relocated as needed to remove the land use constraints imposed by quantity-distance safety zones. New locations for those facilities would be selected that are less suited to development but still convenient to mission functions. On the Main Post, new construction and facility upgrades would result in changes from the current land use.

The RCI is planning to develop an additional 1,730 homes for military families in the area between EPIA and Loop 375. This area is outside the 65 DNL noise contour for EPIA (see Figure 4.10-2).

Land Use in Surrounding Areas

The additional units identified for stationing on Fort Bliss are projected to increase population in the ROI by about 120,000 people over the next five years, above baseline growth level (see Section 5.13). This includes new military and civilian personnel, their dependents, and other incoming population caused by increased economic activity. The population influx would generate a demand for more than 36,000 homes in the region above that projected under the No Action Alternative (see Section 5.13). The increased growth would affect local land use plans and infrastructure development, especially in El Paso County. Most of the growth in the county in recent years has occurred in east El Paso, and this trend is expected to continue. The City of El Paso recently changed its Master Plan to proceed with zoning an 18,000-acre area in Northeast El Paso. The conceptual planned development for this area includes about 62,000 homes, commercial and industrial areas, community facilities, parks, and schools. This large-scale initiative would meet future housing needs, but in the interim, new housing supplies may not be able to keep up with demand and there may be interim shortfalls in residential capacity in the city. Residents

may seek areas that are already established, accessible, or less expensive such as Chaparral and Anthony, New Mexico. The planned Northeast Loop highway project could also influence the location of new growth in the region into Northeast El Paso and the Chaparral and Anthony areas of Doña Ana County. Open space areas would be converted to residential and other development.

Municipal and county planning and land use controls are the primary mechanisms for managing sustainable growth. There is currently no community-level plan for development in the Chaparral area. Issues of public financing and housing demands are addressed in more detail in Section 5.13.

5.1.3.2 Fort Bliss Training Complex

Military Land Use

Land use in the South Training Areas would not change under Alternative 1, although the boundary of TA1B would be modified to reflect the expansion of the Main Cantonment Area. Additional mission support facilities would be developed on TA1B, which would be compatible with the designated use of this training area. Land use in the Doña Ana Range-North Training Areas would only change in the Assembly Area between War Highway and Doña Ana Range, which would be opened to Off-Road Vehicle Maneuver. Development of new live-fire ranges in the Doña Ana Range complex would be compatible with the designated land use of this area.

Land use in the south Tularosa Basin portion of McGregor Range would be changed under this alternative to permit Off-Road Vehicle Maneuver and to develop the Orogrande Range Complex. This would increase the training demand in the affected training areas and require efficient scheduling of test and training activities. In particular, missile firings on McGregor Range, which historically have scheduled the range for up to two days per event, would need to schedule shorter windows and possibly incorporate real-time adjustments to allow more co-use for military training consistent with safety restrictions.

Increasing the amount of training land available for Off-Road Vehicle Maneuver would enhance the overall capability of the Fort Bliss Training Complex to support Army mission requirements. The ability to train to full doctrinal standards would improve the overall quality of training provided to troops potentially deploying to areas of conflict and, by providing more realistic training, reduce the risks they face in combat.

Non-Military Land Use

Additional use of the North and South Training Areas for Off-Road Vehicle Maneuver would limit the time when non-military users could get access for recreation. Since there is very little public recreational use (documented by the number of annual permits issued) other than on weekends and during designated hunts, and demand has not been increasing, the impact would be minor. On McGregor Range, there may be a slight increase in military use in areas where public access is permitted. Conversely, the duration of closures of TAs on Otero Mesa and in the Sacramento Mountains for missile firings would likely decrease. Therefore, little impact is projected on public activities on McGregor Range. Increased training on McGregor Range may result in more use of Highway 506, but this would not cause road closures or preclude access to communities on the east side of the range. The proposed changes in military use of McGregor Range would not preclude non-military use of the land. The McGregor RMPA does not permit non-military off-road vehicle use on the range.

Land Use in Surrounding Areas

Increased dust and noise may reduce the desirability of some areas adjacent to the Fort Bliss Training Complex for residential use and for recreation, particularly on the south and east sides of the South Training Areas and south and west sides of Doña Ana Range (see Sections 5.6 and 5.10). It is unlikely that land uses would change dramatically, but unfavorable conditions may influence where people choose to live, affecting regional growth patterns over time.

5.1.3.3 Visual Resources

Under Alternative 1, the Main Post, Logan Heights, and WBAMC would continue to be redeveloped and have some infill projects that would not be visually different from the past or current visual context. In general, those projects would keep up the image of well-maintained facilities and improve the appearance of the installation.

Development east of Biggs AAF would increase under this alternative, resulting in about 1,500 acres of new urbanized landscape. This visual change would be evident to travelers along major roadways such as Loop 375 and Sergeants Major Boulevard. It would be similar to the industrial and commercial development occurring on adjacent airport property. The new development on Biggs AAF would not be near existing residential areas that might be sensitive to the visual effects of large-scale industrial development. Dust during construction may be a temporary direct impact on visibility and cause annoyance to El Paso residents driving and living in proximity to Fort Bliss, but this would be a temporary impact and would not alter the visual environment.

The North and South Training Areas would have increased off-road vehicle activity, but the landscape has already undergone change from reduced vegetation and soil disturbance. Most of this land has evolved into a hummocky dune landscape. Further changes in this relatively stable degraded landscape would be slow, and therefore no impact on visual resources is expected from training in those areas.

Additional new ranges would be developed on the Fort Bliss Training Complex. Development of the DAGIR and CACTF on the McGregor Range would involve large areas, but the features would be relatively dispersed given the size of the range. Within the areas classified by BLM as VRM IV, the visual changes would not be inconsistent with management objectives. For the most part, the new features would not be visible off the installation, except from higher viewing locations along the roadways.

Off-road vehicle maneuvers in the south Tularosa Basin portion of McGregor Range may change the vegetative cover over time, and areas close to key facilities such as the Orogrande Range Complex and McGregor Range Camp would become more bare. Such changes to the landscape could occur slowly, and viewers may adapt to the altering visual context. This incremental nature of the change over time could lessen the impact of the visual changes, even when they are substantial. The changes may be visible from observation points along the rim of Otero Mesa overlooking the Tularosa Basin. The reduced vegetation, greater visibility of the soil, and increased dust in the air could result in a less desirable visual character. The major new facilities at the Orogrande Range Complex would be visible as distant features but not incongruous with a landscape that has existing dispersed human-made elements.

Night training would occur on the Fort Bliss Training Complex and would include use of illumination flares, especially at the DAGIR. These would be temporary light sources that might be visible off-post, but because of distance, would be small, temporary, and unobtrusive.

5.1.4 Alternative 2

5.1.4.1 Main Cantonment Area

Land use impacts in the Main Cantonment Area and surrounding areas under Alternative 2 would be similar to Alternative 1. This alternative also includes the construction of facilities and operations associated with a second CAB along the Biggs AAF flightline. This may require relocating the existing hot cargo pad on the north side of the airfield, depending on the site selected.

5.1.4.2 Fort Bliss Training Complex

Military Land Use

The effects of Alternative 2 on military land use in the Fort Bliss Training Complex would be essentially that same as described for Alternative 1. This alternative provides the additional benefit of enabling movement-to-contact maneuver exercises at the BCT level.

Non-Military Land Use

In addition to the non-military land use impacts described for Alternative 1, this alternative would expand off-road vehicle maneuvers into TAs 10, 11, and 12 north of Highway 506. These are currently joint-use areas and support grazing (Grazing Units 1 and 2) and other public uses. These training areas are relatively far from the Main Cantonment Area and the range camps and are likely to receive less use than other parts of the Fort Bliss Training Complex, at least in the near term. As training use increases, changes in vegetation and forage condition caused by tracked vehicles could limit the productivity of the area for grazing. It would become more difficult to maintain the integrity of the fences that separate pastures, and cattle would likely avoid the area during maneuvers. Based on current and historic grazing levels from 1993 through 2002 for these two grazing units, if all grazing in this area were eliminated, it could eventually result in a reduction of about 3,660 AUMs per year on McGregor Range. This represents a reduction of about 17 percent for McGregor Range and about 2 percent county wide. The McGregor RMPA would need to be modified if BLM were to take these units out of grazing.

Road access along Highway 506 and on the road through Grazing Unit 1 to grazing units on Forest Service land may be interrupted occasionally by military activity under Alternative 2 (see Section 5.3.4). Access to the grazing units would generally be available on weekends. Access at other times could be scheduled to avoid hours when tracked vehicles are maneuvering in these areas. While this may be less convenient for a few operators, it would not significantly affect operations on Forest Service pastures.

TAs 10, 11, and 12 also offer opportunities for bird hunting and other recreation. Public access is expected to continue to be available most weekends. Recreation activities would be permitted to the extent they do not interfere with military activities.

Land Use in Surrounding Areas

Impacts from Alternative 2 on land use in areas surrounding the Fort Bliss Training Complex would generally be the same as described for Alternative 1. The addition of a second CAB would increase helicopter operations on Doña Ana Range and the DAGIR. This might generate increased aircraft noise in the community of Orogrande.

5.1.4.3 Visual Resources

The effects of Alternative 2 on visual resources would be similar to Alternative 1, with the addition of more development along the flightline of Biggs AAF for a second CAB. This development would be visible but similar in building type, scale, and function to other structures around the airfield. It would not change the visual quality or character of the airfield, nor affect the surrounding areas.

Alternative 2 would expand the area used for Off-Road Vehicle Maneuver into the north Tularosa Basin portion of McGregor Range where there is currently public access and some recreational use. Areas of concentrated use, such as crossings over Highway 506, could experience reduced vegetation. Public access may continue to be available in the training areas north of Highway 506 (although it may be reduced), and viewers may be able to see more close-up effects of the landscape changes from that roadway. The color and texture of the landscape could change over time and be perceived as a loss of productivity and sustainability of the land. The affected areas in TAs 10 and 11 are classified by BLM as VRM III and IV, depending on distance from roadways.

5.1.5 Alternative 3

5.1.5.1 Main Cantonment Area

Land use impacts of Alternative 3 in the Main Cantonment Area and surrounding areas would be the same as described for Alternatives 1 and 2.

5.1.5.2 Fort Bliss Training Complex

The impacts from Alternative 3 on the Fort Bliss Training Complex would be similar to Alternative 1. In addition, opening TAs 24, 26, and 27 to Off-Road Vehicle Maneuver would offer a more diverse military training environment.

The use of TAs 24, 26, and 27 for Off-Road Vehicle Maneuver would not affect non-military land use on McGregor Range. These areas are open for public use, but there is little road access.

5.1.5.3 Visual Resources

The impacts from Alternative 3 on visual resources in the Main Cantonment Area, North and South Training Areas, south Tularosa Basin portion of McGregor Range, and surrounding areas would be the same as described for Alternatives 1 and 2. Under Alternative 3, Off-Road Vehicle Maneuver would also be extended to the more varied terrain in the southeastern training areas of McGregor Range. These areas have somewhat more interesting landscape features in the near and middle ground, more varied terrain, and more vegetative cover than other parts of the range. Tracked vehicle operations could alter the vegetation and disrupt some of the natural drainages. Over time, as training levels increase, this land could undergo major changes in the landscape, with more gullies, less vegetation, and loss of soil due to erosion. This change in character could be perceived as a reduction in the visual quality of the landscape.

5.1.6 Alternative 4 – Proposed Action

Alternative 4 would increase the capability of Fort Bliss to support a wide range of future test and training needs. In order to understand fully the reasonably foreseeable consequences of providing the additional capability, this SEIS analyzes the effects of stationing one or two (with one deployed) additional BCTs at Fort Bliss, although there are no current plans to do so.

5.1.6.1 Main Cantonment Area

The impacts of Alternative 4 on land use in the Main Cantonment Area and in the surrounding area would include the effects described for Alternatives 1 and 2.

The analysis of land use impacts in the Main Cantonment Area considers adding capacity for up to two additional BCTs at Fort Bliss. This could involve developing two additional 300-acre areas in the Main Cantonment Area or in adjacent TA 1B to accommodate the troops and mission requirements. The siting of this development would need to respond to the surrounding context to ensure compatibility with adjacent land uses. For example, the future location of additional military family housing is not yet known and may not be compatible adjacent to BCT mission activities. It is unlikely that additional BCT areas would be sited close to off-post residential areas without a barrier, such as a major roadway, separating them from other land uses.

5.1.6.2 Fort Bliss Training Complex

Alternative 4 would include adding the Off-Road Vehicle Maneuver training category to the south Tularosa Basin, north Tularosa Basin, and southeast TAs on McGregor Range. The impacts on land use would be the same as described for Alternatives 1, 2, and 3.

This alternative would substantially increase the training capability of the Fort Bliss Training Complex, including doubling the amount of area available for Off-Road Vehicle Maneuver, provide a greater variety of terrain conditions and more options for realistic training, and provide the ability to conduct

movement-to-contact maneuver exercises at the BCT level. With a larger area available for Off-Road Vehicle Maneuver, Fort Bliss would have the capability to simultaneously train up to six Heavy BCTs or the equivalent amount of training by other units.

Alternative 4 would result in similar impacts on non-military use as described for Alternatives 1, 2 and 3, including impacts to grazing on McGregor Range described for Alternative 2. This alternative would not change military use on Otero Mesa, although some activities (e.g., Dismounted Training) may increase. Public use on Otero Mesa would still be possible, but time availability could be reduced depending on future military requirements.

5.1.6.3 Visual Resources

The impacts of the Alternative 4 on visual resources in the Main Cantonment Area would be the same as described for Alternatives 1, 2, and 3. The addition of facilities for up to two additional BCTs would not cause a visual impact. The degree of urbanization, both on post and off post, by 2010 or beyond would encompass any further development.

The impacts of the Proposed Action on visual resources in the Fort Bliss Training Complex would also be the same as described for Alternatives 1, 2, and 3. The overall landscape changes in the Tularosa Basin would likely remain similar to its current condition, although there would be an increase in bare ground and weedy vegetation in areas of concentrated use. This area is not classified as a distinctive and valued resource. The more valued grassland areas on Otero Mesa, especially in the ACEC, would not be directly affected by training and are expected to retain their visual quality.

5.2 MAIN CANTONMENT AREA INFRASTRUCTURE

5.2.1 Introduction

5.2.1.1 Ground Transportation

The effects of each alternative on roadway traffic were assessed by estimating the number of trips generated by each land use, considering the expected number of employees, visitors, residents, and service vehicles associated with construction and other on-site activities. The trip generation was determined by estimating the number of vehicle trips in the peak hour and distributing the trips on the regional and local road network. The principal trip-generating land uses include a mixture of housing, administrative space, and light industrial type areas. Trip generation was based on applying the trip rates from the Institute of Transportation Engineers *Trip Generation Manual, 5th Edition* (Ref# 410) to the proposed land uses to forecast peak-hour trips. The ITE manual does not have specific trip generation rates for military land uses, therefore the closest ITE land uses were used. **Table 5.2-1** outlines the comparison of military land uses to ITE land uses (Ref# 411). Using these ITE land uses, trips were estimated for each of the alternatives in the years 2016 and 2021.

Table 5.2-1. Comparison of Military and ITE Land Uses

Military Use	*ITE Land Use*	*ITE Land Use Code*
Headquarters Buildings, CAB Complex, Sustainment Bde Complex, Battle Command Training Center, Heavy BCT Complex[1]	Single Tenant Office Building	715
Criminal Investigation Division Command, Fire Station/MP	Government Office Building	730
Youth Center, Community Activities Center, Physical Fitness, Community Services Center, Junior Enlisted Club, EOD Facility, Soldier Service Center	Recreational Community Center	495
Chapel Complex, Chapel Family Life Center	Church	560
Mini-Mall, Shopping Center	Shopping Center	820
RCI Development	Single-Family Detached Housing	210
Barracks	Low-Rise Apartments	221
Ammunition Storage Facility	Warehousing	150
Bulk Fuel Facility, Motor Pool	Service Station	844
Medical/Dental Clinic, Hospital, Consolidated Family Care/Troop Medical	Medical-Dental Office Building	720
Child Development Center, School Aged Services Center	Daycare Center	565
Softball Complex	City Park	411
Library	Library	590
Maintenance, Central Issue Facility, Deploy Storage Facility, TAC Equip Shop, DOIM Facility, Pallet Processing Facility	General Light Industrial	110
Aviation Facilities	General Aviation Support	22
Dual Food Facility	High-Turnover (Sit-Down) Restaurant	832
Bio/Safety Lab	Research and Development Center	760
Enhanced Use Leasing	Retail-General Merchandise	810

1. BCT complexes include a mix of uses, including office, industrial, and barracks.

A determination was made on how to distribute these trips on the roadway network, based on where the trips are generated and attracted. A 30 percent capture rate was used for trips generated in the Main

Cantonment Area (Ref# 411). This means 30 percent of the trips generated in the Main Cantonment Area are estimated to stay inside the Main Cantonment Area and not enter the regional roadway network system. The trip distribution combined with normal baseline growth rates on the roadway network provide an overall amount of traffic on each roadway.

For this analysis, the baseline growth rates on the roadway network correspond to the population forecasts provided in the 2030 Metropolitan Transportation Plan, in which 1.7 percent growth rate per year was used (Ref# 412). The 2030 Metropolitan Transportation Plan also includes future transportation projects and their effects on the roadway system. In addition to the Inner Loop and Northeast Parkway described in Section 4.2.1, they include adding additional lanes to I-10, Montana Avenue, and US 54. The additional roadway capacity resulting from the planned and programmed projects was taken into account in calculating the LOS in the years 2016 and 2021. The trips generated under each alternative were distributed onto the roadway network and compared to the future capacity of the roadways and volume-to-capacity ratios to determine LOS for each roadway segment.

5.2.1.2 Utilities, Energy, and Communications

The impacts of the Proposed Action and other alternatives on utilities, energy, and communications are primarily related to projected increases in population on and off post. These were analyzed by estimating per unit consumption on generation rates using the most recently available data, and then estimating how total consumption or generation rates would change with the changed population. The increased consumption and generation were then compared with the ability of existing infrastructure to handle those changes. The method of estimating unit consumption and generation rates is described in Section 4.2. Impacts on potable water supply are based on water consumption rates described in Section 4.7. Additional storm water runoff was calculated based on average annual rainfall and the projected increase in impervious surface in the Main Cantonment Area, including Biggs AAF.

The effects of increased population on water resources are discussed in Section 5.7. This section deals only with the infrastructure component of water supply.

5.2.2 No Action Alternative

5.2.2.1 Ground Transportation

Table 5.2-2 summarizes the total estimated trips associated with each geographic segment of the Main Cantonment Area for the No Action Alternative and other alternatives.

Table 5.2-2. Estimated Main Cantonment Area Trip Generation

Alternative	*Main Post and Biggs AAF (a.m.)*	*Main Post and Biggs AAF (p.m.)*	*Logan Heights (a.m.)*	*Logan Heights (p.m.)*	*WBAMC (a.m.)*	*WBAMC (p.m.)*	*Total Trips (a.m.)*	*Total Trips (p.m.)*
No Action	4,600	5,700	400	500	7,500	7,600	12,500	13,800
Alternative 1	19,300	22,600	1,100	1,500	8,200	8,600	28,600	32,700
Alternative 2	21,800	25,800	1,100	1,500	8,200	8,600	31,100	35,900
Alternative 3	21,800	25,800	1,100	1,500	8,200	9,600	31,100	35,900
Alternative 4	24,000	28,000	1,500	1,500	8,200	8,600	33,300	38,100

Based on the trip distribution method described in Section 5-2.1.1, **Table 5.2-3** (for 2016) and **Table 5.2-4** (for 2021) indicate the resulting LOS for each road segment analyzed under each alternative. Improvements in LOS on some segments compared to current conditions described in Section 4.2.1 reflect planned roadway improvements.

Table 5.2-3. Level of Service for Area Roadways in 2016

Route	*Segment*	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4*
I-10	US 54 to Paisano Dr	E	F	F	F	F
I-10	Paisano Dr to McRae Blvd	F	F	F	F	F
I-10	McRae Blvd to Yarborough Dr	D	D	D	D	D
I-10	Yarborough Dr to Lee Trevino Dr	D	D	D	D	D
I-10	Lee Trevino Dr to Zaragoza Rd	C	C	C	C	C
I-10	Zaragoza Rd to Loop 375	C	C	C	C	C
I-10	Loop 375 to Horizon Blvd	C	C	C	C	C
Montana Ave	US 54 to Paisano Dr	B	B	B	B	C
Montana Ave	Paisano Dr to Hawkins Blvd	C	C	C	C	C
Montana Ave	Hawkins Blvd to McRae Blvd	C	D	D	D	D
Montana Ave	McRae Blvd to Yarborough Dr	C	C	C	C	C
Montana Ave	Yarborough Dr to Lee Trevino Dr	B	C	C	C	C
Montana Ave	Lee Trevino Dr to Loop 375	B	C	C	C	C
Montana Ave	Loop 375 to Hueco Club Rd	B	C	C	C	C
US 54	I-10 to Trowbridge Ave	B	B	C	C	C
US 54	Trowbridge Ave to Pershing Dr	B	C	C	C	C
US 54	Pershing Dr to Van Buren Ave	D	D	D	D	D
US 54	Van Buren Ave to Fred Wilson Ave	C	D	D	D	D
US 54	Fred Wilson Ave to Hondo Pass	C	C	C	C	C
US 54	Hondo Pass to Loop 375 (Transmountain) to Kenworth St.	C	D	D	D	D
Loop 375	Route 659 to Montana Ave	C	D	D	D	D
Loop 375	Montana Ave to BR 54	C	C	D	D	D
Loop 375	BR 54 to US 54	C	D	D	D	D
Fred Wilson	US 54 to Airport Rd	C	D	D	D	E
Airport Rd	Fred Wilson Ave to Haan Rd	F	F	F	F	F

Note: Definitions for LOS are provided in Section 4.2.1

Under the No Action Alternative, three segments are operating at LOS E or F, which are unacceptable levels. Several other segments are experiencing a decline in LOS from current conditions, but still operate at acceptable levels. Three segments operate at LOS D. By 2021, the same three segments of I-10 and Airport Road will still be the only roads projected to have unacceptable LOS, and I-10 between US 54 and Paisano Drive will degrade further to LOS F.

Table 5.2-4. Level of Service for Area Roadways in 2021

Route	*Segment*	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4*
I-10	US 54 to Paisano Dr	F	F	F	F	F
I-10	Paisano Dr to McRae Blvd	F	F	F	F	F
I-10	McRae Blvd to Yarborough Dr	D	D	D	D	D
I-10	Yarborough Dr to Lee Trevino Dr	D	D	D	D	D
I-10	Lee Trevino Dr to Zaragoza Rd	D	D	D	D	D
I-10	Zaragoza Rd to Loop 375	C	C	C	C	C
I-10	Loop 375 to Horizon Blvd	C	C	C	C	C
Montana Ave	US 54 to Paisano Dr	B	B	C	C	C
Montana Ave	Paisano Dr to Hawkins Blvd	C	C	C	C	C
Montana Ave	Hawkins Blvd to McRae Blvd	C	D	D	D	D

Route	*Segment*	*No Action*	*Alternative 1*	*Alternative 2*	*Alternative 3*	*Alternative 4*
Montana Ave	McRae Blvd to Yarborough Dr	C	C	C	C	C
Montana Ave	Yarborough Dr to Lee Trevino Dr	B	C	C	C	C
Montana Ave	Lee Trevino Dr to Loop 375	B	C	C	C	C
Montana Ave	Loop 375 to Hueco Club Rd	C	C	C	C	C
US 54	I-10 to Trowbridge Ave	C	C	C	C	C
US 54	Trowbridge Ave to Pershing Dr	C	C	C	C	C
US 54	Pershing Dr to Van Buren Ave	D	E	E	E	E
US 54	Van Buren Ave to Fred Wilson Ave	D	D	D	D	E
US 54	Fred Wilson Ave to Hondo Pass	C	C	C	C	C
US 54	Hondo Pass to Loop 375 (Transmountain) to Kenworth St.	C	D	D	D	D
Loop 375	Route 659 to Montana Ave	C	D	D	D	D
Loop 375	Montana Ave to BR 54	C	D	D	D	D
Loop 375	BR 54 to US 54	C	D	E	E	E
Fred Wilson	US 54 to Airport Dr	C	D	E	E	E
Airport Rd	Fred Wilson Ave to Haan Rd	F	F	F	F	F

Note: Definitions for LOS are provided in Section 4.2.1

5.2.2.2 Utilities

Water Supply

The No Action Alternative involves a total increase in on-post population of approximately 7,311 persons, resulting in an increase of approximately 0.8 MGD (912 afy) in consumption of potable water, which would be provided by EPWU. This estimate assumes the current per capita consumption rate (203 gallons/person/day), which is an overestimation because Fort Bliss is redeveloping existing housing and is building additional housing that will use water-conserving plumbing and xeriscaping. This is expected to reduce water consumption by approximately 81,000 gallons per household per year, or approximately 84 gallons per person per day. Water connections will need to be added to new construction, but existing capacities of the pipelines from EPWU connections are adequate to meet increased flows.

Off-post population is estimated to increase by approximately 19,680 persons, requiring an additional 2.8 MGD (3,095 afy) from EPWU's water distribution system. The combined requirement of both on-post and off-post population increase represents approximately 4 percent of EPWU's existing demand and slightly over 1 percent of EPWU's treatment capacity.

Wastewater Treatment

New facilities constructed under the No Action Alternative will have sewer lines laid and connected to the existing sewer connections with EPWU's sewer system. No other upgrades to the on-post sewer system will be required. The available capacity of EPWU's treatment system is adequate to handle the additional on-post load, estimated at 0.7 MGD. This load represents approximately 5 percent of the Haskell Street plant's existing excess capacity. Off post, the increase in population associated with the No Action Alternative will generate approximately 2.1 MGD of additional wastewater. The combined additional flow represents about 6 percent of EPWU's excess treatment capacity. Combined with estimated population growth in the El Paso area, wastewater treatment would require approximately 94 percent of EPWU's existing capacity in 2010.

Storm Water

Storm water conveyances will be constructed in the area between EPIA and Biggs AAF to handle the runoff from the estimated 330 acres of new impervious surface created by the No Action Alternative.

Additional storm water management facilities will be built to minimize the discharge of storm water from the Main Cantonment Area during high-intensity rainfall.

Solid Waste Disposal

The construction at Fort Bliss under the No Action Alternative will generate an estimated 6.6 tons of additional construction waste per day that will be disposed of in the Fort Bliss landfill, and 0.8 tons of recyclable material. Refuse from the post disposed of in the Fort Bliss landfill will increase by approximately 6.0 tons per day (16 percent increase). Refuse from on-post residential areas and off-post residents will increase the disposal rate of solid waste to the Clint Landfill by approximately 31.4 tons per day (4 percent increase), shortening its life by less than a year.

5.2.2.3 Energy

Electricity

With the increase in personnel on Fort Bliss under the No Action Alternative, peak electrical demand will increase by approximately 9.1 MVA, and consumption will increase by approximately 2.7 MW. The increase in consumption represents 3.8 percent of the current excess power available from EPEC. Power will be routed to areas of new construction on post and will require the addition of a substation. The increase in off-post population will increase peak electrical demand by approximately 10.8 MVA, which is 4.5 percent of the current excess power available from EPEC.

Natural Gas

The square footage of buildings on Fort Bliss will increase by 60 percent under the No Action Alternative to a total of approximately 18 million square feet. At the current rate of hourly gas consumption per square foot (0.08 CFH), total gas consumption during the coldest days will be on the order of 1.4 million CFH. This consumption is well within the current capacity of the existing infrastructure.

5.2.2.4 Communications

Under the No Action Alternative, except for routing of telephone lines and other communications lines to new facilities, no major changes in communications systems are anticipated.

5.2.3 Alternative 1

5.2.3.1 Ground Transportation

For the analysis of Alternative 1 the large influx of vehicles was distributed around the Fort Bliss Main Cantonment Area on US 54, Airport Road, and Fred Wilson Avenue. LOS on 11 roadway segments would be lower than under the No Action Alternative in 2016 (see Table 5.2-3). Six would decline to LOS D and I-10 between US 54 and Paisano Drive would further degrade to LOS F. By 2021, another segment of I-10 would be at LOS D, and US 54 between Pershing Drive and Van Buren Avenue would operate at LOS E (see Table 5.2-4). Four of the roadway segments would operate at LOS E or F.

The decline to unacceptable LOS on I-10 and US 54 could be mitigated by widening those roadway segments. I-10 is already projected to be at LOS F between Paisano Drive and McRae boulevard by 2016 and between Paisano Drive and US 54 by 2021 under the No Action Alternative. It is estimated that widening the 5-mile segment between US 54 and McRae Boulevard to 12 lanes would cost approximately $75 million. Widening US 54 to 8 lanes between Pershing Drive and Van Buren Avenue is estimated to cost approximately $10 million. Airport Road between Fred Wilson Avenue and Haan Road is projected to operate at LOS F under all alternatives. Widening that roadway segment to 8 lanes is estimated to cost $14 million (Ref# 568, 569, 570).

5.2.3.2 Utilities

Water Supply

Alternative 1 involves an increase in the on-post population of approximately 18,768 persons and a daily population of approximately 11,491, requiring an additional 4.1 MGD (4,570 afy) of potable water. As noted for the No Action Alternative, this is based on a per capita consumption rate of 203 gallons/day and likely an overestimation because of water conservation measures being incorporated in military family housing. The additional water required would be supplied by EPWU. Water connections would need to be added to new buildings, and existing capacities of the pipelines from EPWU connections may need to be upgraded to meet increased flows.

Off post, the projected population increase of approximately 101,328 persons would require an additional 14.4 MGD (16,140 afy) from EPWU's water distribution system. The combined requirements from both on-post and off-post population increases would represent almost 20 percent of EPWU's existing demand for water and 6 percent of EPWU's current treatment capacity.

Wastewater Treatment

Alternative 1 would require sewer lines and extensions between new facilities and the existing sewer connections with EPWU's sewer system. Sewer lines on post would need to be increased in size to handle the additional loads. The wastewater load from the post would nearly double (increase by 3.2 MGD), which would be about 24 percent of the existing excess capacity of the Haskell Street plant. The increase in off-post population would generate another 11.1 MGD of wastewater. The combined additional flow represents about 32 percent of EPWU's excess treatment capacity. Combined with baseline population growth, total wastewater treatment demand is projected to exceed EPWU's existing treatment capacity by about 7 percent by 2015.

Storm Water

Under Alternative 1, storm water conveyances would need to be constructed in the area between EPIA and Biggs AAF to handle the runoff from the estimated 1,300 acres of new impervious surface in the area. Additional storm water management facilities may need to be built to minimize the discharge of storm water from Fort Bliss during moderate to high-intensity rainfall.

Solid Waste Disposal

The construction at Fort Bliss under Alternative 1 would generate an estimated additional 34.2 tons per day of construction waste that would be disposed of in the Fort Bliss landfill, and 4.1 tons of recyclable material per day. If a new landfill is constructed on Fort Bliss, refuse that would be disposed of in on-post landfills would increase by approximately 31.4 tons per day (82 percent increase). Refuse from on-post residential areas and the increased off-post population would increase the disposal rate of solid waste to the Clint Landfill by approximately 162.0 tons per day (20 percent increase), shortening the remaining life by about 1.4 years. If a new on-post landfill is not constructed, all refuse from Fort Bliss would have to be disposed of off post, increasing the disposal rate to the Clint Landfill by approximately 193.4 tons per day and shortening its remaining life by about 1.7 years (less than 6 percent).

5.2.3.3 Energy

Electricity

With the increase in personnel on post under Alternative 1, peak demand would increase by approximately 36.3 MVA, and consumption would increase by approximately 10.9 MW. The increase in peak demand would represent 15.3 percent of the current excess power available from EPEC. Power would need to be routed to areas of new construction on post and may require the addition of a substation. The increase in off-post population would increase peak electrical demand by approximately 79.4 MVA, which is 33.4 percent of EPEC's current excess power available.

Natural Gas

The square footage of buildings on Fort Bliss is anticipated to more than double under Alternative 1, to a total of approximately 33 million square feet. At the current rate of hourly gas consumption per square foot (0.08 CFH), total gas consumption during the coldest days would be on the order of 2.6 million CFH. The existing capacity of the gas supply system to the post is 2.5 million CFH, so additional connections or increased feeder line sizes would be needed to meet demands under this alternative. In addition, total annual gas consumption would increase by a factor of three.

5.2.3.4 Communications

Except for routing of telephone lines and other communications lines to new facilities, no major changes in communications systems are anticipated under Alternative 1.

5.2.4 Alternative 2

The impacts of Alternative 2 on Main Cantonment Area infrastructure would be similar as described for Alternative 1. Traffic and utilities and energy demand would be slightly higher with the addition of a second CAB.

5.2.4.1 Ground Transportation

Under Alternative 2, one additional roadway segment, Loop 375 from Montana Avenue to BR 54, would decline to LOS D (see Table 5.2.3). No additional roadway segments would decline to unacceptable levels of service. By 2021, Loop 375 between BR 54 and US 54 and Fred Wilson Avenue between US 54 and Airport Drive would be at LOS E, slightly more degraded than under Alternative 1 (see Table 5.2-4).

The decline of LOS on Loop 375 and Fred Wilson Avenue to unacceptable levels could be mitigated by widening those roadway segments. It is estimated the cost of widening Loop 375 to 6 lanes would cost approximately $9 million. The cost of widening Fred Wilson Avenue to 8 lanes is estimated to be approximately $10 million (Ref# 568, 569, 570).

5.2.4.2 Utilities

Water Supply

Alternative 2 would involve an increase in the on-post residential population of approximately 18,768 and a daily population of approximately 14,191. On-post demand for potable water would increase by approximately 4.2 (4,650 afy) MGD above current levels. As noted for the No Action Alternative, this assumes a per capita consumption rate of 203 gallons/day and is likely an overestimation because of water conservation measures being incorporated in military family housing. The additional water required would be supplied by EPWU. The capacity of the pipelines from the EPWU connections may need to be upgraded to meet increased flows.

The increase in off-post population would require an additional 16.6 MGD (18,540 afy) from EPWU's water distribution system. The combined requirement both on-post and off-post population increase would represent approximately 22 percent of EPWU's existing demand for water and 7 percent of EPWU's current treatment capacity.

Wastewater Treatment

Alternative 2 would require sewer lines and extensions between new facilities and the existing sewer connections with EPWU's sewer system. Sewer lines on post would need to be increased in size to handle the additional loads. The wastewater load from the post would increase by 3.3 MGD above current levels, which would represent approximately 24 percent of the existing excess capacity of the Haskell Street plant. The additional off-post population would generate approximately 12.7 MGD of

wastewater. This load would represent approximately 36 percent of EPWU's excess treatment capacity. Combined with baseline population growth, total wastewater treatment demand would exceed EPWU's existing treatment capacity by over 8 percent by 2015.

Storm Water

Under Alternative 2, storm water conveyances would need to be constructed in the area between EPIA and Biggs AAF to handle the runoff from the estimated 1,450 acres of new impervious surface in the area. Additional storm water management facilities may need to be built to minimize the discharge of storm water from Fort Bliss during moderate to high-intensity rainfall.

Solid Waste Disposal

The construction of Fort Bliss under Alternative 2 would generate an estimated 35.6.1 tons per day of additional construction waste that would be disposed of in the Fort Bliss landfill, and 4.2 tons of additional recyclable materials per day. If a new landfill is constructed on post, refuse from the post disposed of in Fort Bliss landfills would increase by approximately 32.6 tons per day (85 percent increase). Refuse from on-post residential areas and the increased off-post population associated with this alternative would increase the disposal rate of solid waste to the Clint Landfill by approximately 184.8 tons per day (23 percent increase over the current disposal rate), shortening its remaining life by approximately 1.6 years. If a new on-post landfill is not constructed, the disposal rate of solid waste to the Clint Landfill would increase by approximately 217.4 tons per day, shortening its remaining life by about 1.9 years (6 percent).

5.2.4.3 Energy

Electricity

Under Alternative 2, peak electrical demand would increase by approximately 40.7 MVA above current levels, and consumption would increase by approximately 12.2 MW. The increase in peak demand represents 17.1 percent of the current excess power available from EPEC. Power would need to be routed to the areas of new construction on post and may require the addition of a substation. The increase in off-post population associated with this alternative would increase peak electrical demand by approximately 83.4 MVA, which is 35.1 percent of the current excess power available from EPEC.

Natural Gas

The square footage of buildings on Fort Bliss is anticipated to more than triple under Alternative 2, to a total of approximately 34 million square feet. At the current rate of hourly gas consumption per square foot (0.08 CFH), total gas consumption during the coldest days would be on the order of 2.7 million CFH. The existing capacity of the gas supply system to the post is 2.5 million CFH, so additional connections or increased feeder line sizes would be needed to meet demands under this alternative. In addition, total annual gas consumption would increase by slightly more than a factor of three above current levels.

5.2.4.4 Communications

Except for routing of telephone lines and other communications lines to new facilities, no major changes in communications systems are anticipated under Alternative 2.

5.2.5 Alternative 3

The impacts of Alternative 3 on Main Cantonment Area infrastructure would be the same as described for Alternative 2.

5.2.6 Alternative 4 – Proposed Action

5.2.6.1 Ground Transportation

Alternative 4 would include the potential for adding up to two more BCTs at Fort Bliss. The development for those units east of Biggs AAF would add another source of traffic to the local roads and highway network (Loop 375 and Sergeants Major Boulevard). To minimize congestion and queuing at access gates to Fort Bliss, site development would need to address the interface of the additional BCT areas with infrastructure and roadway networks.

Projected LOS under this alternative would not be substantially different from Alternatives 2 and 3. One more segment, US 54 between Van Buren and Fred Wilson Avenues, would decline to LOS E by 2021 (see Table 5.2-4). A total of seven segments would operate at LOS D and another seven at LOS E or F, including two segments each of I-10 and US 54 and one segment each of Loop 375, Fred Wilson Avenue, and Airport Road. Future transportation planning would need to consider the concentrated development in the Main Cantonment Area. Projects identified to date would not provide enough capacity to handle the additional traffic.

The additional decline of LOS on US 54 could be mitigated by widening that roadway segment to 8 lanes. The estimated cost would be approximately $10 million (Ref# 568, 569, 570).

5.2.6.2 Utilities

Water Supply

Alternative 4 could involve an increase in the on-post population of approximately 18,768 and a daily population of approximately 21,791. The total demand for potable water in the Main Cantonment Area could increase by an estimated 4.3 MGD (4,850 afy) above current levels. As noted for the No Action Alternative, this is likely an overestimation because of water conservation measures being incorporated in military family housing. The additional water required would be supplied by EPWU. The capacity of the pipelines from EPWU connections may need to be upgraded to meet increased flows.

Off-post population increases could increase demand by approximately 22.6 MGD (25,280 afy) above current levels. The combined requirement from both on-post and off-post population increases would be approximately 28 percent of EPWU's existing demand for water and 9 percent of EPWU's current treatment capacity.

Wastewater Treatment

Alternative 4 would increase the wastewater load from the post by 3.4 MGD above current levels, representing 25 percent of existing excess capacity of the Haskell Street plant. The increase in off-post population would generate approximately 17.2 MGD of wastewater above current levels. The combined additional flow represents approximately 46 percent of EPWU's excess treatment capacity. Combined with baseline population growth, total wastewater treatment demand could exceed EPWU's existing treatment capacity by approximately 13 percent by 2015.

Storm Water

Under Alternative 4, storm water conveyances would need to be constructed in the area between EPIA and Biggs AAF to handle the runoff from the estimated 1,600 acres of new impervious area. Additional storm water management facilities would likely need to be built to minimize the discharge of storm water from Fort Bliss during moderate to high-intensity rainfall.

Solid Waste Disposal

The potential additional construction at Fort Bliss under Alternative 4 could generate an estimated 44 tons per day of additional construction waste that would be disposed of at the Fort Bliss landfill, and 5.2 tons of recyclable material per day. If a new landfill is constructed on post, refuse from the post disposed of in

the Fort Bliss landfills could increase by 40.3 tons per day (105 percent increase). Refuse from on-post residential areas and the increased off-post population associated with this alternative could increase the disposal rate of solid waste to the Clint Landfill by approximately 236.3 tons per day (almost 30 percent increase) over current levels, shortening its remaining life by approximately 2.2 years. If a new on-post landfill is not constructed, the disposal rate of solid waste to the Clint Landfill would increase by approximately 276.6 tons per day, shortening its remaining life be about 2.6 years (9 percent).

5.2.6.3 Energy

Electricity

Under Alternative 4, peak electrical demand could increase by as much as 52.3 MVA and consumption could increase by as much as 15.7 MW. The increase in peak demand would represent 22 percent of the current excess power available from EPEC. Power would need to be routed to areas of new construction on post and may require the addition of a substation. The potential increase in off-post population associated with this alternative would increase peak electrical demand by approximately 108.6 MVA, which is 45.7 percent of the current excess power available from EPEC.

Natural Gas

The square footage of buildings on Fort Bliss could more than triple under Alternative 4 to a total of approximately 37 million square feet. At the current rate of hourly gas consumption per square foot (0.08 CFH), total gas consumption during the coldest days would be on the order of 2.9 million CFH. The existing capacity of the gas supply system to the post is 2.5 million CFH, so additional connections or increased feeder line sizes would be needed to meet demands under this alternative. In addition, total annual gas consumption could increase by a factor of about 3.4.

5.2.6.4 Communications

Except for routing of telephone lines and other communications lines to new facilities, no major changes in communications systems are anticipated under the Proposed Action.

5.3 TRAINING AREA INFRASTRUCTURE

5.3.1 Introduction

Impacts on training area infrastructure are primarily related to changes in the use of range camps, the most developed areas in the Fort Bliss Training Complex. While some new range facilities would be constructed, the effect of their operation on infrastructure would be relatively minor.

The analysis of impacts on ground transportation considers the effects of military convoys traveling from the Main Cantonment Area to the training areas on public roadways and the potential for off-road vehicle maneuvers on McGregor Range to affect traffic on Highway 506 and access roads through McGregor Range to Forest Service land in the Sacramento Mountains.

The analysis of impacts on range camp utilities is based primarily on a report addressing the adequacy of their wastewater treatment systems (Ref# 302). That document presents anticipated person-weeks at each range camp, which is assumed to be the level of utilization that would occur under Alternative 1, updated to incorporate more recent planning. The change in utilization was estimated by comparing the projected utilization in 2011 with the "base case" utilization from that report. Estimated increases for the other action alternatives were scaled from the Alternative 1 level based on their relative increases in military population. Each utility was then evaluated for adequacy to support the projected increase in use.

5.3.2 No Action Alternative

5.3.2.1 South Training Areas

No changes are anticipated in ground transportation, utilities, energy, or communications at the South Training Areas under the No Action Alternative.

5.3.2.2 Doña Ana Range-North Training Areas

Under the No Action Alternative, use of the Doña Ana Range-North Training Areas will increase but the roadway, utilities, energy, and communications capabilities are generally adequate to accommodate the additional demand. The waste treatment facility at the Doña Ana Range Camp is already over capacity and will need to be substantially upgraded to meet the existing demands (Ref# 302). Orogrande Range Camp has four undersized culverts that will need to be increased in size. With the increase in training, refuse may need to be picked up more frequently, and liquefied petroleum gas may need to be replenished more frequently.

5.3.2.3 McGregor Range

Ground transportation, utilities, energy, and communications at McGregor Range are generally adequate to accommodate the demands of the No Action Alternative, including the potential for 2,000 additional soldiers in temporary troop quarters at McGregor Range Camp during exercises. The wastewater treatment system at McGregor Range Camp was recently expanded. It may be desirable to improve drainage around the range camp to eliminate occasional ponding.

5.3.3 Alternative 1

5.3.3.1 South Training Areas

No changes are anticipated in ground transportation, utilities, energy, or communications at the South Training Areas under Alternative 1.

5.3.3.2 Doña Ana Range-North Training Areas

Ground Transportation

The increase in off-road maneuver training at the Doña Ana Range-North Training Areas with four Heavy BCTs would increase military vehicle and heavy equipment traffic between the Main Cantonment Area and Doña Ana Range Camp. Military traffic would range from relatively small platoons to large numbers of vehicles participating in major battalion and BCT-level exercises. A battalion-level exercise can involve several hundred vehicles and take 2-3 days to transit to the range camp and another 2-3 days to transit back to the Main Cantonment Area after the exercise. A BCT-level exercise can involve over 1,000 vehicles and take 4-5 days each way to transit to and from the range camp. Under Alternative 1, an estimated ten 14-day battalion-level exercises and two 14-day BCT-level exercises would be conducted annually in the North Training Areas.

Tracked vehicles would be transported to the range and training areas by heavy equipment transporters (HETs) traveling north on Martin Luther King, Jr. Boulevard. This highway is a four-lane arterial up to just south of the New Mexico state line, with an estimated capacity of about 1,000 vehicles per hour per lane. Existing traffic on the roadway is estimated at approximately 10-12,000 average daily trips, with 15 percent of the trips (1,500-1,800) assumed to occur during the peak hour period, resulting an LOS of A. Typically, military traffic convoying to the training areas would be traveling in the opposite direct of peak civilian traffic.

During planning for movement of equipment to the North Training Areas for an exercise, unit commanders would conduct a risk assessment to determine a safe travel speed for the convoy, typically 50-55 miles per hour. Convoys would travel at the lower of the posted speed limit or the safe speed determined by the risk assessment. A military convoy with HETs, which generally travel at slower speeds than civilian traffic, would essentially turn the highway into a single-lane roadway for the non-military traffic. This could reduce LOS on the roadway to level B.

Martin Luther King, Jr. Highway turns into Highway 213 going into New Mexico and becomes a two-lane roadway. Average daily traffic on Highway 213 is estimated to be approximately 5,000 vehicles (Ref# 519), with a peak hour volume of 450 vehicles and a peak-hour LOS of D. Assuming vehicles are not able to pass the military convoy along segments where the roadway is two lanes and would be limited to the speed of the convoy, the LOS on this highway would decline to level E when convoys are traveling to and from the North Training Areas.

Water Supply

Under Alternative 1, Doña Ana Range Camp would be occupied by approximately 208,000 person weeks annually (about 4,000 people per day), an increase of approximately 375 percent (Ref# 302). Current piping infrastructure is adequate to provide the water needed for the range camp, although an almost four-fold increase in total annual water consumption is anticipated. With this level of occupancy, additional water storage at the site would be advantageous.

Historically, Orogrande Range Camp has supported more than 1,100 personnel during training operations (Ref# 302). Temporary troop quarters at Orogrande Range Camp would increase from 350 to approximately 1,700 beds. Conservatively, the maximum water use at the range camp could include 1,700 temporary residents and up to an additional 3,800 daytime soldiers, resulting in a demand for approximately 200,000 gallons of water per peak use day. Even if that peak demand level were sustained on a continuous basis, it would not exceed the capacity of the WSMR well supplying Orogrande Range Camp (approximately 267,000 gallons per day, assuming 242 training days per year). The capacity of the water system that delivers water to the range camp is about 600 gpm, which is more than four times the estimated peak demand.

Wastewater Treatment

The waste treatment facility at Doña Ana Range Camp is already over capacity and would need to be substantially upgraded to meet projected demands under this alternative (Ref# 302).

The waste treatment facility at Orogrande Range Camp is more than adequate to meet current and projected loads under this alternative (Ref# 302).

Storm Water

No changes in storm water infrastructure are necessary at Doña Ana Range Camp, but Orogrande Range Camp has four undersized culverts that would need to be increased in size.

Solid Waste

With a large increase in utilization of facilities in the Doña Ana Range–North Training Areas, additional on-site refuse storage and more frequent refuse pickup would be required.

Energy

The existing infrastructure would be adequate to meet electrical demands under this alternative. There would be an approximate four-fold increase in annual electricity consumption.

Existing distribution infrastructure for liquefied petroleum gas at Doña Ana Range Camp would be adequate, but storage capacity would be undersized to meet the approximate four-fold increase in use of this range camp. Additional storage and more frequent replenishment would be required.

5.3.3.3 McGregor Range

Ground Transportation

Military vehicles traveling to McGregor Range would either use military supply routes internal to Fort Bliss when convoying to McGregor Range Camp or US 54. The latter is more likely to be used by vehicles traveling to the Orogrande Range Complex and more northern TAs of McGregor Range. Tracked vehicles can travel on unpaved tank trails that run along the west edge of McGregor Range, but for longer distances are more likely to be transported by HETs. HETs traveling on US 54 would require a permit.

Average daily traffic on US 54 is approximately 8,000 vehicles (Ref# 520), and peak hour traffic is estimated at 720 vehicles. Military convoys would typically be traveling in the opposite direction of peak-hour civilian traffic. US 54 is four lanes the full length of the Fort Bliss boundary. Assuming average non-peak hour traffic is 720 vehicles, with an LOS of A, and the volume of military traffic would average 150 vehicles per hour, LOS along US 54 would not be affected.

Water Supply

The water distribution infrastructure at McGregor Range Camp and Meyer Range Complex would be adequate to meet current and projected future water demand. The increase in use would more than double annual water consumption (2.5 times at McGregor Range Camp and 1.8 times at Meyer Range). Additional water storage at this level of utilization would be beneficial.

Potable water for the Orogrande Range Complex would be trucked to the complex from Orogrande Range Camp (see Section 5.3.3.2) and stored in water buffalos.

Wastewater Treatment

The wastewater treatment system at McGregor Range Camp is currently inadequate to meet existing use of the facility and will need to be upgraded to meet existing and future wastewater loads, especially with the increased utilization of the range camp (Ref# 302). The wastewater treatment system at Meyer Range is adequate to meet existing and projected future wastewater loads under this alternative (Ref# 302).

Domestic wastewater at the Orogrande Range Complex would be collected in portable toilets and hauled off site for disposal.

Storm Water

No changes in storm water infrastructure requirements are anticipated at McGregor Range Camp, although it may be desirable to improve drainage to eliminate occasional ponding.

Solid Waste

With a large increase in utilization of facilities on McGregor Range under Alternative 1, additional storage for refuse and more frequent refuse pickup would be necessary.

Energy

There would be no change in peak occupancy of McGregor Range Camp, so the existing electrical infrastructure would be adequate to meet demands under Alternative 1. Total consumption of electricity is expected to more than double with increased use of the Range Camp.

The existing natural gas infrastructure at McGregor Range Camp would be adequate to meet the demands of Alternative 1. Total gas consumption is expected to increase by a factor of approximately 2.5.

Existing liquefied petroleum gas distribution infrastructure at Meyer Range is adequate to meet the projected utilization under Alternative 1. With utilization increasing by a factor of 1.8, additional storage capacity and more frequent replenishment would be required.

5.3.4 Alternative 2

The impacts from Alternative 2 on training area infrastructure would include those described for Alternative 1. More military convoy traffic with HETs would travel on US 54 to reach the north Tularosa Basin portion of McGregor Range. An estimated ten 14-day battalion-level exercises would be conducted annually on that portion of the range. LOS on US 54 is not expected to be affected.

Off-road vehicle maneuvers in the north Tularosa Basin portion of McGregor Range would occasionally cross Highway 506 resulting in temporary delays, but significant road closures are not expected to occur. Convoys that include tracked vehicles would cross the highway at hardened crossing points. Typically, they would cross in company-size "march units," taking 15 minutes or less to cross, between which any travelers on Highway 506 would be permitted to pass. A similar situation would exist for the county and Forest Service roads that traverse the northern McGregor TAs to the Sacramento Mountains and Grapevine area. Fort Bliss would notify the Otero County Administrator and BLM of any road closings on Highway 506.

Utilities and energy consumption and waste generation at the range camps would be expected to increase about 10 percent over Alternative 1 with the addition of a second CAB. The underground Orogrande water distribution pipeline traverses TA 11 and a corner of TA 10 on McGregor Range north of Highway 506. The pipeline has provided water to the community of Orogrande since the early 20th Century. Unless protected, it is probable that tracked vehicles would damage the pipeline. To avoid damage, either tank crossings would need to be constructed over the pipeline, or it would need to be identified as an off-limits area as long as the pipeline is in use.

The existing electrical transmission line on McGregor Range is not expected to be affected by off-road vehicle maneuvers. BLM plans to use the transmission corridor as a preferred utility easement under its revised plan. This would be possible, but any underground lines may require special installation (for example, deeper trenches or tank crossings).

5.3.5 Alternative 3

The impacts from Alternative 3 on training area infrastructure would be the same as described for Alternative 1, with approximately 10 percent increase in utilities and energy use with the addition of a second CAB.

5.3.6 Alternative 4 – Proposed Action

The impacts from Alternative 4 on training area infrastructure would include those described for Alternatives 1 and 2. Military traffic on US 54 would increase under Alternative 4 as vehicles convoyed to training locations in the north Tularosa Basin portion of McGregor Range. This could include an estimated ten 14-day battalion-level exercises and one 14-day BCT-level exercise annually. HET travel on US 54 would require a permit. LOS on US 54 is not expected to be affected.

As described for Alternative 2, 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 impacts of Alternative 4 on utilities and energy on the Fort Bliss Training Complex would be as described for Alternative 1, with the potential for approximately 20 percent higher demand.

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5.4 AIRSPACE USE AND MANAGEMENT

5.4.1 Introduction

The potential effects of the alternatives on the existing airspace environment were assessed by considering the changes in airspace utilization that could result from increased aviation operations at Biggs AAF. The assessment considered compliance with DoD Directive 5030.19, DoD Responsibilities on Federal Aviation and National Airspace System Matters, and AR 95-2, Air Traffic Control, Airspace, Airfields, Flight Activities, and Navigational Aids. The assessment also considered measures that could minimize potential impacts on other regional air traffic and the Air Traffic Control system.

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. 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. The FAA seeks to determine if such changes could adversely affect (1) ATC systems and/or facilities; (2) movement of other air traffic in the area; or (3) airspace already designated and used for other purposes supporting military, commercial, or general aviation.

5.4.2 No Action Alternative

Aviation operations from Biggs AAF would not change from current conditions under the No Action Alternative. Thus, this alternative will not involve any change in management of the airspace supporting Army aviation activity either at the airfield or in the military training airspace.

5.4.3 Alternative 1

Under Alternative 1, one CAB would be assigned to Biggs AAF. Currently, Biggs AAF supports approximately 40,000 aviation operations annually. The assignment of the CAB would result in an additional 53,250 aviation operations, raising the total to approximately 93,000 annual operations.

As described in Section 4.4, detailed ATC processes and procedures have been coordinated between Biggs AAF and El Paso International Airport to manage the flow of military, commercial, and other civil air traffic into and out of the two airfields. Discussions between the U.S. Army and EPIA have indicated that airport officials do not believe the increase in operations at Biggs AAF would have an adverse effect on EPIA (Ref# 518).

Alternative 1 would increase operations by helicopters and unmanned aerial vehicles in the Restricted Areas overlying the Fort Bliss Training Complex. Use of this airspace would continue to be managed through scheduling, balancing training requirements with airspace availability. The hours of operation in R-5103 may need to be expanded to accommodate night operations. Although some scheduling issues may arise due to the increased demand, use of the airspace in itself would not create any airspace management issues.

5.4.4 Alternative 2

Alternative 2 includes the potential for two CABs located at Biggs AAF. Currently, Biggs AAF supports approximately 40,000 aviation operations annually. The addition of two CABs would result in an additional 104,500 aviation operations, raising the total to approximately 144,500 annual operations. Based on preliminary assessments by EPIA (Ref# 518), the increase in operations at Biggs AAF is not anticipated to adversely affect EPIA.

Use of other military training airspace in the region would continue to be managed through scheduling, balancing training requirements with airspace availability. Scheduling issues may increase, but use of the airspace would not in itself create any airspace management issues.

5.4.5 Alternative 3

The effects of Alternative 3 on local airspace management and use would be the same as described for Alternative 2.

5.4.6 Alternative 4 – Proposed Action

The effects of Alternative 4 on local airspace management and use would be the same as described for Alternative 2.

5.5 EARTH RESOURCES

5.5.1 Introduction

This section presents the environmental consequences of the alternatives on soils. None of the alternatives is expected to affect other earth resources.

Direct effects on soils are primarily due to the physical disturbance of the upper soil layers and the disruption of soil biological 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. Indirect effects on soils include reduced surface water infiltration, an associated increase in surface water runoff, and poor plant growth or seed germination. Both direct and indirect effects on soils can be expected as a result of surface-disturbing activities like off-road vehicle maneuvers at the Fort Bliss Training Complex, as well as from construction of buildings, roads, firing ranges, and other facilities. The significance of the effects on soils is related to the areal extent of the impacts and the length of time necessary for the soils to recover following surface disturbance.

There are different definitions of "recovery" from disturbance in the literature. Full recovery from surface disturbance that damages the ecological processes in soils involves the reestablishment of soil stability, hydrologic function, and protective covers such as vegetation and biological crust. The status of these indicators is used to measure the health of the land. A full recovery reestablishes the ecological processes in soils so that they (Ref# 41):

- Support the normal range of plant communities for site conditions and soil type;
- Capture, store, and safely release surface water;
- Are stable, resisting accelerated erosion;
- Have reestablished damaged biological crust cover and species or support the integrity of the natural soil biotic community.

The length of time for full recovery varies depending on the soil type, climatic conditions, size of the area disturbed, and land use during recovery. For the purposes of this effects analysis, full recovery of the ecological processes of the soil is considered unlikely, due to the projected use of the Fort Bliss Training Complex for off-road vehicle maneuvers as well as livestock grazing and public access for recreation in some areas, especially if combined with drought conditions. This analysis therefore focuses on limited recovery, defined to mean that the site is stable and resistant to accelerated erosion from wind or water following surface disturbance, but from a practical standpoint may not reach full recovery due to the lengthy periods required in this desert climate.

Earthmoving for construction of new facilities would excavate soils, temporarily removing vegetation and exposing them to wind and water erosion. In general, impacts can be minimized for planned facility construction by siting and designing facilities to take into account soil limitations, employing construction techniques appropriate for the soils and climate, and implementing temporary and permanent erosion control measures. While soils would be changed by construction activities, the effects would be localized and would not result in significant indirect impacts on air or water resources because best management practices, erosion and sediment controls, and storm water management measures would be implemented.

Hot deserts with summer rainfall, like the Chihuahuan Desert that encompasses Fort Bliss, are dominated by biological crusts at or near the soil surface. Soils with healthy biological crusts provide conditions favorable to plant growth because they provide high amounts of nutrients (especially nitrogen) and plant-available water, both of which are limiting factors for plant growth and productive soils in desert conditions (Ref# 89). Soils with well-established and undisturbed biological crusts have from 2 to 130 times greater resistance to soil erosion than less well-developed crusts or bare soil. Biological crusts on

finer soils (dominated by clay or silt) recover more quickly from disturbance and are more resistant to wind erosion than on sandy soils. Recovery of soil biological crusts is related to the frequency and intensity of surface disturbance — the more frequent and intense the disturbance, the longer time the crusts take to recover. Sandy soils in areas of low precipitation have the longest recovery time (Ref# 83).

Disturbance of biological crusts by vehicles and foot traffic (human and livestock) has been demonstrated to reduce nitrogen input from crusts on all soils immediately by 25 to 40 percent on silty soils and from 76 to 89 percent on sandy soils, with a decrease of 80 to 100 percent over time. A primary reason for this is that the compression caused by traffic damages the ability of the organisms within the top few inches of soil to perform photosynthesis and nitrogen fixation (Ref# 83). Soils with high gypsum content are more resistant to disruption of biological crusts by vehicle traffic; one soil map unit with high gypsum content, Malargo Silt Loam, is found on McGregor Range (Ref# 181).

Burial of biological crusts through deposition resulting from wind or water erosion kills the organisms in the crust, eliminating the crust's function in soil stabilization and nutrient contribution that is needed for soil productivity. Vegetative cover may also be damaged by wind and water erosion through abrasion, burial, or deposition of dust on plants, which reduces their ability for photosynthesis, minimizes evapotranspiration, and causes increased soil surface temperatures (Ref# 34). Activities on or upwind from Sandy ecosites with tobosa grass prevalent would be especially susceptible to damage from wind erosion because the deposition would bury and eventually kill the grass, exposing more areas to wind and water erosion as vegetative cover decreases (Ref# 240). A study performed at the Jornada Experimental Range (Ref# 34, 82) in the Chihuahuan Desert near Fort Bliss documented that soils 200 meters (656 feet) or more downwind from areas of bare soils were affected by surface burial or abrasion that caused decreased vegetative cover and dune formation.

Cross-country travel by vehicles has been shown to compact soils, crush vegetation and crusts, and accelerate soil erosion (Ref# 89). The effects of vehicle track disturbance (whether wheeled or tracked vehicles are used) may be severe. When crusts are completely removed or are damaged over large or continuous areas (as in vehicle tracks), the recovery of biological crusts is generally slow, especially in areas with low precipitation and sandy soils. Recolonization of the organisms that form biological crusts in disturbed areas occurs mostly from adjacent areas, so the size and shape of disturbance affects recovery rates. Under good conditions, damaged biological crusts take at least 10 years without disturbance to recover (Ref# 83).

Physical soil crusts are also present on Fort Bliss. These physical crusts are caused by compaction and the impact of raindrop splash on bare soil. When undisturbed, physical crusts may protect soils from wind and water erosion by forming a resistant surface, but they also reduce surface water infiltration and seedling emergence, contributing factors that limit plant growth and continue bare soil conditions. Grasses and biological crusts break up physical soil crusts, improving surface water infiltration and increasing nutrients needed for plant growth (Ref# 83).

Simulated tracking studies were conducted in various ecosystems on McGregor Range in the 1980s and 1990s. An article analyzing erosion data at one site in 1996-1996 (Ref# 125) documented that five passes (although the article mistakenly says three) with an M1A1 tank in dry conditions produced the most water erosion on the site during periods of intense rainfall and the highest dry season total sediment loss compared to a single pass and control sites. Five passes with the tank under dry conditions created the highest amount of bare ground, resulting in more runoff, less water infiltration, and more physical soil crusting than the same type of tank use under wet conditions. The article noted that "the most substantial dry season treatments' total cumulative sediment losses at the end of the sampling period were associated with triple [sic] pass tank treatments. Control and single pass treatment total cumulative losses were essentially identical and statistically similar." (Ref# 125) The article reported that tracked vehicles are especially destructive when they turn because this action crushes and uproots vegetation and compacts soil.

The article documented that climatic conditions, specifically drought and the timing and intensity of storms, have a major impact on rates of water erosion. The article concludes that vehicle maneuvers should be scheduled "with regard to landscape suitability" and "capacity to sustain disturbance," and "should reflect necessary recovery periods … and be monitored for progress" (Ref# 125).

The simulated tracking studies conducted on McGregor Range involved a low number of passes over a short period of time. Consequently, they have limited applicability to the Proposed Action and other alternatives, which involve repeated use for an indefinite period at an average rate of one pass every two years. The only study locations used for off-road vehicle maneuvers over multiple years show that mesquite coppice dunes and dropseed grasslands persist. Sufficient funding has not been available to complete the analysis of recovery at the study sites over time, and the limited scope of the studies brings into question the relevance of that analysis to the Proposed Action. The above-mentioned article (Ref# 125) recommended repetitious tracked vehicle studies to assess vegetation recovery and proactive adaptive management in military maneuver areas.

A study designed to evaluate the effects of military training using M1A2 tanks on vegetation structure and wind erosion was conducted at the Idaho Army National Guard Orchard Training Area (Ref# 130). Three previously undisturbed blocks with similar soils and vegetation were treated by simulating straight (no turning) travel of one, two, four, and eight consecutive passes at approximately 30 miles per hour. These passes occurred one after another in a line, with each vehicle following the one in front. Vegetative cover was measured before and after the vehicle passes, as was wind speed and soil loss due to wind erosion. This study concluded that the untracked sites were stable even at the highest wind speeds, and that even one pass was sufficient to make soil surface conditions "significantly less stable" than the undisturbed areas but without a significant decrease in the vertical vegetation structure that minimize wind erosion. The critical threshold for M1A2 tracking on this area dominated by grasses and forbs was concluded to be four consecutive passes because significant damage to the vegetative canopy and accelerated soil erosion resulted.

Surface disturbance has different impacts under wet and dry conditions but can adversely affect soils in both. Because the organisms in biological crusts are brittle when dry, disturbance in dry conditions is more destructive and the crusts take longer to recover (Ref# 83). However, soil compaction from vehicle traffic is more likely to occur in wet conditions on soils with finer textures (high proportions of clay or silt), resulting in reduced water infiltration, increased runoff, and less suitable conditions for plant growth.

On Fort Bliss, wind erosion is more prevalent than water erosion. Wind and its transport of soil particles are influenced by vegetation and terrain at different scales. Soil roughness and vegetative cover affect the local transport and deposition of soil particles by sheltering the soil from the force of the wind, slowing down wind speeds, and trapping soil particles that move to the bare areas between plants. Damage to vegetation and crusts expose bare soil to wind, which picks up and transports soil particles until structures, tall vegetation, hills, mountains, or mesas reduce wind speeds to the point where the particles are deposited. If vegetation and soil crusts are damaged or destroyed by surface disturbance, without adequate recovery periods, wind erosion will cause the bare ground to expand downwind until slowed by terrain (Ref# 82).

Due to the importance of maintaining soil biological crusts, vegetative cover, and soil productivity in order to sustain soil stability and a healthy ecosystem, activities that disrupt or destroy these resources would cause adverse impacts to soils. If biological crusts, vegetative cover, and soil productivity were damaged to the point that their recovery would be lengthy or infeasible, these adverse impacts would be considered significant.

Most mesquite coppice dunes presently exist on Deep Sand or Sandy ecosites in the Fort Bliss Training Complex, predominantly in the North and South Training Areas. In general, the Sandy and Deep Sand ecosites of the North and South Training Areas and McGregor Range that are not currently coppice dunes would be the most susceptible to wind erosion if disturbed and would require longer recovery times. If

vegetation were not allowed to recover on the Deep Sand and Sandy ecosites that are not already in coppice dunes, accelerated wind erosion would occur and one of the following conditions would likely result:

- Coppice dunes would form in areas where mesquite is present nearby to seed the area.
- In areas where little mesquite exists, the extent of bare ground would likely spread downwind until wind speeds were slowed by terrain or tall vegetation. This situation is projected to occur on two different soil map units on McGregor Range: Pendero fine sand, 2 to 5 percent slopes (Map Unit 6), and Copia loamy fine sand, 5 to 15 percent slopes (Map Unit 7) (Ref# #190).

Table 5.5-1 provides a summary of the amount of each grouping of TAs in the Fort Bliss Training Complex that is susceptible to becoming either coppice dunes or bare ground resulting in accelerated wind erosion due to surface disturbance, without time for recovery. The areas not in coppice dunes are most likely to experience changes in transition states as a result of off-road vehicle maneuvers. There are no coppice dunes in the southeast training areas of McGregor Range.

Table 5.5-1. Segments in the Fort Bliss Training Complex with Sandy Soils Susceptible to Change from Off-Road Vehicle Maneuver

Grouping	*Percent of Grouping*			
	Coppice Dunes	*Sandy or Deep Sand Ecosites*	*Sandy or Deep Sand Ecosites Not Currently in Coppice Dunes*	*Areas of Map Unit 6 or 7 Likely to Become Bare*
North Training Areas	82%	89%	9%	0%
South Training Areas	74%	80%	10%	0%
McGregor Range, North Tularosa Basin	27%	43%	22%	17%
McGregor Range, South Tularosa Basin	20%	43%	24%	11%
McGregor Range, Southeast Training Areas	0%	0%	0%	0%

The soils on McGregor Range are the most susceptible to water erosion of all segments of the Fort Bliss Training Complex, especially if vegetation and biological crusts are damaged. Accelerated erosion caused by rainfall and runoff on soils with little or no cover is most likely to occur in the southeast training areas (50 percent of grouping), the south Tularosa Basin portion of McGregor Range (19 percent of grouping), and the north Tularosa Basin portion of McGregor Range (7 percent of grouping).

In summary, direct adverse impacts on soils at the Fort Bliss Training Complex can be expected from surface disturbance due to vehicle and foot traffic under wet and dry conditions. The extent and significance of the impacts would be determined by the frequency and total area of disturbance, and ultimately on the amount of bare ground created. Because vehicle traffic is more disruptive to soils and vegetation than foot traffic, the extent and frequency of off-road vehicle maneuvers is used as the primary indicator of impacts on soils within the training areas.

5.5.2 No Action Alternative

5.5.2.1 Construction

Most of the soils within the Main Cantonment Area, where the majority of the facilities are planned, are suitable for construction of roads and buildings. Surface disturbance of 1,000 acres projected under the No Action Alternative 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, gravel) would minimize indirect and offsite impacts from surface

disturbance. While excavated soils would be altered, the impacts from construction would not be significant.

5.5.2.2 Training Activities

Under the No Action Alternative, the training areas currently used for off-road vehicle maneuvers would continue with a similar level of frequency and intensity as in the past. Most of the North and South Training Areas and TA 8 on McGregor Range are currently in use for off-road vehicle maneuvers and consist of Deep Sand or Sandy ecosites characterized by mesquite coppice dunes or other shrub invasion vegetation communities. The shrubs and coppice dunes slow down the local wind speeds so wind erosion abrades the bare soil in between plants, but the coarser soil particles loosened by maneuvers that are transported in the wind get trapped before traveling long distances. Assuming the shrubs and dunes act as obstacles to vehicle travel, making it likely that tracked and wheeled vehicles would drive around and not over them, it is anticipated that the amount and size of the areas of bare ground would remain similar to current conditions.

A majority of the soils within the TAs currently approved for off-road vehicle maneuvers have Excellent or Good trafficability ratings, indicating that the soils have the capacity to support maneuvers under both wet and dry conditions.

The No Action Alternative would not change soils at the Fort Bliss Training Complex from current conditions.

5.5.3 Alternative 1

5.5.3.1 Construction

Most of the soils within the Main Cantonment Area are suitable for construction of roads and buildings. All of the expansion area between EPIA and Loop 375, where most of the new construction would be located, has severe wind erosion hazards. Surface disturbance of the estimated 3,400 acres under Alternative 1 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, gravel) would minimize indirect and offsite impacts from surface disturbance.

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 North Training Areas, Doña Ana Range, and the south Tularosa Basin portion 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 offsite impacts. The south Tularosa Basin portion of McGregor Range has the highest percentage of severe limitations for road construction under Alternative 1 and would require the most maintenance for roads. The soils at McGregor Range Camp have slight limitations for building construction.

While excavated soils would be altered, the impacts from construction would not be significant because best management practices, erosion and sediment control, and storm water management measures would be implemented.

5.5.3.2 Training Activities

Under Alternative 1, more training areas would be used for off-road vehicle maneuvers and the frequency and intensity of use would increase. As much as 55 percent of the total area available for off-road vehicle maneuver could be driven on annually, assuming every vehicle involved in training exercises drove over a different track. In reality, some vehicles would drive over the same track as previous vehicles, and some areas would be left undisturbed.

Most of the North and South Training Areas used for off-road vehicle maneuvers consist of Deep Sand or Sandy ecosites characterized by coppice dunes or other shrub-invaded vegetation communities, which would remain in their current condition. The areas not already in coppice dunes and that are characterized by Deep Sand or Sandy ecosites would be the most likely to sustain damage to vegetation and biological crusts from off-road vehicle maneuvers. The areas most likely to be adversely affected include an estimated 24 percent of the south Tularosa Basin of McGregor Range, 9 percent of the North Training Areas, and 10 percent of the South Training Areas. In the south Tularosa Basin portion of McGregor Range, 11 percent of the area would likely become more bare with repeated tracking and 13 percent might convert to mesquite coppice dunes if the vegetation is not allowed to recover. Without adequate periods of rest to allow for recovery of soil cover, off-road vehicle maneuvers in these portions of the Fort Bliss Training Complex are likely to cause a change in vegetation and accelerated erosion.

The shrubs and coppice dunes provide surface roughness that slows down the local wind speeds so wind erosion abrades the bare soil in between plants, but the coarser soil particles loosened by maneuvers get trapped before traveling long distances. If the shrubs and dunes act as obstacles to vehicle travel so that vehicles would drive around and not over them, then it is anticipated that the areas currently in mesquite coppice dunes would remain similar to their current conditions. However, areas of concentrated use in the vicinity of the range camps and CACTF are more likely to become barren, accelerating damage to soils by wind and water erosion and expanding adverse offsite impacts by blowing dust and burial of vegetation and biological crusts downwind from the bare areas.

Of all the training areas proposed for off-road vehicle maneuvers under Alternative 1, the south Tularosa Basin portion of McGregor Range has the most acreage of Sandy or Deep Sand ecosites with grass cover, which have been identified as especially sensitive to accelerated wind erosion and deposition, but this amounts to only about 1 percent of that area. Training Areas 8, 11, 29, 31, and 32 contain some high gypsum soils that would be resistant to disruption by vehicle traffic.

Soils within the south Tularosa Basin portion of McGregor Range have the highest percentage of moderate to severe limitations for road and building construction and for water erosion hazards of any of the areas proposed for off-road vehicle maneuvers under Alternative 1. It is anticipated that maintenance to keep water erosion to a minimum and roads accessible would be the most frequent in this area under this alternative.

A majority of the soils within the proposed off-road vehicle maneuver areas have excellent or good trafficability ratings, indicating that the soils have the capacity to support maneuvers under both wet and dry conditions.

Accelerated wind erosion resulting from increased areas of bare ground due to damaged vegetation and biological crusts would be a significant adverse impact under Alternative 1. The high frequency and density of projected maneuvers by wheeled and tracked vehicles, as well as the concentrations of troops on foot, would be likely to lead to increasing areas of bare ground or mesquite coppice dunes in areas where they do not currently exist on the Sandy and Deep Sand ecosites. This would result in locally adverse impacts that would spread downwind over time.

Management goals listed in the INRMP (Ref# 23) include monitoring of earth resources and preventing accelerated erosion. An improved understanding of the local effects of increased off-road vehicle maneuvers would aid in planning to meet the goals of the INRMP and help identify mitigation measures that meet site-specific conditions on the Fort Bliss Training Complex. Regular and repeated monitoring of selected locations in the training areas before and after maneuvers would provide needed data useful to help identify areas that require mitigation measures for minimizing erosion and to determine trends in ecosite transition states. Fort Bliss has instituted on-going monitoring efforts using remote sensing and vegetation plots.

In some cases, mitigation may include avoiding intensive vehicle maneuvers on areas with high or moderate erosion hazards to maintain ground cover. Construction of roads and buildings in areas that have fewer hazards or limitations and mitigation by design would minimize the need for after-construction rehabilitation and maintenance. The capacity of vegetation and soils to recover from disturbance should be considered when scheduling training activities (Ref# 125).

Soil erosion controls that may be implemented to reduce soil movement by air and water may include typical measures as (Ref# 133):

- Establishment of earth cover such as vegetation or aggregate
- Installation of artificial or vegetative windbreaks
- Adding soil binding materials to the ground surface

Other mitigation measures may be identified as a result of monitoring, such as avoiding areas where vegetation and biological crusts have been damaged by multiple vehicle passes in order to allow recovery to occur.

5.5.4 Alternative 2

5.5.4.1 Construction

The impacts of proposed construction in the Main Cantonment Area would be the same for Alternative 2 as discussed under Alternative 1. The potential for additional construction at Orogrande Range Camp to support training in the northern portions of McGregor Range would be in an area where limitations for building construction are slight. While excavated soils would be altered, the impacts from construction would not be significant because best management practices, erosion and sediment control, and storm water management measures would be implemented.

Soils within the north Tularosa Basin portion of McGregor Range have the highest percentage of moderate to severe limitations for road and building construction and for water erosion hazards of all the areas proposed for off-road vehicle maneuvers under this alternative. For this reason, it is anticipated that road maintenance would be the most frequent in this area, primarily due to water erosion (gullies crossing or forming in wheel tracks along natural surface roads), with maintenance requirements next highest in the south Tularosa Basin portion of McGregor Range.

5.5.4.2 Training Activities

Under Alternative 2, more training areas would be used for off-road vehicle maneuvers and the frequency and intensity of use would be greater than the No Action Alternative and but slightly less than Alternative 1. The highest level of off-road vehicle maneuver would occur on the North and South Training Areas and the south Tularosa Basin portion of McGregor Range. Off-road vehicle maneuvers would be extended into the north Tularosa Basin of McGregor Range at a somewhat lower intensity of use because the training would be distributed over a larger area.

As much as 50 percent of the total area available for off-road vehicle maneuver could be driven on annually, using the assumptions noted for Alternative 1. The impacts in the North and South Training Areas and the south Tularosa Basin portion of McGregor Range would be the same as described for Alternative 1. Approximately 27 percent of the north Tularosa Basin portion of McGregor Range contains existing mesquite coppice dunes. The areas not already in coppice dunes that are characterized by Deep Sand or Sandy ecosites would be the most likely to sustain damage to vegetation and biological crusts from off-road vehicle maneuvers, an estimated 22 percent of the north Tularosa Basin portion of McGregor Range. Without adequate periods of rest to allow for recovery of soil cover, off-road vehicle maneuvers are likely to cause a change in vegetation and accelerated erosion. Eventual coppice dune formation may occur on the Deep Sand or Sandy ecosites where they do not already exist on

approximately 5 percent of the north Tularosa Basin portion of McGregor Range, and 17 percent may become bare ground susceptible to accelerated wind erosion if not able to recover.

Soils in all training areas proposed for off-road vehicle maneuvers would be suitable for vehicle maneuvers, with a majority having excellent or good trafficability ratings.

Mitigation measures described for Alternative 1 would also apply to Alternative 2.

5.5.5 Alternative 3

5.5.5.1 Construction

The impacts of proposed construction in the Main Cantonment Area would be the same for Alternative 3 as discussed under Alternative 1.

The soils within the southeast TAs of McGregor Range have the highest percentage of moderate to severe limitations for construction of new roads and buildings of the areas proposed for off-road vehicle maneuver training under this alternative. Aggressive sediment and erosion controls and a high level of road maintenance would be anticipated in this area.

5.5.5.2 Training Activities

Under Alternative 3, more training areas would be used for off-road maneuvers and the frequency and intensity of use would be higher than the No Action Alternative, but slightly lower than Alternative 1. High levels of off-road vehicle maneuver would occur in the North and South Training Areas and the south Tularosa Basin portion of McGregor Range. Off-road vehicle maneuver training would also be extended into the southeast TAs of McGregor Range at a somewhat lower level of use.

As much as 50 percent of the total area available for off-road vehicle maneuver would be driven on annually, using the assumptions noted for Alternative 1. The impacts in the North and South Training Areas and the south Tularosa Basin portion of McGregor Range would be the same as described for Alternative 1. The southeast TAs on McGregor Range do not contain mesquite coppice dunes or Deep Sand or Sandy ecosites. Most of the soils in the southeast TAs are less susceptible to wind erosion than most of the other areas proposed for off-road vehicle maneuvers.

Half of the southeast TAs of McGregor Range would be susceptible to moderate to severe water erosion and up to 25 percent is rated moderate to poor for trafficability under wet conditions. These TAs would require the highest level of maintenance to sustain their usefulness for training. Without adequate periods of rest to allow for recovery of soil cover, off-road vehicle maneuver training in the southeast TAs is likely to cause a change in vegetation and accelerated erosion compared to current conditions.

Mitigation measures described for Alternative 1 would also apply to Alternative 3. In addition, limiting off-road vehicle maneuvers on loamy soils in the vicinity of Hackberry Tank would reduce erosion in that area.

5.5.6 Alternative 4 – Proposed Action

5.5.6.1 Construction

The impacts of the additional potential construction in the Main Cantonment Area would be similar for Alternative 4 to those discussed under Alternative 1. Additional construction of facilities could occur, but it is expected to be after the currently projected construction has been completed.

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 Doña Ana Range and McGregor Range have more moderate to severe limitations for building and road construction and maintenance than in the South Training Areas, requiring more aggressive sediment and erosion controls

to minimize offsite impacts. The soils within the southeast TAs of McGregor Range have the highest percentage of moderate to severe limitations for construction of new roads and buildings. Aggressive sediment and erosion controls and a high level of road maintenance would be anticipated in this area.

5.5.6.2 Training Activities

Under Alternative 4, more training areas would be used for off-road vehicle maneuvers and the frequency of use and intensity would be higher than the other alternatives. Like the other alternatives, the highest level of off-road vehicle maneuver would occur in the North and South Training Areas and the south Tularosa Basin portion of McGregor Range. Alternative 4 would also extend off-road vehicle maneuver training into both the north Tularosa Basin portion of McGregor Range and the southeast TAs at somewhat lower levels of use.

As much as 55 percent of the total area available for off-road vehicle maneuver could be driven on annually under Alternative 4. The impacts would be the same as described for Alternatives 1, 2, and 3. The areas not already in coppice dunes that are characterized by Deep Sand or Sandy ecosites would be likely to sustain damage to vegetation and biological crusts from off-road vehicle maneuvers. The areas most likely to be adversely affected include an estimated 9 percent of the North Training Areas, 10 percent of the South Training Areas, 24 percent of the south Tularosa Basin portion of McGregor Range, and 22 percent of the north Tularosa Basin portion of McGregor Range. In the south Tularosa Basin portion of McGregor Range, an estimated 11 percent is likely to become more bare ground susceptible to accelerated wind erosion and 13 percent may become mesquite coppice dunes. In the north Tularosa Basin portion of McGregor Range, an estimated 17 percent may become more bare ground and 5 percent mesquite coppice dunes. The soils in the southeast TAs of McGregor Range are likely to be more resistant to adverse impacts from off-road vehicle maneuvers due to the grass cover and lack of Sandy or Deep Sand ecosites. Without adequate periods of rest to allow for recovery of soil cover, eventual coppice dune formation may occur on the Deep Sand or Sandy ecosites where they do not already exist.

Half of the southeast TAs of McGregor Range would be susceptible to moderate to severe water erosion, and up to 25 percent is rated moderate to poor for trafficability under wet conditions. This area would require the highest maintenance to sustain its usefulness for training.

Mitigation measures described for Alternative 1 would also apply to this alternative.

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5.6 AIR QUALITY

5.6.1 Introduction

The air quality analysis in this section is based on estimated increases in emission levels due to construction, operations, and training activities associated with each of the alternatives. The resulting air emissions were evaluated in accordance with federal, state, and local air pollution standards and regulations. The air quality impacts from a proposed activity or action are considered significant if they:

- Increase ambient air pollution concentrations above any NAAQS;
- Contribute to an existing violation of any NAAQS;
- Interfere with or delay timely attainment of NAAQS; or
- Impair visibility within any federally mandated PSD Class I area.

Calculations of VOCs, NO_x, CO and PM_{10} emissions from construction activities were performed using emission factors compiled in the *CEQA Air Quality Handbook* (Ref# 475). Emission factors for SO_2 and $PM_{2.5}$ are not yet available. These are screening level general emission factors for general building, residential, pavement, and building demolition, including contributions from engine exhaust emissions (i.e., construction equipment, material handling, and workers' commuting) and fugitive dust emissions (e.g., from grading activities). The emission factors are based on projected increases in building surface area, paved surface area, and building demolition area proposed under each alternative.

Emissions from facility operations were calculated for each alternative by multiplying the baseline emissions inventory for Fort Bliss in Texas and New Mexico by the fractional increase in assigned personnel at Fort Bliss. Emissions estimates were developed for VOC, NO_X, CO, SO_2, Total Suspended Particulates (TSP), lead (Pb), and HAPs. This approach makes the assumption that the increase in emissions from routine facility operations will be directly proportional to the increase in the Fort Bliss population for each alternative. That is, the increase in assigned personnel will result in proportional increases in combustion sources such as hot water boilers and generators.

The emissions inventory for training activities includes the following components:

- Combustion emissions from military vehicles used in training events.
- Combustion emissions from generators used in training events.
- Combustion emissions from helicopters in the Combat Aviation Brigade.
- Fugitive dust emissions from vehicles traveling on unpaved roads or off road.

A small quantity of emissions is generated by ordnance detonation and firing points, but the impacts of these sources is minimal and they are not addressed further.

Emission factors for vehicles and generators were taken from a USEPA document (Ref# 492), and emission factors for helicopters were taken from a U.S. Air Force document (Ref# 491). Estimated activity levels for each military vehicle, generator, and helicopter were projected using TC 25-1 and other Army documents (Ref# 380). These sources identified approximately 1,700 vehicles included in a typical Heavy BCT.

Recent field tests conducted at Fort Bliss to estimate the emissions of heavy wheeled military vehicles traveling on unpaved roads (Ref# 418, 419) showed that the two primary factors affecting fugitive dust emissions (calculated as emissions of PM_{10} in these reports and distinguished from particulate emissions from engines) from an individual vehicle are the vehicle's weight and speed. The regression equation developed through these studies was used to calculate training-related fugitive dust emissions, based on the estimated weight and speed of each participating vehicle. The studies characterized fugitive dust

emissions from unpaved roads. Fugitive dust emissions from off-road activities could be higher or lower, depending on the composition of the soil, extent of native vegetation, previous vehicular traffic over the same area, and other factors. The emission factors developed for unpaved roads are used to provide a best estimate of fugitive dust emissions during off-road vehicle maneuver training.

The studies calculated emissions from light and heavy wheeled vehicles but not from tracked vehicles, which are a significant component of the Heavy BCT vehicle inventory. However, the physical processes that produce fugitive dust are the same for vehicles with wheels and tracks. Therefore, the studies' authors concluded that the emission factors for wheeled vehicles could be used as an approximation of fugitive dust emissions from tracked vehicles.

Fugitive dust emissions for Heavy BCT training exercises were calculated using the regression equations produced by these studies, published data on the weight of military vehicles, and activity levels and vehicle speeds derived from TC 25-1 and other sources (Ref# 380). The calculated emissions were then increased to account for off-road vehicle maneuvering by other units.

To determine the impacts of these fugitive dust emissions on surrounding areas, a dust plume modeling analysis was conducted by Pacific Northwest National Laboratory (PNNL) for selected training exercises (Ref# 500). To conduct the modeling, PNNL used the DUSTRAN system, which was developed under the U.S. Department of Defense's Strategic Environmental Research and Development Program. DUSTRAN consists of a meteorological model (CALMET), an emissions model, and a dispersion model. The model incorporates a deposition algorithm which accounts for fallout of particles from the dust plume. This model produces the best-available estimate of impacts from fugitive dust emissions resulting from off-road vehicle training activities at Fort Bliss.

PNNL modeled fugitive dust emissions for a Heavy BCT-level exercise in the North Training Areas (referred to as "Doña Ana Training Area" in the PNNL report), a Heavy BCT-level exercise on McGregor Range, and a battalion-level exercise in the South Training Areas. The DUSTRAN modeling results showed that the maximum impacts occurred in the North Training Areas.

PNNL used an early estimate of the number of vehicles that would be involved in a BCT-level exercise, based on a Prevention of Significant Deterioration analysis conducted in December 2005 (Ref# 571). Updated estimates of vehicle activity associated with a BCT exercise are at least 50 percent larger than the earlier estimate. Therefore, the results of the PNNL modeling were scaled upwards for this SEIS to account for the larger number of vehicles.

In addition to direct emissions increases associated with construction and training activities, vehicle emissions were estimated for privately owned vehicles operated by increased personnel at Fort Bliss and the induced population increase. The increase in direct privately owned vehicle emissions was calculated based on the assumption that personnel living on post and their spouses (for accompanied personnel) would drive an average of 10 miles per day each. Personnel living off post and their spouses were assumed to drive an average of 20 miles per day. A multiplier of 0.7 was applied to personnel living off post to account for dependents that drive, and they were also assumed to travel an average of 20 miles per day. Daily mileage for the induced population was calculated based on Texas Department of Transportation average total daily vehicle miles traveled in El Paso, divided by the population of the district, which resulted in 16.5 miles per person per day (Ref# 493). The vehicles were assumed to be the default mix of vehicle types provided in USEPA's most recent version of the MOBILE6 emissions model.

According to USEPA's General Conformity Rule, any proposed federal action that has the potential to impact air quality in a nonattainment or maintenance area must undergo a conformity analysis. Fort Bliss is located in attainment areas, both in Texas and New Mexico, so a conformity analysis is not required. However, part of Fort Bliss in Texas is located adjacent to the city of El Paso, which is classified as in moderate nonattainment for CO and PM_{10}. Motor vehicle emissions within El Paso are anticipated to

increase due to the proposed action and alternatives (e.g., commuting between El Paso and Fort Bliss). Therefore, transportation conformity must be considered, and Fort Bliss transportation projects must be included in transportation plans developed by the El Paso Metropolitan Planning Organization. The El Paso MPO has included the anticipated growth of Fort Bliss in its current travel demand modeling; Fort Bliss will continue working with the MPO to ensure that growth and development on the installation are captured in the region's transportation plans.

Section 169A of the CAA established a program to prevent, and remedy existing, impairment of visibility in mandatory federal Class I areas. Certain national parks, monuments, and wilderness areas have been designated as PSD Class I areas. The nearest PSD Class I area to Fort Bliss is Guadalupe Mountains National Park, which is located 45 miles to the southeast. Other PSD Class I areas located at greater distances include Big Bend National Park, Carlsbad Caverns National Park, White Mountains Wilderness Area, and Bosque del Apache Wilderness Area. Because of their distance from Fort Bliss, these Class I areas are not expected to be impacted by the proposed action or alternatives.

5.6.2 No Action Alternative

5.6.2.1 Construction

Construction in the No Action Alternative, which will occur primarily in the Main Cantonment Area, is scheduled to take place over a five-year period. Emissions will be produced by the construction of single family housing, general building construction (including industrial and administrative buildings), paving of additional areas, and demolition of existing buildings. Emissions (in tons per year) were calculated by assuming a uniform distribution of construction activities over the five-year period. **Table 5.6-1** presents estimated annual construction emissions over the construction period.

Table 5.6-1. Construction Emissions – No Action Alternative

Facility Construction Type	*Construction / Demolition (SF)*[1]	*Construction Emissions (tons/year)*			
		VOC	*NO_x*	*CO*	*PM_{10}*
Single Family Housing	4,148,000	9.8	144.2	31.4	10.2
General Building Construction	2,368,745	13.1	193.0	42.0	13.7
Paved Area	7,811,000	1.3	18.8	6.7	1.1
Building Demolition	3,074,000	2.2	10.9	11.3	4.2
Total Construction Emissions		26.4	366.9	91.4	29.2

1. Assumed to be built over a 5-year period.

Emissions generated by construction projects are temporary in nature and will end when construction is complete. They are primarily from mobile emission sources and material handling operations, and are also distributed over time and space, so that impacts are not likely to be as concentrated as from a single point source, for example. These are screening level emission estimates that are calculated by assuming activities typical for construction of various facilities types. In general, combustive and fugitive dust emissions will produce localized, short-term elevated air pollutant concentrations that do not result in any long-term impacts on the regional air quality.

5.6.2.2 Facility Operations

Fort Bliss has developed a comprehensive 2004 baseline emissions inventory for Texas and New Mexico operations. These emission sources include external combustion sources (hot water boilers and heaters), internal combustion sources (generators and other engines), solvent use, storage tanks and fueling operations, miscellaneous operations (including welding, landfill operations, woodworking, and firing range training), abrasive blasting operations, surface coating operations, and fugitive dust sources.

Table 5.6-2 presents the estimated increased annual emissions from facility operations for the No Action Alternative, based on the projected increase in personnel at full implementation of this alternative. With

the addition of one Heavy BCT under this alternative, the number of personnel at Fort Bliss is projected to increase by approximately 45 percent.

Table 5.6-2. Increase in Facility Operational Emissions - No Action Alternative

Portion of Fort Bliss	*Annual Emissions (tons/year)*						
	VOC	***NO_x***	***CO***	***TSP***	***SO_2***	***Pb***	***HAPs***
Texas	52.9	139.6	49.7	10.7	2.5	0.0	9.0
New Mexico	5.0	42.6	7.3	2.8	1.4	0.06	0.91

5.6.2.3 Training Activities

Increased air pollutant emissions from training activities include combustion emissions from vehicles and equipment and fugitive dust from off-road vehicle maneuvers. These emissions are primarily from mobile sources. **Table 5.6-3** includes estimated combustion emissions from training activities for the No Action Alternative.

Table 5.6-3. Increase in Combustion Emissions – No Action Alternative

Emission Source	*Annual Combustion Emissions (tons/year)*				
	VOC	***NO_x***	***CO***	***PM_{10}***	***SO_2***
Military Vehicles	21.0	400.0	12.0	86.0	2.0
Generators	1.0	14.0	2.0	1.0	1.0
Subtotal Military Equipment	*22.0*	*414.0*	*14.0*	*87.0*	*3.0*
Privately Owned Vehicles[1]	34.4	48.7	394.4	1.5	0.4
Total Combustion Emissions	**56.4**	**462.7**	**408.4**	**88.5**	**3.4**

1. Direct personnel and their dependents.

The annual combustion emissions from military equipment presented in Table 5.6-3 were distributed as follows: 89 percent of the activity in the North Training Areas and 11 percent in the South Training Areas. **Table 5.6-4** presents the resulting distribution of emissions in each segment.

Table 5.6-4. Geographical Distribution of Emissions from Training Activities - No Action Alternative

Emission Distribution	*Annual Combustion Emissions (tons/year)*				
	VOC	***NO_x***	***CO***	***PM_{10}***	***SO_2***
North Training Areas	19.6	368.0	12.5	77.4	2.7
South Training Areas	2.4	46.0	1.5	9.6	0.3

These emissions would be widely distributed throughout the year over approximately 1,356 km^2. Given the wide distribution of the emissions, air quality in the region would not be significantly affected.

PM_{10} emissions from fugitive dust were calculated as described in Section 5.6.1. **Table 5.6-5** provides the distribution of those PM_{10} emissions over the Fort Bliss training areas for all alternatives.

To estimate PM_{10} emissions from fugitive dust, the results of modeling performed by PNNL for the North and South Training Areas were adjusted to incorporate the updated vehicle inventory for a Heavy BCT and account for off-road vehicle maneuver training by other units. These adjustments indicate that PM_{10} emissions in the North Training Areas are expected to be approximately twice the emissions calculated in the PNNL analysis.

The PNNL impact analyses at the boundaries of the North Training Areas had a maximum 24-hour average PM_{10} concentration of 10 $\mu g/m^3$, which was doubled to 20 $\mu g/m^3$ to account for the updated vehicle inventory. This was then combined with an assumed PM_{10} background level of 35 $\mu g/m^3$ for Doña Ana County, as recommended in a document produced by the New Mexico Environment Department, Air Quality Bureau (Ref# 499), and compared with the 24-hour National Ambient Air Quality Standard for PM_{10}. The maximum impact at the boundary of the North Training Area would therefore be 55 $\mu g/m^3$, which is well below the 24-hour PM_{10} NAAQS of 150 $\mu g/m^3$. The NAAQS is

designed to protect public health and welfare and provide an adequate margin of safety. Therefore, this analysis shows that there will be no significant adverse impacts from fugitive dust emissions under the No Action Alternative.

Table 5.6-5. Distribution of PM_{10} Emissions From Fugitive Dust Due to Off-Road Vehicle Maneuver Training

Alternative	*PM_{10} Emissions (tons/year)*		
	North Training Areas	*South Training Areas*	*McGregor Range*
No Action Alternative	6,561	811	0
Alternative 1	13,385	1,654	7,077
Alternative 2	12,204	1,508	8,404
Alternative 3	12,597	1,557	7,967
Alternative 4 – Proposed Action	15,222	1,881	12,385

5.6.2.4 Population-Related Emissions

The No Action Alternative will result in an increase of 4,500 personnel at Fort Bliss. Table 5.6-3 includes the estimated increase in annual privately owned vehicle emissions associated with those personnel and their dependents. This level of change in emissions will not result in significant long-term impacts on the local air quality.

Table 5.6-6 presents estimated emissions from privately owned vehicles that would be operated by the induced population (population not directly associated with Fort Bliss but attracted to the region by the increased economic opportunities stimulated by the growth at Fort Bliss).

Table 5.6-6. Estimated Induced Population Vehicle Emissions

Alternative	*Estimated Daily Vehicle Miles Traveled*	*Estimated Annual Vehicle Miles Traveled*	*Emissions (tons/year)*			
			VOC	*NO_X*	*CO*	*PM_{10}*
No Action Alternative	188,113	47,028,250	51.7	73.4	594.0	2.3
Alternative 1	984,622	246,155,540	270.8	384.2	3,109.2	12.1
Alternatives 2 and 3	1,117,375	279,343,770	307.3	436.0	3,528.3	13.7
Alternative 4	1,491,153	372,788,130	410.1	581.9	4,709.0	18.2

5.6.3 Alternative 1

5.6.3.1 Construction

Table 5.6-7 presents estimated annual emissions from construction in the Main Cantonment Area for Alternative 1.

Table 5.6-7. Construction Emissions – Alternative 1

Facility Construction Type	*Construction / Demolition (SF)*[1]	*Construction Emissions (tons/year)*			
		VOC	*NO_x*	*CO*	*PM_{10}*
Single Family Housing	10,148,000	24.0	352.9	76.7	25.1
General Building Construction	11,731,000	65.0	955.8	207.9	67.9
Paved Area	34,055,560	6.7	87.4	34.8	5.8
Building Demolition	3,474,000	2.5	12.3	12.7	4.8
Total Construction Emissions		98.2	1,408.0	332.1	103.6

1. Assumed to be built over a 5-year period.

As noted for the No Action Alternative, emissions generated by construction projects are temporary in nature and end when construction is complete. Several methods are available for reducing construction emissions, including using efficient construction practices, avoiding long periods where construction

equipment engines are running at idle, carpooling of construction workers, and by requiring post-combustion control equipment on heavy duty diesel engines. The PM_{10} emissions from construction-related fugitive dust could be reduced significantly by frequent spraying of water on exposed soil during construction and proper soil stockpiling methods.

In general, construction-related combustive and fugitive dust emissions may have the potential to produce localized, short-term elevated air pollutant concentrations that would not result in any long-term impacts on the regional air quality.

5.6.3.2 Facility Operations

Facility-related operational emissions were estimated for Alternative 1 as described in Section 5.6.1 and include operational activities at Fort Bliss in both Texas and New Mexico. **Table 5.6-8** presents estimated increased annual emissions associated with operations in Alternative 1, based on a projected 200 percent increase in personnel by 2011.

Table 5.6-8. Increase in Facility Operational Emissions – Alternative 1

Portion of Fort Bliss	*Annual Emissions (tons/year)*						
	VOC	***NO_x***	***CO***	***TSP***	***SO_2***	***Pb***	***HAPs***
Texas	109.5	288.9	102.9	22.2	5.1	0.0	18.6
New Mexico	10.3	88.1	15.1	5.7	2.9	0.12	1.9

5.6.3.3 Training Activities

Training-related emissions were estimated for Alternative 1 as described in Section 5.6.1 and include the training activities associated with four Heavy BCTs, a CAB, and other units and users of the Fort Bliss Training Complex. These emissions would be primarily from mobile sources. **Table 5.6-9** includes estimated combustion emissions associated with training activities in Alternative 1.

Table 5.6-9. Increase in Combustion Emissions – Alternative 1

Emission Source	*Annual Combustion Emissions (tons/year)*				
	VOC	***NO_x***	***CO***	***PM_{10}***	***SO_2***
Military Vehicles	71.0	1,338.0	39.0	290.0	6.0
Generators	4.0	43.0	9.0	3.0	3.0
Combat Aviation Brigade	1.0	25.0	8.0	3.0	2.0
Subtotal Military Equipment	*76.0*	*1,406.0*	*56.0*	*296.0*	*11.0*
Privately Owned Vehicles[1]	158.1	224.4	1,815.8	7.0	1.4
Total Combustion Emissions	**234.1**	**1,630.4**	**1,871.8**	**303.0**	**12.4**

1. Direct personnel and their dependents

The annual combustion emissions from military equipment presented in Table 5.6-9 were distributed as follows: 60.5 percent of the activity in the North Training Areas, 7.5 percent in the South Training Areas, and 32.0 percent in the south Tularosa Basin portion of McGregor Range. **Table 5.6-10** presents the resulting emissions in each area.

Table 5.6-10. Geographical Distribution of Emissions from Training Activities – Alternative 1

Emission Distribution	*Annual Combustion Emissions (tons/year)*				
	VOC	***NO_x***	***CO***	***PM_{10}***	***SO_2***
North Training Areas	46.0	851.0	33.9	179.0	6.7
South Training Areas	5.7	105.0	4.2	22.0	0.8
McGregor Range	24.3	450.0	17.9	95.0	3.5

These combustions emissions would be widely distributed throughout the year over an area of approximately 2,230 km^2. The emissions in the North Training Areas would be distributed over approximately 874 km^2, emissions in the South Training Areas over approximately 378 km^2, and

emissions in McGregor Range over approximately 978 km^2. Given the wide distribution of these emissions, no significant impacts to the air quality in the region are anticipated from vehicle combustion.

Estimated PM_{10} emissions from fugitive dust generated by off-road vehicle maneuvers under Alternative 1 are presented in Table 5.6-5. Greater utilization of the training areas for off-road vehicle maneuvers would increase the annual PM_{10} emissions in Alternative 1 compared to the No Action Alternative. The maximum 24-hour emissions at the North Training Areas would be the same because these are based on the maximum capacity of that segment of the Fort Bliss Training Complex at any given time. The worst-case 24-hr PM_{10} levels calculated in the PNNL modeling were multiplied by a factor of 2 for both the North Training Areas and McGregor Range to account for the updated vehicle inventory. The PNNL modeling showed a maximum 24-hour average PM_{10} concentration of 10 $\mu g/m^3$ at the installation boundary. Multiplying this estimate by a factor of 2 produces maximum impact of 20 $\mu g/m^3$ at the installation boundary. When added to the background PM_{10} concentration of 35 $\mu g/m^3$ for Doña Ana County recommended by the New Mexico Environment Department, this results in an estimated maximum ambient PM_{10} concentration of 55 $\mu g/m^3$ at the boundary of the North Training Areas. The recommended background concentration for Otero County is 20 $\mu g/m^3$, resulting in a maximum concentration of 40 $\mu g/m^3$ at the installation boundary. These levels are well below the NAAQS for PM_{10} of 150 $\mu g/m^3$. Therefore, this analysis shows that the impacts of PM_{10} emissions from off-road vehicle maneuvers under Alternative 1 would not be significant.

Dust suppressants or gravel can be used to mitigate fugitive dust emissions on heavily traveled unpaved roads and tank trails. These mitigation efforts would not be practical for off-road maneuver areas because of the extensive geographic size of those areas. Fugitive dust from military vehicle convoys could be reduced by regulating convoy routes, spacing and speed. Using internal roadways removed from installation boundaries would reduce off-post impacts from fugitive dust. Off-road vehicle maneuvers could be reduced during periods of high wind that might transport particulates greater distances.

5.6.3.4 Population-Related Emissions

Alternative 1 would result in a net increase of 22,100 personnel at Fort Bliss. Table 5.6-9 includes the estimated direct increase in annual privately owned vehicle emissions associated with those personnel. These changes in emissions are not expected to result in significant long-term impacts on air quality. Estimated annual emissions from privately owned vehicles of the induced population under Alternative 1 are presented in Table 5.6-6. Increased use of car pooling could reduce emissions from privately owned vehicles.

5.6.4 Alternative 2

5.6.4.1 Construction

Table 5.6-11 presents estimated annual emissions from construction in the Main Cantonment Area for Alternative 2, including facilities and infrastructure for a second CAB.

Table 5.6-11. Construction Emissions – Alternative 2

Facility Construction Type	*Construction / Demolition (SF)*[1]	*Construction Emissions (tons/year)*			
		VOC	*NO_x*	*CO*	*PM_{10}*
Single Family Housing	10,148,000	24.0	352.9	76.7	25.1
General Building Construction	13,041,885	72.3	1,062.5	231.1	75.4
Paved Area	39,155,560	7.8	101.3	40.8	6.8
Building Demolition	3,474,000	2.5	12.3	12.7	4.8
Total Construction Emissions		106.6	1,529.0	361.3	112.1

1. Assumed to be built over a 5-yeat period.

Emissions generated by construction projects are temporary in nature and end when construction is complete. Methods for reducing construction emissions would be the same as described for Alternative 1.

In general, construction-related combustive and fugitive dust emissions may have the potential to produce localized, short-term elevated air pollutant concentrations that would not result in any long-term impacts on the regional air quality.

5.6.4.2 Facility Operations

Facility-related operational emissions were estimated for Alternative 2 as described in Section 5.6.1 and include operational activities at Fort Bliss in both Texas and New Mexico. **Table 5.6-12** presents estimated increased annual emissions associated with operations in Alternative 2, based on a projected 227 percent increase in personnel at full implementation of this alternative.

Table 5.6-12. Increase in Facility Operational Emissions – Alternative 2

Portion of Fort Bliss	*Annual Emissions (tons/year)*						
	VOC	***NO_x***	***CO***	***TSP***	***SO_2***	***Pb***	***HAPs***
Texas	119.4	314.9	112.2	24.2	5.6	0.0	20.3
New Mexico	11.2	100.0	16.4	6.2	3.1	0.13	2.1

5.6.4.3 Training Activities

Training-related emissions were estimated for Alternative 2 as described in Section 5.6.1 and include the training requirements of a second CAB in addition to the requirements identified for Alternative 1. These emissions would be primarily from mobile sources. **Table 5.6-13** includes estimated combustion emissions associated with training activities in Alternative 2.

Table 5.6-13. Increase in Combustion Emissions – Alternative 2

Emission Source	*Annual Combustion Emissions (tons/year)*				
	VOC	***NO_x***	***CO***	***PM_{10}***	***SO_2***
Military Vehicles	77.0	1,460.0	43.0	316.0	7.0
Generators	4.0	43.0	9.0	3.0	3.0
Combat Aviation Brigades	1.0	47.0	15.0	3.0	6.0
Subtotal Military Equipment	*82.0*	*1,550.0*	*67.0*	*322.0*	*16.0*
Privately Owned Vehicles[1]	180.9	256.6	2,076.7	8.0	1.6
Total Combustion Emissions	**262.9**	**1,806.6**	**2,143.7**	**330.0**	**17.6**

1. Direct personnel and their dependents.

The annual combustion emissions from military equipment presented in Table 5.6-13 were distributed as follows: 55.2 percent of the activity in the North Training Areas, 6.8 percent in the South Training Areas, and 38.0 percent in the Tularosa Basin portion of McGregor Range. **Table 5.6-14** presents the resulting emissions in each area.

Table 5.6-14. Geographical Distribution of Emissions from Training Activities – Alternative 2

Emission Distribution	*Annual Combustion Emissions (tons/year)*				
	VOC	***NO_x***	***CO***	***PM_{10}***	***SO_2***
North Training Areas	45.3	856.0	37.0	178.0	8.8
South Training Areas	5.6	105.0	4.6	22.0	1.1
McGregor Range	31.1	589.0	25.4	122.0	6.1

These combustion emissions would be widely distributed throughout the year over an area of approximately 2,491 km^2. The emissions in the North Training Areas would be distributed over approximately 874 km^2, emissions in the South Training Areas over approximately 378 km^2, and

emissions in McGregor Range over approximately 1,129 km^2. Given the wide distribution of these emissions, no significant impacts to the air quality in the region are anticipated from vehicle combustion.

Estimated PM_{10} emissions from fugitive dust generated by off-road vehicle maneuvers under Alternative 2 are presented in Table 5.6-5. Greater utilization of the training areas would increase the annual PM_{10} emissions in Alternative 2, but the maximum 24-hour emissions would be the same as under Alternative 1 because the analysis for Alternative 1 is based on the maximum use of the training areas at any one time. The 24-hour PM_{10} levels at the installation boundary would be well below the NAAQS of 150 $\mu g/m^3$. Therefore, this analysis shows that the impacts of PM_{10} emissions from off-road vehicle maneuvers under Alternative 2 would not be significant. The potential for mitigating impacts of fugitive dust would be the same as described for Alternative 1.

5.6.4.4 Population-Related Emissions

Alternative 2 would result in a net increase of 24,800 personnel at Fort Bliss. Table 5.6-13 includes the estimated direct increase in annual privately owned vehicle emissions associated with those personnel. These changes in emissions are not expected to result in significant long-term impacts on air quality. Estimated annual emissions from privately owned vehicles of the induced population under Alternative 2 are presented in Table 5.6-6. Increased use of car pooling could reduce emissions from privately owned vehicles.

5.6.5 Alternative 3

5.6.5.1 Construction

Emissions from construction in the Main Cantonment Area under Alternative 3 would be the same as described for Alternative 2.

5.6.5.2 Facility Operations

Facility-related operational emissions under Alternative 3 would be the same as described for Alternative 2.

5.6.5.3 Training Activities

Training-related emissions were estimated for Alternative 3 as described in Section 5.6.1 and include the training requirements of a second CAB in addition to the requirements identified for Alternative 2. These emissions would be primarily from mobile sources. **Table 5.6-15** includes estimated combustion emissions associated with training activities in Alternative 3.

Table 5.6-15. Increase in Combustion Emissions – Alternative 3

Emission Source	*Annual Combustion Emissions (tons/year)*				
	VOC	***NO_x***	***CO***	***PM_{10}***	***SO_2***
Military Vehicles	79.0	1,487.0	44.0	322.0	7.0
Generators	4.0	43.0	9.0	3.0	3.0
Combat Aviation Brigades	1.0	47.0	15.0	3.0	6.0
Subtotal Military Equipment	*84.0*	*1,577.0*	*68.0*	*328.0*	*16.0*
Privately Owned Vehicles[1]	180.9	256.6	2,076.7	8.0	1.6
Total Combustion Emissions	**264.9**	**1,833.6**	**2,144.7**	**336.0**	**17.6**

1. Direct personnel and their dependents.

The annual combustion emissions from military equipment presented in Table 5.6-15 were distributed as follows: 57.0 percent of the activity in the North Training Areas, 7.0 percent in the South Training Areas, and 36.0 percent in the Tularosa Basin portion of McGregor Range. **Table 5.6-16** presents the resulting emissions in each area.

Table 5.6-16. Geographical Distribution of Emissions from Training Activities – Alternative 3

Emission Distribution	*Annual Combustion Emissions (tons/year)*				
	VOC	*NO_x*	*CO*	*PM_{10}*	*SO_2*
North Training Areas	47.9	899.0	38.7	187.0	9.1
South Training Areas	5.9	110.0	4.8	23.0	1.1
McGregor Range	30.2	568.0	24.5	118.0	5.8

These combustion emissions would be widely distributed throughout the year over an area of approximately 2,519 km^2. The emissions in the North Training Areas would be distributed over approximately 874 km^2, emissions in the South Training Areas over approximately 378 km^2, and emissions in McGregor Range over approximately 1,267 km^2. Given the wide distribution of these emissions, no significant impacts to the air quality in the region are anticipated from vehicle combustion.

Estimated PM_{10} emissions from fugitive dust generated by off-road vehicle maneuvers under Alternative 3 are presented in Table 5.6-5. The maximum 24-hour emissions would be the same as described for Alternative 1 because the analysis for that alternative is based on the maximum concurrent use of the training areas. The 24-hour levels at the installation boundary would be well below the NAAQS of 150 $\mu g/m^3$. Therefore, this analysis shows that the impacts of PM_{10} emissions from off-road vehicle maneuvers under Alternative 3 would not be significant. The potential for mitigating impacts of fugitive dust would be the same as described for Alternative 1.

5.6.5.4 Population-Related Emissions

The estimated direct increase in annual privately owned vehicle emissions associated with increased personnel at Fort Bliss under Alternative 3 would be the same as under Alternative 2 and are included in Table 5.6-15. These changes in emissions are not expected to result in significant long-term impacts on air quality. Estimated privately owned vehicle emissions from the induced population are presented in Table 5.6-6. Increased use of car pooling could reduce emissions from privately owned vehicles.

5.6.6 Alternative 4 – Proposed Action

5.6.6.1 Construction

Table 5.6-17 presents estimated annual emissions from construction in the Main Cantonment Area for Alternative 4, including facilities and infrastructure for two additional BCTs, in addition to the construction described for Alternatives 2 and 3.

Table 5.6-17. Construction Emissions – Alternative 4

Facility Construction Type	*Construction / Demolition (SF)*[1]	*Construction Emissions (tons/year)*			
		VOC	*NO_x*	*CO*	*PM_{10}*
Single Family Housing	10,148,000	24.0	352.9	76.7	25.1
General Building Construction	15,681,885	86.9	1,277.6	277.8	90.7
Paved Area	43,233,560	8.6	111.6	44.8	7.4
Building Demolition	3,474,000	2.5	12.3	12.7	4.8
Total Construction Emissions		122.0	1,754.0	412.0	128.0

1. Assumed to be built over a 5-year period.

Emissions generated by construction projects are temporary in nature and end when construction is complete. Methods for reducing construction emissions would be the same as described for Alternative 1.

In general, construction-related combustive and fugitive dust emissions may have the potential to produce localized, short-term elevated air pollutant concentrations that would not result in any long-term impacts on the regional air quality.

5.6.6.2 Facility Operations

Facility-related operational emissions were estimated for Alternative 4 as described in Section 5.6.1 and include operational activities at Fort Bliss in both Texas and New Mexico. **Table 5.6-18** presents estimated increased annual emissions associated with operations in Alternative 4, based on a projected 264 percent increase in personnel at full implementation of this alternative.

Table 5.6-18. Increase in Facility Operational Emissions – Alternative 4

Portion of Fort Bliss	*Annual Emissions (tons/year)*						
	VOC	***NO_x***	***CO***	***TSP***	***SO_2***	***Pb***	***HAPs***
Texas	132.9	350.5	124.9	26.9	6.2	0.0	22.6
New Mexico	12.5	106.8	18.3	7.0	3.5	0.15	2.3

5.6.6.3 Training Activities

Training-related emissions were estimated for Alternative 4 as described in Section 5.6.1 and include the training requirements of two additional BCTs in addition to the requirements identified for Alternatives 1, 2, and 3. These emissions would be primarily from mobile sources. **Table 5.6-19** includes estimated combustion emissions associated with training activities in Alternative 4.

Table 5.6-19. Increase in Combustion Emissions – Alternative 4

Emission Source	*Annual Combustion Emissions (tons/year)*				
	VOC	***NO_x***	***CO***	***PM_{10}***	***SO_2***
Military Vehicles	87.0	1,647.0	48.0	356.0	8.0
Generators	5.0	56.0	13.0	4.0	4.0
Combat Aviation Brigades	1.0	47.0	15.0	3.0	6.0
Subtotal Military Equipment	*93.0*	*1,750.0*	*76.0*	*363.0*	*18.0*
Privately Owned Vehicles[1]	244.8	347.3	2,811.0	10.9	2.2
Total Combustion Emissions	**337.8**	**2,097.3**	**2,887.0**	**373.9**	**20.2**

1. Direct personnel and their dependents.

The annual combustions emissions from military equipment presented in Table 5.6-19 were distributed as follows: 51.6 percent of the activity in the North Training Areas, 6.4 percent in the South Training Areas, and 42.0 percent in the Tularosa Basin portion of McGregor Range. **Table 5.6-20** presents the resulting emissions in each area.

Table 5.6-20. Geographical Distribution of Emissions from Training Activities – Alternative 4

Emission Distribution	*Annual Combustion Emissions (tons/yr)*				
	VOC	***NO_x***	***CO***	***PM_{10}***	***SO_2***
North Training Areas	48.0	903.0	39.2	187.0	9.3
South Training Areas	6.0	112.0	4.9	23.0	1.2
McGregor Range	39.0	735.0	31.9	153.0	7.5

These combustions emissions would be widely distributed throughout the year over an area of approximately 2,780 km^2. The emissions in the North Training Areas would be distributed over approximately 874 km^2, emissions in the South Training Areas over approximately 378 km^2, and emissions in McGregor Range over approximately 1,528 km^2. Given the wide distribution of these emissions, no significant impacts to the air quality in the region are anticipated from vehicle combustion.

Estimated PM_{10} emissions from fugitive dust generated by off-road vehicle maneuvers under Alternative 4 are presented in Table 5.6-5. Greater utilization of the training areas would increase the annual emissions in Alternative 4 compared to the other alternatives. The maximum 24-hour emissions at the North Training Areas would be the same as described for Alternative 1 because that analysis is based on the maximum concurrent use of those training areas. The maximum impact of 20 $\mu g/m^3$ at the installation boundary, when added to the background PM_{10} concentration in Doña Ana County of 35 $\mu g/m^3$

recommended by the New Mexico Environment Department, results in an estimated maximum ambient PM_{10} concentration of 55 $\mu g/m^3$. At McGregor Range, the PNNL level of 10 $\mu g/m^3$ was multiplied by a factor of 3 to account for potential concurrent training by one Heavy BCT and one battalion. Added to the recommended background PM_{10} concentration of 20 $\mu g/m^3$ for Otero County results in a maximum concentration of 50 $\mu g/m^3$. These levels are well below the NAAQS of 150 $\mu g/m^3$. Therefore, this analysis shows that the impacts of fugitive dust from off-road vehicle maneuvers under Alternative 4 would not be significant. The potential for mitigating impacts of fugitive dust would be the same as described for Alternative 1.

5.6.6.4 Population-Related Emissions

Alternative 4 could result in a net increase of as many as 32,400 personnel at Fort Bliss. Table 5.6-19 includes the estimated direct increase in annual privately owned vehicles emissions associated with those personnel. These changes in emissions are not expected to result in significant long-term impacts on air quality. Estimated annual emissions from privately owned vehicles of the induced population under Alternative 4 are presented in Table 5.6-6. Increased use of car pooling could reduce emissions from privately owned vehicles.

5.7 WATER RESOURCES

5.7.1 Introduction

The water resources analysis addresses surface water and groundwater supplies and storm water quality.

The availability of water in far west Texas, southeastern New Mexico, and north-central Mexico was identified as a scoping issue for this SEIS. Fresh water that can be easily treated to potable standards is in short supply, and the quality of historically used aquifers is declining. The pressure to find suitable drinking water supplies is increasing as El Paso and Ciudad Juárez are both growing rapidly.

The only surface water available for potable water supply in the El Paso region is the Rio Grande. El Paso Water Utilities is using Rio Grande water to the extent allowed by existing water quality and available water rights. EPWU is purchasing additional agricultural water rights to increase its use of Rio Grande water, but during drought years, the quality of that water is not adequate for treatment to potable water standards. Groundwater currently remains the only source of additional water for the region in drought years.

The primary groundwater source in the ROI is the Hueco Bolson, which supplies the Fort Bliss Main Cantonment Area, El Paso, and Ciudad Juárez. The adequacy of this source to meet future demand depends on population growth and water management activities on both sides of the U.S.-Mexico border.

Potable water to support Fort Bliss personnel and dependents comes from two primary sources: on-post wells, which currently provide the great majority of the water used in the Main Cantonment Area (Ref# 2), and EPWU. In 2004, Fort Bliss pumped approximately 5,200 acre feet (4.6 MGD) from the Main Post wells and 572 af (0.5 MGD) from Biggs AAF wells. The Main Post wells have the capacity of pumping approximately 17,800 afy, and the Biggs AAF wells have a capacity of pumping approximately 880 afy. EPWU can supply approximately 4,800 afy to the Main Cantonment Area (Ref# 2).

EPWU is planning for future population growth in the area and has developed projects for obtaining and distributing water to approximately 640,000 people by 2010. EPWU projections, not including the increased number of personnel and dependents and induced growth associated with Fort Bliss, indicate a population increase from 566,858 in 2000 to 637,481 in 2010.

Table 5.7-1 presents the Far West Texas Water Plan estimated water demand in El Paso County. Projects to meet the estimated increase in demand include the construction of the desalination plant on Fort Bliss land to ameliorate the withdrawal of fresh groundwater from the Hueco Bolson, increased use of Rio Grande water, and purchase of agricultural water rights. Complementing these efforts is an aggressive water conservation program intended to limit per capita consumption at 140 gal/day and a water reuse ("purple pipe") program for irrigation. According to the Far West Texas Water Plan, EPWU has established plans that it believes, based on its population projections, will provide "nearly sustainable" water for the next 100 years.

Table 5.7-1. Estimated Municipal Water Demand for El Paso County

	2000	***2010***	***2020***	***2030***	***2040***	***2050***	***2060***
Acre feet/year	134,065	155,795	176,736	194,882	209,460	226,764	244,450

Note: These demands represent the demand for all of El Paso County, which includes more than the service area of EPWU but does not include Fort Bliss.
Source: Ref# 317

EPWU plans to meet the water demand in 2010 from existing supplies (estimated at approximately 150,000 afy) by increasing the amount of reclaimed water and water conservation efforts. By 2020, however, an additional 10,000 afy will be required to meet projected baseline growth not including increases projected for Fort Bliss. A combination of Rio Grande water and Hueco and Mesilla Bolson

water will be used to meet this demand. By 2030, an additional 15,000 afy is planned to be obtained from the Dell City Area Aquifer. These increases result from projected demands of 168,264 afy by 2010, 193,820 afy by 2020, and 213,836 afy by 2030 (Ref# 321)

Simulations of future management alternatives for the Texas portion of the Hueco Bolson aquifer showed that EPWU pumping of 40,000 afy in years with full allocation of Rio Grande water and 75,000 afy in drought years would result in minor storage declines that would not impact existing infrastructure for at least 100 years (Ref# 317).

The unincorporated village of Chaparral, which lies just over the Texas-New Mexico border north of El Paso, has recently developed a draft plan to ensure adequate water supplies to meet further growth (Ref# 319). In analyzing alternative sources, including increased pumpage from the Hueco Bolson or the Tularosa Basin, the study concluded that desalination of readily available saline water was the best option. Should this plan be implemented, there would be essentially no impact of increased demand from this source on the aquifer.

Ciudad Juárez, located across the Rio Grande from El Paso, currently depends on the Hueco Bolson aquifer for its municipal and industrial water demands. Current planning calls for limiting Ciudad Juárez's pumping from the Hueco Bolson aquifer at about 122,000 afy and supplying increased demands through 2020 from the following groundwater sources (Ref# 317):

- Conejos Medanos (38,000 afy)
- Bismark Mine (26,000 afy)
- Mesilla (26,000 afy)
- Somero (28,000 afy)
- Profundo (31,000 afy)

Of these projects, the first phase of the Conejos Medanos was expected to be operational in 2006 (Ref# 317). In addition, plans are also being developed to convert 38,000 afy of surface water from the Rio Grande for municipal use. Mexico's current allocation from the Rio Grande Project of 60,000 afy is used for irrigated agriculture. The conversion would involve supplying wastewater effluent to farmers in exchange for surface water.

According to the Far West Texas Water Plan (Ref# 317), projected flows of Hueco Bolson groundwater to Juárez would be about the same as occurs now, in spite of EPWU and Fort Bliss pumpage from the aquifer. In the future, however, Ciudad Juárez may also need to develop desalination capability to guarantee supply.

The impacts of the alternatives on water resources were analyzed based on projected population increases associated with the units to be stationed at Fort Bliss over the next five years. The projection of water demand by employees who do not reside on post was estimated at 24 gallons per person per day. Estimated water consumption for the on-post population is based on 2004 water consumption in the Main Cantonment Area (203 gallons per person per day). The off-post population includes the dependents of military and civilian employees that live off post, the induced population, and the off-post water consumption of military and civilian employees that do not reside on post. Estimated water consumption for the equivalent off-post population is based on EPWU 2004 average consumption per customer (Ref# 215), assuming an average customer (household) size of 3.07 persons (Ref# 213). Total water consumption was then calculated for the on-post and off-post population. In addition, the analysis of the Proposed Action considers possible additional personnel increases at Fort Bliss, which are not currently planned, in order to estimate the reasonably foreseeable consequences of increasing training capability and use of the Fort Bliss Training Complex.

Impacts on storm water quality are based on proposed construction and increased impervious surface due to development of facilities and infrastructure, primarily in the Main Cantonment Area.

5.7.2 No Action Alternative

The No Action Alternative will result in an increase in on-post consumption of approximately 912 afy (0.8 MGD) and increased off-post water consumption of approximately 3,095 afy (2.8 MGD).

5.7.2.1 Surface Water

Under the No Action Alternative, the additional water needs can be met from the existing sources. Surface water resources will not be affected.

5.7.2.2 Groundwater

The increased demand for potable water on and off post under the No Action Alternative represents approximately 19 percent of EPWU's projected excess resource availability in 2010.

5.7.2.3 Storm Water

Under the No Action Alternative, the impervious surface in the Main Cantonment Area will expand by approximately 330 acres, generating increased surface water runoff of approximately 250 afy. This amount will likely be contained in existing storm water management ponds, but could result in discharge to the Rio Grande through existing conveyances during moderate to severe rainfall intensities. This discharge would be in compliance with Fort Bliss' anticipated municipal separate storm sewer system permit.

5.7.3 Alternative 1

Alternative 1 is projected to result in an increase in on-post water consumption of approximately 4,570 afy (4.1 MGD) and an increase in off-post water consumption of approximately 16,140 afy (14.4 MGD). The majority of this increase would be met through additional supplies from EPWU.

5.7.3.1 Surface Water

The impact of Alternative 1 on the use of Rio Grande water by the City of El Paso and others would be indirectly affected by increased water demand associated with Fort Bliss. EPWU might need to purchase additional Rio Grande water rights more rapidly than currently anticipated in order to increase available potable water between 2010 and 2020. Current plans do not anticipate a need for additional Rio Grande water until 2020 (Ref# 317).

5.7.3.2 Groundwater

Hueco Bolson

Under Alternative 1, the increase in on-post and off-post water consumption, combined with projected baseline population growth, would require approximately 97 percent of EPWU's available resources by 2015. Although the increased demand associated with this alternative could be met from existing sources, EPWU may need to develop additional water sources by 2010 that are currently not anticipated to be needed until 2020 (Ref# 317). One water source that EPWU anticipates using to meet demand is the purchase of additional Rio Grande water rights, which would not change the total human use of Rio Grande water but would change the use from irrigation to municipal water. In addition to increased utilization of surface water, additional use of the Hueco and Mesilla Bolsons might also occur.

Increased pumpage from the Hueco Bolson could result in further drawdown of the aquifer. However, EPWU expects that its plans to obtain water from other sources can be accelerated to meet the increased demand, and if a temporary increase in pumpage from the Hueco Bolson is needed while new projects come online, it would be limited to 1,000-7,000 afy for a period of three years. A temporary increase in pumping of this magnitude would have no significant impact on Hueco Bolson (Ref# 551).If the increased demand requires EPWU, as it monitors increases in water consumption, to develop projects

more rapidly than currently anticipated to meet those demands, there may be an impact on water rates, although EPWU anticipates rate increases of 5 percent per year or less for the next 20 years (Ref# 318).

Fort Bliss is working with EPWU to investigate the possibility of using more reclaimed water for on-post landscaping to reduce the consumption of fresh water.

Construction and operations activities on post could result in fuel spills and release of hazardous liquids with the potential to affect subsurface water resources. The depth to fresh groundwater is approximately 200 feet below the surface, however, and it is unlikely that any spill would reach freshwater or deeper brackish water resources used for potable water supplies. Any release of oil or hazardous substance will be responded to and cleaned up in accordance with the Fort Bliss Installation Spill Contingency Plan.

Tularosa Basin

Communities in New Mexico farther removed from the Fort Bliss/El Paso area are unlikely to experience any changes in the availability of fresh groundwater for the foreseeable future (i.e., for more than 50 years). Those changes that do occur after this time frame are not likely to be large.

Spills from military vehicles operating in the Fort Bliss Training Complex are unlikely to affect groundwater in the Tularosa Basin. Fuel bladders used in the training areas would be lined and bermed. Any release of oil or hazardous substance will be responded to in accordance with the ISCP, and applicable notification requirements will be followed in the event of a spill.

5.7.3.3 Storm Water

Under Alternative 1, the impervious area in the Main Cantonment Area would expand by approximately 1,300 acres, 970 acres more than the No Action Alternative. Assuming the developed Main Cantonment Area is approximately 6,100 acres and has 40 percent impervious surface, there are currently about 2,500 acres of impervious surface in the Main Cantonment Area. The increase in impervious area under the action alternatives thus represents a 52.6 percent increase over the 2005 Main Cantonment Area impervious area, and a 39 percent increase over the No Action impervious area. This would result in approximately 1,000 afy additional surface water runoff above 2005 levels and about 740 afy additional surface runoff above the No Action Alternative. While some of this additional runoff would be contained by existing retention ponds on the post, during moderate to high-intensity storms, it is likely that storm water would need to be discharged through existing conveyances to avoid flooding conditions unless additional storm water basins are constructed on post.

The quality of the storm water is not expected to change. Storm water discharges would need to comply with Fort Bliss' MS4 permit. Appropriate best management practices would be required in areas where water quality could be adversely affected.

5.7.4 Alternative 2

Alternative 2 would result in an increase in on-post water consumption of approximately 4,650 afy (4.2 MGD) and an increase in off-post water consumption of approximately 18,540 afy (16.6 MGD).

The increased consumption, combined with baseline population growth, would require approximately 99 percent of EPWU's available resources by 2015. Impacts on the Hueco Bolson and Tularosa Basin would be the same as those described for Alternative 1. Measures for reducing groundwater withdrawals and on-post consumption of fresh water would be the same as described for Alternative 1.

Alternative 2 would increase the impervious area in the Main Cantonment Area slightly more than Alternative 1. Increased storm water discharges would be required to comply with Fort Bliss' MS4 permit.

Impacts from and responses to potential spills of fuels and hazardous substances would be as described for Alternative 1.

5.7.5 Alternative 3

The impacts of Alternative 3 on water resources and associated mitigation measures would be the same as described for Alternatives 1 and 2.

5.7.6 Alternative 4 – Proposed Action

With the potential addition of two more Heavy BCTs at Fort Bliss, Alternative 4 could result in an increase in on-post water consumption of approximately 4,850 afy (4.3 MGD) and an increase in off-post water consumption of approximately 25,280 afy (22.6 MGD).

The increased consumption, combined with baseline population growth, could exceed EPWU's available resources by 3 percent. Depending on when the additional population influx occurred, EPWU would need to develop additional sources of potable water, currently not anticipated to be needed until 2020 (Ref# 317). Possible sources include purchase of additional Rio Grande water rights, increased withdrawals from the Hueco and Mesilla Bolsons, and development of the Dell City Area Aquifer. The impacts would be similar to Alternatives 1, 2, and 3 but marginally higher. Using more reclaimed water for on-post landscaping would reduce the consumption of fresh water

The impacts of Alternative 4 on the Tularosa Basin and associated mitigation measures would be the same as those described for Alternative 1

Under Alternative 4, the impervious area in the Main Cantonment Area could expand by a total of 1,600 acres. This would represent an 88 percent increase in impervious area above the 2005 Main Cantonment Area impervious area and could result in approximately 1,700 afy additional surface water runoff over 2005 conditions. While some of this additional runoff will be contained by existing retention ponds on the post, during storms, it is likely that storm water would need to be discharged through existing conveyances to the Rio Grande to avoid flooding conditions. Storm water discharges would be required to comply with Fort Bliss' MS4 permit and incorporate appropriate best management practices.

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5.8 BIOLOGICAL RESOURCES

5.8.1 Introduction

Proposed facilities development and training activities have the potential to affect biological resources in the Main Cantonment Area and the Fort Bliss Training Complex. Facility construction and demolition would take place in the Main Cantonment Area and other built-up areas such as the range camps and live-fire ranges.

The majority of biological resources on Fort Bliss are found within the Training Complex. Training can result in damage to biological resources primarily from vehicle maneuvers. Vegetation can be crushed or uprooted and soils can be mixed, compacted, and/or unstabilized. The magnitude of these disturbances increases at concentrations of activities such as command centers, staging areas, and bivouac sites. The degree of disturbance is affected by vegetation, slope, soils, and wet or dry conditions.

Wildfires can be started from ground vehicles during maneuver training and are also a potential disturbance of flora and fauna. Fires on Fort Bliss are primarily started naturally by lightning strikes or caused by ordnance use. Fires have occurred on Otero Mesa and in the Organ Mountains and less frequently elsewhere because of low fuel loads. Section 5.11 discusses fire risks associated with the Proposed Action and other alternatives. The potential impacts of wildfire on biological resources are described in the Mission and Master Plan PEIS (Ref# 3).

The analysis of impacts on biological resources from proposed increased and expanded off-road vehicle maneuvers considered the existing most common ecological site transition state (see Section 4.5) of each segment of the Fort Bliss Training Complex, coupled with soil type and existing vegetation community, to project what changes are likely to occur with increased off-road vehicle maneuver training. Most of the areas under consideration for off-road vehicle maneuvers are mesquite coppice dunes, sandscrub, and creosote piedmont or foothills shrubland. The southeast TAs of McGregor Range are dominated by mesa and piedmont grasslands (see Table 4.8-1). Soils are primarily sandy, gravelly, or loamy.

Mesquite coppice dune communities are already in an altered ecological state and are unlikely to change substantially. Conversely grasslands are the potential vegetation for many ecosites and vulnerable to shrub invasion and other transitions if disturbed. Areas in Deep Sand and Sandy ecosites that are not presently mesquite coppice dune dominated are susceptible to dune formation (see Section 5.5). As the vegetation changed, it would support different species, and wildlife in these areas could be displaced to other areas with suitable habitat and be replaced by species common to the area's new transition state.

Of the 62 sensitive species listed in Table 4.8-3, only ten are known or likely to occur in areas affected by the Proposed Action and other alternatives: desert night blooming cereus, sandhill goosefoot, Texas horned lizard, gray-banded kingsnake, Ferruginous hawk, northern aplomado falcon, western burrowing owl, Baird's sparrow, loggerhead shrike, and Bell's vireo. The other 52 species do not occur in habitats that would be affected by off-road vehicle maneuvers

Desert Night Blooming Cereus

This species is federally a species of concern and a State of New Mexico sensitive species. There have been over 80 individuals documented within shrubland communities on Fort Bliss (Ref# 202). It generally occurs in Chihuahuan Desert shrublands communities. Populations on Fort Bliss are documented on Doña Ana Range but are not documented in the North Training Areas. Known populations are restricted from maneuver activities. Additional populations may occur outside of firing ranges and buffers but that is unlikely due to lack of suitable habitat. Impact may occur from weapons firing, but this has not been observed from the monitoring program, and fire is unlikely to be the cause of mortality because fuel loads are low in desert night blooming cereus habitat.

Sandhill Goosefoot

This species is a State of New Mexico species of concern. It generally occurs in Chihuahuan Desert shrubland communities on sandy disturbed ground. Its occurrence is not currently known in the areas used or proposed for off-road vehicle maneuvers (Ref# 202). Undocumented populations could be affected, but it is unlikely.

Texas Horned Lizard

This species is a federal species of concern and a State of Texas threatened species. Texas horned lizards are widespread across Fort Bliss in grassland and shrubland communities (Ref# 3). Construction and increased off-road vehicle maneuver training may impact and/or reduce local populations of Texas horned lizard.

Gray-Banded Kingsnake

This species is a State of New Mexico endangered species. It inhabits limestone rock crevices. It has not been documented on Fort Bliss, but it is known from nearby Hueco Tanks State Park and may occur in the Hueco Mountains portions of the South Training Areas and southeast McGregor Range and on the Otero Mesa escarpment (Ref# 574).

Ferruginous Hawk

This species is a federal species of concern. Ferruginous hawks are grassland species and can be found as wintering residents on Otero Mesa in close association with black-tailed prairie dog colonies. They are also observed during migration, but breeding does not occur on Fort Bliss. Otero Mesa is the only common location for observation of this species during winter months and during migration.

Northern Aplomado Falcon

This species is a federally endangered species. Within the state of New Mexico, recent (May 2006) 10(j) status (experimental) under the Endangered Species Act was awarded to this species, which carries threatened status as a nonessential experimental population. Aplomado falcon breeds and forages in desert grasslands dominated by tobosa and grama grasses with high basal grass cover and relatively little bare ground cover compared to shrub-invaded and shrub-dominated vegetation communities. The species has had sporadic documentation on or near Otero Mesa over the last decade. The most likely occurrence of potential suitable habitat for this species is in mesa grassland and basin lowland desert grassland vegetation types; these two vegetation communities account for approximately 15 percent of Fort Bliss, primarily on Otero Mesa. Potential habitat may exist on Doña Ana Range and the adjacent Assembly Area, but it is small and fragmented and there is no documented occurrence of aplomado falcons in this area.

Western Burrowing Owl

This species is a federal species of concern. Burrowing owls occur throughout Fort Bliss, with concentrations in desert grassland and shrubland habitat, as well as mesquite coppice dune/sand scrub habitat. Surveys in the late 1990s documented over 40 breeding pairs on a small portion of Fort Bliss. The extent to which burrowing owls use mesquite coppice dune/sand scrub habitat is unknown, but they have been observed utilizing rodent burrows in the side of coppice dunes. Areas between coppice dunes are hard and almost no burrows exist. There are few burrows in the sandy plains grasslands. The most concentrated areas of burrows and burrowing owls are in the prairie dog colonies of the Otero Mesa grasslands.

Baird's Sparrow

This species is a federal species of concern. Baird's sparrow is found in grassland habitat with low shrub density and along swales. The species is known as a winter resident as well as a migrant primarily on the Otero Mesa grasslands of Fort Bliss (Ref# 3).

Loggerhead Shrike

This species is a federal species of concern. Loggerhead shrikes are grassland and shrubland species. They are observed during migration, and breeding occurs on Otero Mesa and within the Tularosa Basin.

Bell's Vireo

This species is a State of New Mexico threatened species. Bell's vireo is found in shrubland communities, generally in arroyo-riparian habitat. The species is known occasionally on Fort Bliss (Ref# 3), but no nesting activity has been detected.

Management of natural resources on Fort Bliss is governed through the INRMP (Ref# 23). Activities planned in the current INRMP are described in Section 2.1.4.

5.8.2 No Action Alternative

Under the No Action Alternative, the amount of off-road vehicle maneuvers will increase to accommodate the training needs of one Heavy BCT but will be limited to training in the South Training Areas, North Training Areas, and TA 8 on McGregor Range, areas already analyzed in the PEIS and approved for this use.

Construction of facilities in the Main Cantonment Area for one Heavy BCT will affect approximately 1,000 acres of vegetation, most of which is already disturbed and provides limited habitat value. This will result in mortality of some small animals and some loss of nests and mortality of young birds. Some adult birds and fledged young will likely be displaced. The largest amount of disturbance will occur in mesquite-dune habitat. Species utilizing this habitat will be displaced, but population changes are unlikely due to the amount of this habitat present on adjacent lands.

5.8.2.1 Vegetation

Under the No Action Alternative, off-road vehicle maneuvers will be restricted to training areas already approved for those purposes. Vegetation disturbance will be heavily concentrated in shrubland communities; specifically, mesquite coppice dune communities. Impacts will be as analyzed in the Mission and Master Plan PEIS. Impacts from other ongoing testing and training activities are also as described in the PEIS. Off-road vehicle maneuvers are not expected to significantly alter existing mesquite coppice dune communities, which comprise 79 percent of the area available for off-road vehicle maneuver.

5.8.2.2 Wetland and Arroyo-Riparian Drainages

Wetlands occur in the North Training Areas near land used for off-road vehicle maneuvers. Although wetlands are not off-limits for vehicle crossings, historically, impacts have been minimal due to the selection of a limited number of crossing points.

The majority of the arroyo-riparian drainages within the North and South Training Areas are in the Organ and Hueco Mountains, respectively. The Organ Mountains are off limits to off-road vehicle maneuver. Approximately 74 miles of arroyos are located in the areas approved for off-road vehicle maneuvers, which is 4 percent of the arroyos on Fort Bliss. The magnitude of impact to arroyo vegetation from off-road vehicle maneuvers under the No Action Alternative is very low.

5.8.2.3 Wildlife

Off-road vehicle maneuvers under the No Action Alternative will be concentrated within mesquite coppice dune vegetation communities. Direct wildlife mortality is generally expected to be negligible because wildlife populations have been exposed to military training activities for decades, and population levels likely reflect a level of habituation to those activities. Increased off-road vehicle maneuvers may result in localized displacement of less disturbance-tolerant species and some direct mortality to fossorial species is unavoidable. Migratory birds may be impacted because training will unavoidably occur during the breeding season of many avian species. However, the majority of fossorial animals and nesting birds in coppice dune habitat utilize the dunes or the vegetation on the dunes, which are generally avoided during vehicle maneuvers for tactical reasons. High-priority Partners In Flight species occupying shrubland communities on Fort Bliss including scaled quail, crissal thrasher, black-tailed gnatcatcher, and Scott's oriole, may be impacted by off-road maneuvers. Overall, impacts may increase due to increased training, but not significantly under this alternative.

The literature concerning noise impacts generally suggests that impacts to wildlife populations similar to those found on Fort Bliss appear to be short term and affect individuals, but do not translate to long-term or population-level impacts (Ref# 3).

5.8.2.4 Sensitive Species

Sensitive species affected or with the potential to be affected under the No Action Alternative include desert night blooming cereus, sandhill goosefoot, Texas horned lizard, gray-banded kingsnake, western burrowing owl, loggerhead shrike, and Bell's vireo. Desert night blooming cereus populations have been documented on Doña Ana Range but not in off-road vehicle maneuver areas. Because known populations are restricted from maneuver activities, off-road vehicle maneuvers under the No Action Alternative will not likely affect this species. No populations of sandhill goosefoot have been documented on Fort Bliss, but it has the potential to occur. Increased off-road vehicle maneuver activity under the No Action Alternative will not likely affect populations of sandhill goosefoot. Texas horned lizard and western burrowing owl are known in areas currently used for off-road vehicle maneuver. Local populations of Texas horned lizard may be reduced, but regional populations (county or state level) will not be jeopardized. Off-road vehicle maneuvers will have minimal impact on western burrowing owls because the burrows typically occur in sand dunes, which are rarely driven over. Gray-banded kingsnakes are not likely to be affected because they only occur in areas that are too steep or rugged for off-road vehicle maneuvers (Ref# 574). Bell's vireo is generally found in arroyo-riparian habitat. No nesting activity has been detected on Fort Bliss, so off-road vehicle maneuvers have little chance of affecting this species.

5.8.3 Alternative 1

The following activities associated with Alternative 1 are the primary sources of potential impacts to biological resources:

- Construction of three additional BCT complexes in the Main Cantonment Area.
- Expansion of Off-Road Vehicle Maneuver, Mission Support Facility, Weapons Firing, and SDZ/Safety Footprint training categories in TAs 9, 11, 25, 29, 30, 31, and 32 in the Tularosa Basin portion of McGregor Range south of Highway 506.
- Establishment of the Orogrande Range Complex in TA 29 near the Wilde Benton airstrip, thus concentrating training and impacts around those facilities.
- Construction of live-fire and qualification ranges on Doña Ana and McGregor Ranges.

Ground disturbance from facility construction and demolition in the Main Cantonment Area and other built-up areas would result in loss of vegetation and habitat, mortality of fossorial species individuals, and reduction on breeding and foraging areas for birds, including several species listed under the Migratory

Bird Treaty Act. The overall impact on biological resources would be minimal due to the existing urbanized/developed setting. The increase in disturbed ground in the Main Cantonment Area would be mitigated with ornamental landscaping, so bare ground from the development would be minimized. Vegetation in the Main Post is already ornamental in nature and has been heavily disturbed for decades, and therefore supports minimal wildlife habitat.

Construction activities on Biggs AAF would result in loss of some shrubland habitat, including habitat used by avian species for nesting and foraging. Impacts to migratory birds would be similar in nature but greater in magnitude to those described under the No Action Alternative. Surface disturbance of approximately 3,400 acres under Alternative 1 would be phased over five years. The displacement of migratory bird species would be spread out over this time period and thus reduce impacts to nesting species. The largest amount of disturbance from construction in the Main Cantonment Area would occur in mesquite-dune habitat. Species utilizing the habitat would be displaced but population changes are unlikely due to the amount of the habitat present on adjacent lands and the likelihood that this habitat will not experience an overall net decrease on Fort Bliss (see Section 5.8.3.1). The impact of construction in the Main Cantonment Area and at the range camps would have negligible impacts to wetlands and arroyo-riparian drainages and sensitive species because of the already highly disturbed condition of those areas.

5.8.3.1 Vegetation

Most of the South Training Areas, North Training Areas, Doña Ana Range, and the south Tularosa Basin portion of McGregor Range is dominated by shrub communities. Construction of new ranges in these areas is not expected to have adverse impacts to vegetation and wildlife populations. The south Tularosa Basin portion of McGregor Range would require more aggressive sediment and erosion controls because Deep Sand soils are present which are less stable (see Section 5.5). While excavated soils would alter habitat, the impacts to vegetation and wildlife populations from range construction would not be significant.

Under Alternative 1, training areas in the south Tularosa basin portion of McGregor Range would be used for off-road vehicle maneuvers, in addition to the area already approved for this use. Based on the projected level of use, if every vehicle traveled on a different path, as much as 55 percent of the area could be driven on annually. This means that the entire proposed area could be impacted from off-road vehicle maneuvers every two years. In reality, not every vehicle is likely to travel a unique route, so the actual areal impact would be somewhat less. Nevertheless, at this temporal scale, recovery from disturbance would be low.

Impacts to vegetation under Alternative 1 would occur primarily as a result of mission activities and include destruction and change in the composition of vegetation, wildfires, and reduced/lost vegetation productivity due to soil erosion (see Section 5.5 for discussion of soil erosion and Section 5.11 for discussion of wildfires). Off-road vehicle maneuvers can significantly alter landscape and vegetation communities (Ref# 3, 23, 348, 349). Several studies in desert communities and pertaining specifically to Fort Bliss have been conducted (Ref# 3, 23). Concluding results of these studies suggest that heavy vehicle (both tracked and wheeled) use results in vegetation disturbance, including direct loss of individuals. However, incremental recovery of vegetation does occur, with results beginning the first year. Climate is an import factor in the recovery process, as well as utilization. During drought conditions and successive annual utilization, recovery is reduced or hindered (Ref# 125)

Vegetation disturbance from off-road vehicle maneuvers in the North and South Training Areas and south Tularosa Basin portion of McGregor Range would be heavily concentrated in shrubland communities under Alternative 1 (**Table 5.8-1**); specifically, mesquite coppice dunes, creosote piedmont shrublands, and sandscrub. Impacts to vegetation communities would be low in the dominant mesquite coppice dune communities (approximately 20 percent of the south Tularosa Basin portion of McGregor Range). The Natural Resource Conservation Service ecological site description for the Sandy ecosite indicates that it is

possible that changes in climate over the last several hundred years have created a transition throughout the Southern Desertic Basins from the presumed historic plant community type. These communities have stabilized in an altered ecological state, and further change is unlikely. Reversing the transition has proven unsuccessful (Ref# 331).

Communities of sandscrub in Deep Sand that are subjected to extensive disturbance, such as at the Orogrande Range Complex, would likely become more patchy with bare ground. Opportunistic herbaceous vegetation would likely colonize those patches. This accounts for approximately 11 percent of the south Tularosa Basin portion of McGregor Range. A small percentage may transition to mesquite coppice dunes. Disturbance of creosote piedmont shrublands on gravely and loamy soils would be likely to reduce shrub cover. This accounts for approximately 23 percent of the south Tularosa Basin portion of McGregor Range.

Table 5.8-1. Dominant Vegetation in Areas Proposed for Off-Road Vehicle Maneuvers

Segment	*Training Areas*	*Dominant Vegetation*		
		1st	*2nd*	*3rd*
South Training Areas	1A, 1B, 2A, 2B, 2C, 2D, 2E	Mesquite Coppice Dunes (76%)	Creosote Piedmont Shrublands (7%)	Sandscrub (7%)
North Training Areas	3A, 3B, 4A, 4B, 4C, 4D, 5A, 5B, 5C, 5D, 5E, 6A, 6B, 6C, 6D, 7A, 7B, 7C, 7D, AA	Mesquite Coppice Dunes (82%)	Creosote Piedmont Shrublands (6%)	Sandscrub (4%)
McGregor Range, South Tularosa Basin	8, 9, 25, 30, 31, 32, portions of 11 and 29 south of Highway 506	Creosote Piedmont Shrublands (31%)	Sandscrub (21%)	Mesquite Coppice Dunes (20%)
McGregor Range, North Tularosa Basin	10, western half of 12, portions if 11 and 29 north of Highway 506	Creosote Piedmont Shrublands (38%)	Mesquite Coppice Dunes (27%)	Sandscrub (14%)
McGregor Range, Southeast TAs	24, 26, 27	Mesa Grasslands (24%)	Foothill Desert Grasslands (23%)	Foothill Desert Shrublands (20%)

AA =Assembly Area

5.8.3.2 Wetland and Arroyo-Riparian Drainages

Overall impacts to wetlands under Alternative 1 would be minor, due to restrictions in certain areas (Organ Mountains) and the location of these communities (a majority of the areas where those communities occur are excluded from off-road vehicle maneuvers, see Figure 4.7-2). Approximately 468 miles, (27 percent) of the arroyos on Fort Bliss are contained in the area that would be available for off-road vehicle maneuver under Alternative 1. Some arroyos would be modified to allow safe off-road vehicle maneuver by reshaping and stabilizing the banks of the drainage. These modifications would be limited to portions of arroyos that do not support riparian vegetation; therefore, arroyo-riparian habitat would not be affected by this activity. Off-road vehicle maneuvers would occur in and near arroyo-riparian drainages on a limited-use basis. No bivouacs or concentrations of personnel or vehicles would be permitted in or within 50 meters of riparian vegetation. The magnitude of impact to arroyo-riparian vegetation under Alternative 1 would be low except at arroyo crossing points that receive higher levels of vehicle traffic.

5.8.3.3 Wildlife

Impacts to wildlife would potentially result from off-road vehicle maneuvers that cause habitat degradation and destruction, noise impacts, fire, species displacement, and direct mortality. Off-road vehicle maneuvers under Alternative 1 would be concentrated within mesquite coppice dune, creosote piedmont shrublands, and sandscrub vegetation communities (see Table 5.8-1) and impacts would be similar to those describe for the No Action Alternative. The primary difference in the North and South Training Areas would be an increase in the amount of off-road vehicle maneuver use proposed under Alternative 1. With an increase in the number of BCTs, as much as 55 percent of the available training area could be driven over annually, compared to 45 percent under the No Action Alternative. More shrubland communities would be impacted due to more frequent usage and less recovery time under Alternative 1. In addition, the TAs in the south Tularosa Basin portion of McGregor Range would be newly exposed to off-road vehicle maneuvers.

Direct mortality of fossorial species that use shrubland communities would be likely. The probability of mortalities would be highest in areas of concentrated use including the vicinity of the range camps and the range complexes, such as the Orogrande Range Complex. Mortalities from off-road vehicle maneuvers would be relatively low in mesquite coppice dunes because vehicles generally avoid crossing the dunes.

Among avian species, breeding birds utilizing shrubland communities for nesting and foraging would be impacted the greatest. This includes several species listed under the Migratory bird Treaty Act such as the black-throated sparrow (*Amphispiza bilineata*), blue grosbeak (*Guiraca caerulea*), house finch (*Carpodacus mexicanus*), verdin (*Auriparus flaviceps*), and loggerhead shrike (*Lanius ludovicianus*). Habitat destruction would reduce nesting substrate and possible prey. Individuals would likely move to adjacent locations. Birds that nest in mesquite coppice dunes such as the western kingbird (*Tyrannus verticalis*), crissal thrasher (*Toxostoma crissale*), Scott's oriole (*Icterus parisorum*), mourning dove (*Zenaida macroura*), and northern mockingbird (*Mimus polyglottus*) would be less affected.

While existing nests could be lost due to habitat destruction and nesting substrate would be reduced in some areas, nesting substrate could increase in other areas where disturbance from off-road vehicle maneuvers leads to increased shrub invasion and density and additional coppice dune formation.

Wildlife species richness within mesquite coppice dune communities is low (compared to other vegetation communities described in Section 4.8) for birds, mammals, and reptiles (Ref# 21). Within the mesquite coppice dune community, most of the wildlife is located in the dunes, which would generally be driven around rather than over. Many wildlife species are habituated to military training activities and thus would experience minimal impacts. Slow-moving species (e.g., some lizard species and turtles) are more likely to be affected than fast-moving species (e.g., coyote). Increased off-road vehicle training may result in greater localized displacement of less disturbance-tolerant species. Increased habitat disturbance may also result in changes in species distribution.

Communities of mesquite coppice dunes have stabilized in an altered ecological state and thus would likely continue to support existing levels of wildlife. Communities of sandscrub in Deep Sand would become more patchy with bare ground. Species richness would likely decrease in those areas. Shrub cover in heavily used communities of creosote piedmont shrublands on gravely and loamy soils would decrease. Loss of shrub cover would reduce potential nesting substrate for some species, and bare ground generally supports lower densities of wildlife.

In summary, wildlife species density in the south Tularosa Basin portion of McGregor Range is likely to decrease, due to up to 11 percent of the area becoming more patchy in sandscrub communities, coupled with reduced shrub cover and increased bare ground within creosote piedmont communities. Wildlife populations would likely utilize adjacent lands; thus, overall regional changes (at the county or state level) in non-status wildlife populations are not expected under Alternative 1.

Impacts from noise would be similar to those described for the No Action Alternative but higher because of increased noise levels at live-fire ranges. Most studies evaluating noise impacts from military activities are associated with aircraft. Avian studies report slight behavior responses, but reproductive responses have not been documented (Ref# 481, 487, 488). Wild ungulates appear to vary in sensitivity to aircraft noise. Responses reported in the literature varied from no effect and habituation to panic reactions followed by stampeding (Ref# 483, 484). Novel or new noises tend to result in a response from an animal, as opposed to regular, predictable noises. Similarly, loud and close aircraft typically evoke a more severe response (Ref# 485, 486). Nevertheless, noise impacts to wildlife species carry a low likelihood of population-level impacts. Although noise associated with the live-fire ranges on Doña Ana and McGregor Ranges and helicopter training in the Restricted airspace would increase under Alternative 1, these uses would not be a new source of noise.

5.8.3.4 Sensitive Species

The types of potential impacts to sensitive species under Alternative 1 are similar to those described for vegetation and wildlife species. Off-road vehicle maneuvers and training would be the primary source of impacts. Construction activities in the Main Cantonment Area would have little impact on sensitive species due to the lack of preferred habitat in this area. Off-road vehicle maneuvers would be concentrated within shrubland habitat types, and sensitive species occupying these types of habitat would likely be impacted the greatest. The TAs proposed for off-road vehicle usage under this alternative are not specific habitat for sensitive species.

Alternative 1 could affect the same seven sensitive species as the No Action Alternative. Impacts to affected species on the North and South Training Areas would be similar to those described for the No Action Alternative. More individuals would be impacted, but regional populations are not likely to be jeopardized. The south Tularosa Basin portion of McGregor Range is known to contain or has the potential to be occupied by loggerhead shrikes, Texas horned lizards, and western burrowing owls. As noted for the No Action Alternative, loggerhead shrikes and western burrowing owls occupying shrublands primarily occur in mesquite coppice dunes, which would generally be driven around, not over, by maneuvering vehicles. Texas horned lizards would be affected, but regional populations are not expected to be impacted.

5.8.4 Alternative 2

Impacts to biological resources under Alternative 2 would be similar to those described for Alternative 1, with the addition of off-road vehicle maneuvers in the north Tularosa Basin portion of McGregor Range. As shown in Table 5.8-1, the vegetation in this portion of McGregor Range is dominated by the same three vegetation communities as the North and South Training Areas and the south Tularosa Basin portion of McGregor Range – mesquite coppice dunes, creosote piedmont shrublands, and sandscrub – but in different proportions. Like the south Tularosa Basin TAs, the north Tularosa Basin TAs are more predominantly creosote piedmont shrublands (38 percent). The second most common community is mesquite coppice dunes (27 percent), followed by sandscrub (14 percent). In total, as much as 50 percent of the training areas available for off-road vehicle maneuver could be driven over annually under Alternative 2. However, the north Tularosa Basin TAs on McGregor Range are expected to be used somewhat less than the other off-road vehicle maneuver areas, so the level of tracking there would likely be closer to 20-30 percent annually at the low end of estimated use (see Table 3.5-1) and increase as utilization increases.

5.8.4.1 Vegetation

The impacts to vegetation communities from off-road vehicle maneuvers would be similar in nature to those described for Alternative 1. However, they would be more wide spread due to expansion of vehicle maneuvers into the north Tularosa Basin portion of McGregor Range. The western half of the north Tularosa Basin portion of McGregor Range is predominantly mesquite coppice dune communities. This

could increase by approximately 2 percent as some interspersed sandscrub communities transition to mesquite coppice dune communities. Approximately 5 percent of the area in sandscrub communities would experience more bare ground in areas of repeated disturbance. In the east half of this area, shrub cover in creosote piedmont shrublands on gravely and loamy soils could be reduced, depending on the level of use and disturbance from off-road vehicle maneuvers. This community accounts for approximately 33 percent of the north Tularosa Basin portion of McGregor Range. The impact to these shrub communities would result in less shrub cover and more herbaceous vegetation.

5.8.4.2 Wetland and Arroyo-Riparian Drainages

Impacts to arroyo-riparian communities from Alternative 2 would be similar in nature to those described for the No Action Alternative and Alternative 1. Approximately 574 miles (33 percent) of arroyos on Fort Bliss are contained in the areas proposed for off-road vehicle maneuvers under this alternative.

5.8.4.3 Wildlife

The potential for direct wildlife mortality under Alternative 2 would be similar to that described for Alternative 1. Most species would avoid training activities; however, fossorial species and some avian species would be impacted. Increased training may result in greater localized displacement of less disturbance-tolerant species. Increased habitat disturbance may also result in changes in species distribution. Overall regional changes (at the county of state level) in non-status wildlife populations are not expected. Wildlife in the north Tularosa Basin portion of McGregor Range would likely become less dense, due to a reduction in vegetation cover, transition from sandscrub to mesquite coppice dune communities, and potential reduction in shrub cover in creosote piedmont communities. Wildlife populations would likely utilize adjacent lands; thus, overall regional changes (at the county or state level) in non-status wildlife populations are not expected under Alternative 2.

5.8.4.4 Sensitive Species

The types of potential impacts to sensitive species would be similar to Alternative 1. The species potentially occurring in the north Tularosa Basin portion of McGregor Range include loggerhead shrike, Texas horned lizard, western burrowing owl, and sandhill goosefoot. These species are known to occur, or potential habitat exists, in training areas dominated by shrubland communities. Because, with the addition of the north Tularosa Basin TAs, more shrubland communities would be used for off-road vehicle maneuvers under Alternative 2, the number of individuals potentially affected would be larger than under Alternative 1 and the No Action Alternative. The Texas horned lizard would likely utilize adjacent habitat, and therefore species populations would not be greatly impacted under Alternative 2. Impacts to the other species would be similar to Alternative 1, but higher, because more nesting habitat would be disturbed. Although local populations may be affected, regional populations are not likely to be jeopardized.

5.8.5 Alternative 3

Impacts to biological resources in the North and South Training Areas and the south Tularosa Basin portion of McGregor Range would be the same under Alternative 3 as described for Alternative 1. The addition of the Mission Support Facility training category to TAs 5A, 5B, 5C, 5D, 5E, 6A, 6B, 7A, and 7D could result in increased development in those areas.

Alternative 3 would not include off-road vehicle maneuvers in the north Tularosa Basin of McGregor Range. Instead, the southeast Training Areas of McGregor Range (TAs 24, 26, and 27) would be opened for off-road vehicle maneuvers. In total, as much as 50 percent of the training areas available for off-road vehicle maneuver could be driven over annually under this alternative. However, the southeast TAs on McGregor Range are expected to be used somewhat less than the other off-road vehicle maneuver areas, so the level of tracking there would be closer to 15-25 percent annually.

5.8.5.1 Vegetation

The habitat within the southeast TAs of McGregor Range is dominated by grasslands. Construction and maintenance of roads would potentially remove some grassland habitat, permanently eliminating a small portion of this habitat. Vegetation and wildlife populations may suffer localized impacts but regional impacts to populations are not likely from construction. Aggressive sediment and erosion controls would aid in the reduction of impacts from disturbance associated with construction.

The southeast TAs on McGregor Range are more susceptible to water erosion (see Section 5.5). Once substantial vegetation cover is lost, there is an increased likelihood of bare ground longevity. Mesa, foothill desert, and piedmont grassland communities dominate the southeast TAs. Foothill desert shrubland communities are also common in these TAs. With repeated disturbance, mesa and piedmont grasslands may transition to a shrub-succulent dominant state. Foothill grasslands would likely maintain their current transition state. Mesa and piedmont grasslands could be decreased by as much as 18 percent, depending on the level and extent of disturbance, while foothill grasslands would likely remain at approximately 26 percent of the southeast TAs (Ref# 29). Grasslands would be designated as limited-use areas where no bivouacs or concentration of personnel or vehicles would be permitted, which would reduce the impact of off-road vehicle maneuvers. Alternative 3 is expected to have moderate impacts to vegetation communities.

5.8.5.2 Wetland and Arroyo-Riparian Drainages

Impacts to arroyo-riparian communities from Alternative 3 would be similar in nature to those described for the No Action Alternative and Alternative 1. The areas proposed for off-road vehicle maneuvers under this alternative contain approximately 775 miles (45 percent) of the arroyos on Fort Bliss.

5.8.5.3 Wildlife

Impacts to wildlife from Alternative 3 would be similar to those described for Alternative 1. The primary difference would be increased use of grassland communities for off-road vehicle maneuvers. Approximately two-thirds of the southeast TAs on McGregor Range is comprised of grassland communities, specifically mesa and foothill desert grassland communities. Grassland community species may be impacted. Grassland communities generally support higher diversity of birds, mammals, and reptiles (Ref# 21). Existing wildlife richness within mesa, piedmont, and foothill grasslands is high in comparison to adjacent lands. With off-road vehicle maneuver training, species richness would likely decrease in the mesa and piedmont grasslands as they transition to more succulent dominated communities. Loss of grass cover would potentially result in reduced prey species and increased bare ground, which supports lower diversity of wildlife. Reduction of grass species can also result in an increase in shrublands. Therefore an increase in species associated with shrublands is possible. Wildlife species diversity within foothill grasslands would likely remain unchanged. Increased training may result in greater localized displacement of less disturbance-tolerant species, and increased habitat disturbance may also result in changes in the distribution of species. Overall regional changes (at the county or state level) in non-status wildlife populations are not expected.

5.8.5.4 Sensitive Species

The types of potential impacts to sensitive species under Alternative 3 would be similar to those described under the No Action Alternative and Alternative 1. Sensitive species found or with potential to occur in grassland communities in the southeast TAs include loggerhead shrike, Texas horned lizard, western burrowing owl, ferruginous hawk, northern aplomado falcon, and Baird's sparrow. Impacts to loggerhead shrikes, Texas horned lizards, and western burrowing owls would be the same as described for Alternative 1. Gray-banded kingsnakes in the Hueco Mountains are not likely to be affected because they only occur in areas that are too steep or rugged for off-road vehicle maneuvers (Ref# 574).

Otero Mesa is the only common location for observation of ferruginous hawks during winter months and during migration. Alternative 3 would not involve off-road vehicle maneuvers on Otero Mesa; therefore, this species is not expected to be affected. The most likely occurrence of potential suitable habitat for northern aplomado falcon is in mesa grassland and basin lowland desert grassland vegetation types; these two vegetation communities account for approximately 5 percent of the area that could be affected by off-road vehicle maneuver under this alternative. Training activities under Alternative 3 are not expected to affect northern aplomado falcon. Baird's sparrow is also primarily found in grasslands on Otero Mesa. Off-road vehicle maneuvers in the grasslands of the southeast TAs could affect Baird's sparrow but are not likely to significantly impact this species.

In summary, impacts to sensitive species populations are not likely because their occurrence on areas of Fort Bliss proposed for off-road vehicle maneuver is transitory or non-breeding, or they are not present at all.

5.8.6 Alternative 4 – Proposed Action

The impacts to biological resources from Alternative 4 would be similar to those described for Alternatives 1, 2, and 3. The area open for off-road vehicle maneuvers would be more extensive. In total, as much as 55 percent of the training areas available for off-road vehicle maneuvers could be driven over annually. However, the north Tularosa Basin and the southeast TAs on McGregor Range are expected to be used somewhat less than the other off-road vehicle maneuver areas, so the level of tracking there would more likely range from 20 to 50 percent annually.

5.8.6.1 Vegetation

The impacts of off-road vehicle maneuvers on the vegetation in various segments of the Fort Bliss Training Complex would be as described for the other alternatives. Due to increased off-road vehicle training within shrubland and grassland communities, the use of areas susceptible to erosion, and minimal recovery periods, Alternative 4 would have moderate impacts on vegetation communities.

5.8.6.2 Wetland and Arroyo-Riparian Drainages

Impacts to arroyo-riparian communities from Alternative 4 would be similar to those described for the other alternatives. The areas proposed for off-road vehicle maneuvers under this alternative contain approximately 882 miles (51 percent) of the arroyos on Fort Bliss. Impacts to arroyo-riparian vegetation would be limited due to the use limitations described under Alternative 1.

5.8.6.3 Wildlife

Wildlife in various segments of the Fort Bliss Training Complex would be as described for the other alternatives. The impacts would be more extensive, but overall regional changes (at the county or state level) in non-status wildlife populations are not expected.

5.8.6.4 Sensitive Species

The types of potential impacts to sensitive species would be the same as those described for the other alternatives. Local populations of sensitive species that occupy shrubland and grassland communities would be affected, but regional populations are not likely to be jeopardized. Potential habitat for desert night blooming cereus, loggerhead shrike, Texas horned lizard, western burrowing owl, sandhill goosefoot, ferruginous hawk, northern aplomado falcon, Baird's sparrow, and Bell's vireo may be affected, but populations are not likely to be significantly impacted. The gray-banded kingsnake is unlikely to be affected because its habitat is too steep and rugged for off-road vehicle maneuvers (Ref# 574).

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5.9 CULTURAL RESOURCES

5.9.1 Introduction

Fort Bliss has executed a Programmatic Agreement that provides the process for how historic properties on the installation will be managed as provided for by NHPA Section 106 and 36 CFR Part 800. The analysis in this section complies with this requirement and with AR 200-4, which encompasses compliance with NEPA, NHPA, and associated federal regulations (36 CFR 60.4, 36 CFR 800) that require federal agencies to consider what effects their undertakings may have on historic properties as part of the decision-making process. In addition, U.S. Army Pamphlet 200-4 provides guidance for implementation of Army policy regarding compliance with all laws and regulations associated with historic properties management. The Fort Bliss HPO will continue to coordinate with the Texas and New Mexico SHPOs regarding NRHP eligibility on previously unevaluated sites, public awareness, and impact mitigation strategies in accordance with the PA stipulations (see Appendix B).

Fort Bliss currently provides for survey of 30 percent of the unsurveyed land on McGregor Range that would be open to off-road vehicle maneuvers. The additional survey will emphasize areas of development and concentrated use and unsurveyed areas identified through predictive modeling as most likely to have archaeological sites. Areas of future facility development will be surveyed prior to construction.

For this SEIS, impact analysis for historic properties has employed guidelines and standards set forth in NHPA Section 106's implementing regulations (36 CFR 800) and historic property management procedures at Fort Bliss outlined in the Standard Operating Procedures stipulated in the PA. In accordance with Section 106, once an action is determined to be an undertaking, impacts to historic properties are assessed by: (1) identifying the nature and location of all elements of the proposed action and alternatives; (2) comparing those locations with identified historic properties, sensitive areas, and surveyed locations; (3) determining the known or potential significance of historic properties that could be affected; and (4) assessing the extent and intensity of the effects. The impact assessment process for historic properties centers on the concept of significance. Federal laws and regulations require federal agencies to manage historic properties (i.e., resources that are eligible for inclusion in or are listed in the NRHP). A summary of NRHP eligibility criteria for historic properties in the areas affected by the Proposed Action and other alternatives is presented in Section 4.9.

An action results in an adverse effect to a historic property when it alters qualities of the resource, including relevant features of its environment or use, that make it eligible for inclusion in the NRHP (36 CFR 800.9[b]). Potential adverse effects could include the following:

- 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 qualification for the NRHP;
- 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.

Although Section 106 requires federal agencies to consider all findings of effect whether beneficial or not, only adverse effects require mitigation.

Potential sources of impacts that were considered for this SEIS include:

- Ground disturbance, including erosion, resulting from actions such as construction, demolition, operation, and maintenance of facilities; training activities; and operation, management, and maintenance of training areas.

- Vibration, noise, and visual impacts resulting from construction, training, operations, or maintenance.
- Access-related impacts resulting in increased vandalism due to improved access.

Historic properties on Fort Bliss will be affected by facility construction and demolition, training activities, and maintenance. Transfer, lease, or sale of the property out of federal ownership or management is defined as an adverse effect by 36 CFR Part 800

5.9.1.1 Facility Construction and Demolition

Facility and infrastructure construction and demolition activities that could potentially impact historic properties include foundation or trench excavation, grading or filling, asphalt removal, heavy machinery movement, soil compaction, and renovation or demolition of historic buildings or facilities. New structures or additions to structures with designs that are not compatible with existing historic properties could also be considered adverse effects, particularly within the boundaries or viewshed of one of the two historic districts in the Main Cantonment Area. These activities could adversely affect existing historic properties in areas that have not been previously cleared for renovation or construction by the Fort Bliss HPO.

Specific historic resources at Fort Bliss are managed through four agreements that operate outside the Fort Bliss PA for the management of historic properties. These agreements address project effects and appropriate impact mitigations. The agreements include mitigation of effects from all actions up to and including renovation, repair, and demolition of the buildings and associated landscapes.

- World War II Temporary Buildings (Programmatic Agreement among DoD, ACHP and NCSHPO Regarding the Demolition of World War II Temporary Buildings, effective June 7, 1986) are not subject to Section 106 unless an undertaking will affect another building not covered by the PA.
- Capehart and Wherry Era Army Family Housing is covered by a Program Comment (approved March 31, 2002 by the ACHP, effective June 7, 2002) that addresses all undertakings affecting these buildings.
- Family housing units and associated undertakings are to be managed according to the Residential Communities Initiative (Programmatic Agreement between the U.S. Army Air Defense Artillery Center and Fort Bliss and the Texas SHPO for the Privatization of Family Housing at Fort Bliss, Texas).
- Expanded Use Leasing at the WBGHHD, in the WBAMC will be managed through a Programmatic Agreement between the U.S. Army Air Defense Artillery Center Fort Bliss and the Texas SHPO.
- Cold War Unaccompanied Housing is covered by a Program Comment (approved August 19, 2006 by the ACHP) that addresses all undertakings affecting those buildings.
- World War II and Cold War Era Ammunition Storage Facilities are covered by a Program Comment (approved August 19, 2006 by the ACHP) that addresses all undertakings affecting those buildings.

5.9.1.2 Training Operations and Maintenance of Training Areas

Ground-disturbing activities that occur on Fort Bliss can potentially impact historic properties either through destruction of the resource or through damaging the resource's integrity, a key criterion for determining a historic resource's eligibility for nomination to the NRHP. These activities could include maintenance and operation of training facilities; vehicle maneuvers and associated activities; small arms, gunnery, and artillery activities; ordnance delivery; firefighting; human trampling; non-military actions such as grazing and recreation; and indirect results of ground disturbance such as increased erosion.

Blowing sediment from ground disturbing activities can affect historic properties. Wind-aided erosion can expose archaeological deposits, affecting context and revealing artifacts. Conversely, blowing sediments can bury or obscure archaeological sites, in some cases providing a beneficial effect as the site becomes protected from inadvertent damage and casual collecting.

Vibration effects to historic properties can originate from a variety of sources, including ground sources such as construction and blasting, vehicle traffic, and aircraft overflights. Historic properties have been shown to be susceptible to impacts from vibrations, depending on a number of factors such as decibel level, proximity, and overpressure (Ref# 253, 309, 310). However, studies have established that subsonic noise-related vibration damage to structures, even historic buildings, requires high decibel levels generated at close proximity to the structure and in a low frequency range (Ref# 134, 137, 138, 144). Aircraft must generate at least 120 dB at a distance of no more than 150 feet to potentially result in structural damage (Ref# 138), and even at 130 dB, structural damage is unlikely.

There is evidence on both sides of the issue as to the effects of helicopter overflight on architectural resources. Although noise and vibration levels from helicopters are less than those produced by low-flying jet aircraft (Ref# 306), the duration of noise and vibration is considerably longer from helicopter overflight. Extremely close and low overflights (50 feet) by heavy (more than 20,000 pounds) helicopters have a high probability of damaging architectural resources (Ref# 144). However, helicopter flights that approach within 300 feet have not been demonstrated to damage historic properties (Ref# 138). Archaeological resources are unlikely to experience adverse effects from aircraft overflight. No data exist that would indicate that surface artifact scatters and subsurface archaeological deposits are affected by vibrations resulting from subsonic aircraft overflight.

Actions that could potentially impact a resource's setting include the addition of new roads, buildings, or features; removal of fences and other features; changes in vegetation; or changes in land use out of character with traditional uses (e.g., recreation). The effects of noise and visual intrusions on historic properties may be related to setting, if the setting of a historic property comprises an integral part of the characteristics that make that resource eligible for listing in the NRHP. Because of modern development, this is often not the case for historic properties. Even in rural areas, noise intrusions from vehicles and machinery may create a noise environment inconsistent with the historic setting of the properties. Noise and visual impacts may be of less importance to historic properties whose NRHP eligibility rests primarily on their scientific importance, such as archaeological sites. There are no architectural or archaeological historic properties identified on Fort Bliss for which setting has been defined as a characteristic essential to the resource's NRHP eligibility.

Audible intrusions could also have potentially adverse impacts to the setting of certain properties of traditional cultural and religious importance. For example, traditional ceremonies and rituals by Native Americans may depend in part on isolation, solitude, or silence. An aircraft flying overhead, even at high altitudes, could be deemed an auditory or visual intrusion if it occurs during a ceremony or at another inappropriate time. Native American groups that have expressed interest in lands managed by Fort Bliss, the Mescalero Apache, the Ysleta del Sur Pueblo (Tigua), the Comanche Tribe and The Navajo Nation, have not identified specific properties of traditional cultural and religious importance on the installation.

Access or improved access to an area can result in impacts to historic properties. Historic properties such as buildings, large pueblos, rockshelters, or rock art are likely targets for vandalism because these are typically the most visible resources. When these historic properties are located near roads, they become more vulnerable.

Fire can cause major damage to various types of historic properties, and activities that significantly increase fire risk may have an adverse effect on those resources. Range fires on Fort Bliss can result from weapons firing in the impact areas and surface danger zones and from various activities within the training areas. The necessary and unavoidable fire suppression efforts, including road and fire-break construction, vehicle and foot traffic, and trenching, can be nearly as destructive as the range fires

themselves. Fire management practices that involve ground disturbance or use of fire retardants delivered by aircraft have the potential to damage rock art sites and archaeological sites. Fires can also result from maintenance and repair of buildings. Vandalism can also increase fire risk.

Other sources of impacts include recreation and grazing where these activities are permitted within the Fort Bliss Training Complex.

Some areas, including Otero Mesa and the Sacramento Mountains foothills, will not experience any change in land use under any of the alternatives being considered. The types of impacts that historic properties in those areas will be subject to would therefore not change.

5.9.2 No Action Alternative

The No Action Alternative consists of the continuation of the activities, programs, and management practices established by the 2001 ROD for the Mission and Master Plan PEIS. Effects to historic properties will be managed under the PA for management of historic properties on Fort Bliss or in the separate agreements described in Section 5.9.1.1. The effects of development projects encompassed in the No Action Alternative have been considered in previous NEPA documents.

5.9.2.1 Main Cantonment Area

An architectural inventory of existing buildings has identified those that are of concern, and ongoing consultation and documentation will result in proper documentation and mitigation if required. For all areas, if ground disturbance reveals previously unknown archaeological resources, the installation HPO will be notified and SOPs in the PA will be followed.

Archaeological inventory is complete for the Main Post, and architectural inventory has been completed for buildings with construction dates up to 1963. In accordance with the PA, renovation and additions to existing historic buildings have been or will be coordinated and cleared with the HPO. Impacts from future activities to NRHP-eligible or listed historic properties, including the Main Post Historic District, not covered by other agreements are the subject of ongoing consultation and mitigation as specified in the PA. Development in WBGHHD under EUL is managed through a separate programmatic agreement. Construction of new military housing and changes to existing housing will be coordinated under the existing RCI programmatic agreement.

Biggs AAF has been surveyed for archaeological resources (Ref# 242). Construction of temporary facilities on 300 acres of previously disturbed land and permanent facilities on an additional 200 acres will occur in disturbed areas and have a low potential to encounter previously unrecorded archaeological resources. If unrecorded archaeological resources are encountered, consultation with the Fort Bliss HPO and adherence to SOPs in the PA will ensure mitigation of any adverse effect to NRHP-eligible historic properties.

5.9.2.2 Fort Bliss Training Complex

The No Action Alternative includes construction of mission support facilities, upgrades to existing ranges, development of firing ranges and training facilities, and increases in the amount of off-road vehicle maneuvers in TAs already approved for that use. Upgrades and expansions of live-fire and qualification ranges on Doña Ana and McGregor Ranges will occur in areas approved for those uses. Implementation of the PA with its associated SOPs will mitigate any impacts to archaeological resources from ground disturbance. In the event of unanticipated discovery of historic properties in the course of construction, SOPs specified in the PA will be followed to determine the proper course of action.

Portions of training areas that include Otero Mesa, which is highly sensitive for the presence of historic properties, will not undergo any land use modifications under the No Action Alternative. Continued avoidance of restricted areas and appropriate use of limited-use areas will allow resources in those areas be managed in accordance with the PA.

5.9.3 Alternative 1

Alternative 1 includes stationing of four Heavy BCTs and other units at Fort Bliss and development and use of facilities throughout the Main Cantonment Area and Fort Bliss Training Complex.

5.9.3.1 Main Cantonment Area

Construction, renovation, and demolition of facilities on the Main Post under Alternative 1 could affect historic resources located there. However, compliance with the guidelines set out in the PA would mitigate adverse effects from these projects. This would require appropriate rehabilitation of buildings in the Main Post Historic District and compatibility with the Historic District's viewshed. Consultation with the HPO would ensure compliance with the PA for previously identified archaeological sites and evaluation for NRHP eligibility of any previously unknown resources that may be found during construction.

To accommodate the additional Heavy BCTs, the Main Cantonment Area would expand to the south and east into portions of what is now TA 1B. All of Biggs AAF has been surveyed for historic properties; the area formerly part of TA 1B south of Loop 375 would need to be surveyed for historic properties, which, if found, would be managed according to the PA.

The additional traffic and personnel associated with the Heavy BCTs could have an adverse effect on historic properties. Archaeological sites could be more subject to casual looting and impacts from increased use, and the setting of historic properties could change.

5.9.3.2 Fort Bliss Training Complex

Alternative 1 includes development in four main training activity centers, addition of Off-road Vehicle Maneuver training category to training areas in the south Tularosa Basin portion of McGregor Range, and development of new tactical and firing ranges. Increased use of training areas would require coordination with the Fort Bliss HPO to complete inventory in areas not surveyed and monitor adherence to Restricted and Limited-Use areas and impacts to sites. This would be accomplished in accordance with the requirements and SOPs in the PA. In all cases, discovery of previously unrecorded archaeological sites would be coordinated with the HPO to evaluate the resource for NRHP eligibility and develop appropriate treatments.

Although the Doña Ana Range-North Training Areas have been surveyed for archaeological historic properties, ground disturbing activities associated with the new live-fire and qualification ranges proposed at Doña Ana Range and opening the Assembly Area along the east edge of the Organ Mountains to off-road vehicle maneuver training have the potential to adversely affect historic properties, particularly archaeological sites. Adherence to the SOPs in the PA would address any impacts. Increased personnel at the range camps could also affect archaeological sites through casual looting and inadvertent impacts through increased traffic.

Opening approximately 216,000 acres in the south Tularosa Basin portion of McGregor Range to Off-Road Vehicle Maneuver and Mission Support Facility training categories would have the effect of increasing ground disturbance throughout much of the Tularosa Basin training areas. While this has the possibility of adversely affecting archaeological sites, management according to the PA would include defining Restricted and Limited-Use areas within these training areas. The concentration of activity and the intensive use of the training areas would make timely inventory and monitoring more critical. In particular, intensive use around live-fire ranges and training facilities in the southern portion of TA 32 and around the Orogrande Range Complex would require close coordination with the HPO and management according to the PA for completing surveys, monitoring, and impact mitigation at affected historic properties.

5.9.4 Alternative 2

5.9.4.1 Main Cantonment Area

Impacts from Alternative 2 in the Main Cantonment Area would be the same as described for Alternative 1. Potential additional development of facilities and infrastructure would be managed according to the applicable programmatic agreements. Any adverse effects to historic properties would be mitigated through adherence to the SOPs in the Fort Bliss PA.

5.9.4.2 Fort Bliss Training Complex

Alternative 2 would include the land use changes and construction and training activities in Alternative 1. In addition, it would add the Off-Road Vehicle Maneuver training category in the north Tularosa Basin portion of McGregor Range.

Land use and effects to historic properties in the South Training Areas and Doña Ana Range-North Training Areas would be the same as described under Alternative 1. These areas have been completely surveyed for historic properties, and management according to the PA would anticipate and mitigate adverse effects, particularly to archaeological sites.

Land use and potential effects to historic properties on McGregor Range would be the same as described for Alternative 1 south of Highway 506. North of the highway, the Off-Road Vehicle Maneuver training category would be added to TA 10, TAs 11 and 29 north of Highway 506, and the western part of TA 12. Use of individual training areas is expected to be less intensive in those TAs than in the TAs south of Highway 506. Coordination with the HPO and adherence to the programs outlined in the PA and its SOPs would provide for scheduling of monitoring and inventory programs to identify historic properties in previously unsurveyed areas. Historic property inventory would cover possible construction of mission support facilities in the TAs north of 506 and possible identification of new restricted and/or limited-use areas. Escondido Pueblo will likely become a restricted area.

5.9.5 Alternative 3

5.9.5.1 Main Cantonment Area

Impacts from Alternative 3 in the Main Cantonment Area would be the same as described for Alternative 2.

5.9.5.2 Fort Bliss Training Complex

Alternative 3 would include the land use changes and construction and training activities in Alternative 1. In addition, it would extend the Off-Road Vehicle Maneuver training category into the southeast training areas of McGregor Range and expand Mission Support Facility, Weapons Firing, and SDZ/Safety Footprint capabilities in a large part of the Fort Bliss Training Complex.

Under Alternative 3, the South Training Areas would become land use category A with Mission Facilities, adding Mission Support Facility, Weapons Firing, and SDZ/Safety Footprint training categories to those areas. All numbered North Training Areas and the Assembly Area would also become land use category A with Mission Facilities. Land use in Doña Ana Range would be the same as under Alternative 1. In all cases, continued use of the project planning tools described in the PA and adherence to its SOPs would address any adverse effects to historic properties.

On McGregor Range, all training areas west of Otero Mesa and south of Highway 506 would be land use category A with Mission Facilities. This would add the Off-Road Vehicle Maneuver training category to TAs 9, 11 and 29 south of Highway 506, 24, 25, 26, 27, 30, 31, and 32. Use of TAs 24, 26, and 27 could entail additional construction at McGregor Range Camp. Training activities in TAs 24, 26, and 27 are expected to be less than in the south Tularosa Basin portion of McGregor Range, allowing more time for

historic property management activities. Adherence to the SOPs in the Fort Bliss PA would mitigate potential adverse effects to historic properties.

5.9.6 Alternative 4 – Proposed Action

Alternative 4 would include all the land-use changes discussed for Alternatives 1, 2 and 3, which would more than double the amount of land designated for Off-Road Vehicle Maneuver compared to the No Action Alternative. All areas designated for Off-Road Vehicle Maneuver would also include Mission Support Facility, Weapons Firing, and SDZ/Safety Footprint training categories.

5.9.6.1 Main Cantonment Area

Impacts from Alternative 4 in the Main Cantonment Area would be similar to those described for Alternative 1. Potential additional facility and infrastructure development would be managed according to the Fort Bliss PA and the various other programmatic agreements. Adverse effects to historic properties would be mitigated through adherence to the SOPs in the Fort Bliss PA.

5.9.6.2 Fort Bliss Training Complex

Alternative 4 combines all the changes to training area use discussed for Alternatives 1, 2, and 3. This would add the training category of Off-Road Vehicle Maneuver to approximately 352,000 acres of McGregor Range and add Mission Support Facility, Weapons Firing, and SDZ/Safety Footprint training categories to all TAs that include Off-Road Vehicle Maneuver.

The South Training Areas would become land use category A with Mission Facility, adding Weapons Firing and SDZ/Safety Footprint training categories to those areas. All numbered North Training Areas and the Assembly Area would also be land use category A with Mission Support Facility. Land use in the Doña Ana Range would be the same as described for Alternative 1. Adherence to the SOPs in the Fort Bliss PA would mitigate adverse effects to historic properties from training activities.

On McGregor Range, Alternative 4 would change the land use category of TAs 9, 10, 11, the western half of 12, 24, 25, 26, 27, 29, 30, 31, and 32 to include Off-Road Vehicle Maneuver. Depending on the intensity of training use, historic properties management activities could be restricted in some areas. In general, it is expected that the North and South Training Areas and the areas near McGregor Range Camp and the Orogrande Range Complex on McGregor Range would experience the highest concentration of use, while training areas north of Highway 506 and in the southeast portion of McGregor Range would likely be used less intensively for off-road vehicle maneuver training. In all areas, adherence to the PA would mitigate adverse effects to historic properties.

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5.10 NOISE

5.10.1 Introduction

The analysis of noise impacts from the alternatives is based primarily on the potential for human annoyance and on land use compatibility. None of the projected noise levels associated with proposed activities at Fort Bliss are high enough to raise concerns about impacts on hearing or structural damage. The U.S. Army has developed land use planning guidelines to support noise assessments related to human annoyance. The Land Use Planning Zone portion of Noise Zone I and Noise Zones II and III are presented in Section 4.10, and Table 4.10-3 identifies the noise level thresholds associated with each. The LUPZ is that portion of Noise Zone I with Day-Night Average Sound Levels between 65 and 70 dB (for A-weighted sounds) and 57-62 dB (for C-weighted sounds).

The analysis of noise effects in this section considers ADNL for aircraft and vehicle noise and CDNL and peak noise level (PK15 [met]) for impulsive noise (see Table 4.10-2). The following sections present the results of the analysis of noise from large caliber weapons, aircraft operations, and off-road vehicle maneuvers.

In October 2005, the U.S. Army Center for Health Promotion and Preventive Medicine conducted an *Operational Noise Consultation for 52-ON-046R-06 Aircraft and Large Caliber Weapon's Noise for Fort Bliss, TX* (Ref# 200). The purpose of the consultation was to provide noise data in support of Fort Bliss' BRAC actions. CHPPM modeled DNL contours for projected activities at Biggs AAF and both DNL and PK 15(met) contours for large caliber weapons on the Fort Bliss Training Complex for each alternative analyzed in this SEIS. The result of the small arms range modeling (see Figure 4.10-3) revealed that none of the contours would extend outside the installation boundary, so this noise source is not discussed further.

In July 2006, CHPPM updated its results to reflect some adjustments in the location of proposed large caliber weapons ranges and add an analysis of helicopter operations at Orogrande Range Camp and entering McGregor Range (Ref# 476).

Maximum noise levels from increased off-road vehicles maneuvers were estimated for this SEIS 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 vehicles were distributed along the perimeter of the maneuver box to provide a conservative measure of noise exposure. Representative noise levels were estimated for an average 24-hour period and a peak 1-hour period at various distances from the perimeter of the box.

The noise emission levels for off-road vehicle maneuvers were based on available measurements of a variety of tracked and wheeled vehicles that are the same as or acoustically similar to vehicles in a Heavy BCT. Noise levels for tracked vehicles were based on measurements of comparable Army vehicles performed at Fort Indiantown Gap, Pennsylvania, presented in **Table 5.10-1**. Wheeled vehicles were assigned an average noise level of 75 dBA at 100 feet, based on the Department of Transportation's Transportation Noise Model, Version 2.1, which predicts 65.2, 71.7, and 75.8 dBA at 100 feet for automobiles, light-duty trucks, and heavy-duty trucks, respectively, at 60 miles per hour. Resulting noise propagation estimates also took into consideration average vehicle speed (assumed to be 20 km/hour), average kilometers per day traveled, and the attenuation of noise over flat, sandy terrain. These noise data were then used to estimate the equivalent sound levels over a 24-hour period (Leq_{24}) and during a peak 1-hour period ($Leq_{(h)}$), and to calculate the distance from the perimeter of the maneuver box to Leq_{24} and $Leq_{(h)}$ levels of 65 and 75 dBA.

Table 5.10-1. Sound Levels of Selected Army Tracked Vehicles

Equipment	*Distance*		
	50 feet		*100 feet*
	Moving Max	*Idle Max*	*Moving Max*
M1A1 Tank	89.4 dBA	75.1 dBA	84.9 dBA
Howitzer M109	95.6 dBA	76.1 dBA	91.6 dBA
M113 Personnel Carrier	86.8 dBA	76.0 dBA	81.9 dBA
M548 Ammunition Carrier	85.0 dBA	70.0 dBA	79.0 dBA
M88 Recovery Vehicle	96.8 dBA	70.0 dBA	91.5 dBA
ABLV Bridge Launcher	95.9 dBA	70.0 dBA	90.5 dBA
D-8K Bulldozer	92.2 dBA	73.3 dBA	86.5 dBA

Note: Maximum sound measured with meter set on "slow response."
Source: Ref# 480

5.10.2 No Action Alternative

The No Action Alternative includes stationing of one Heavy BCT at Fort Bliss, in addition to the existing units located at and testing and training on the installation. There will be no change in aircraft activities at Biggs AAF from current conditions.

5.10.2.1 Aircraft Noise

Aviation noise contours associated with aircraft operations at Biggs AAF under the No Action Alternative will remain as described in Section 4.10 and illustrated in Figure 4.10-1.

5.10.2.2 Large Caliber Weapons Noise

The CDNL noise contours associated with large caliber weapons training by one Heavy BCT, in combination with existing users, are shown in **Figure 5.10-1** (Ref# 200). The LUPZ 57 CDNL contour extends off the installation at the northern, southern, and western boundaries of the Doña Ana Range complex and in a small area east of the South Training Areas and south of McGregor Range. The Noise Zone II 62 CDNL contour extends up to the northern boundary of Doña Ana Range and the eastern corner where the South Training Areas and McGregor Range meet but does not extend outside the installation. The Noise Zone III 70 CDNL contours are well within the installation boundary. Approximately 53,000 acres outside of Fort Bliss would be newly affected by noise levels between 57 and 62 CDNL.

Table 5.10-2 identifies total acres by type of land ownership within each of the noise zones. The BLM and state-owned lands to the south of Doña Ana Range are mostly used for grazing. The BLM land west of Doña Ana Range includes the Organ Mountains Recreation Area, which has a variety of scenic, cultural, and other special resources. Private lands in the LUPZ south of Doña Ana Range are developing with low-density residential land use in the community of Chaparral. Under this alternative, no areas outside of Fort Bliss will be affected by levels of CDNL 62 dB or greater. Noise levels below CDNL 62 dB are generally compatible with all land uses.

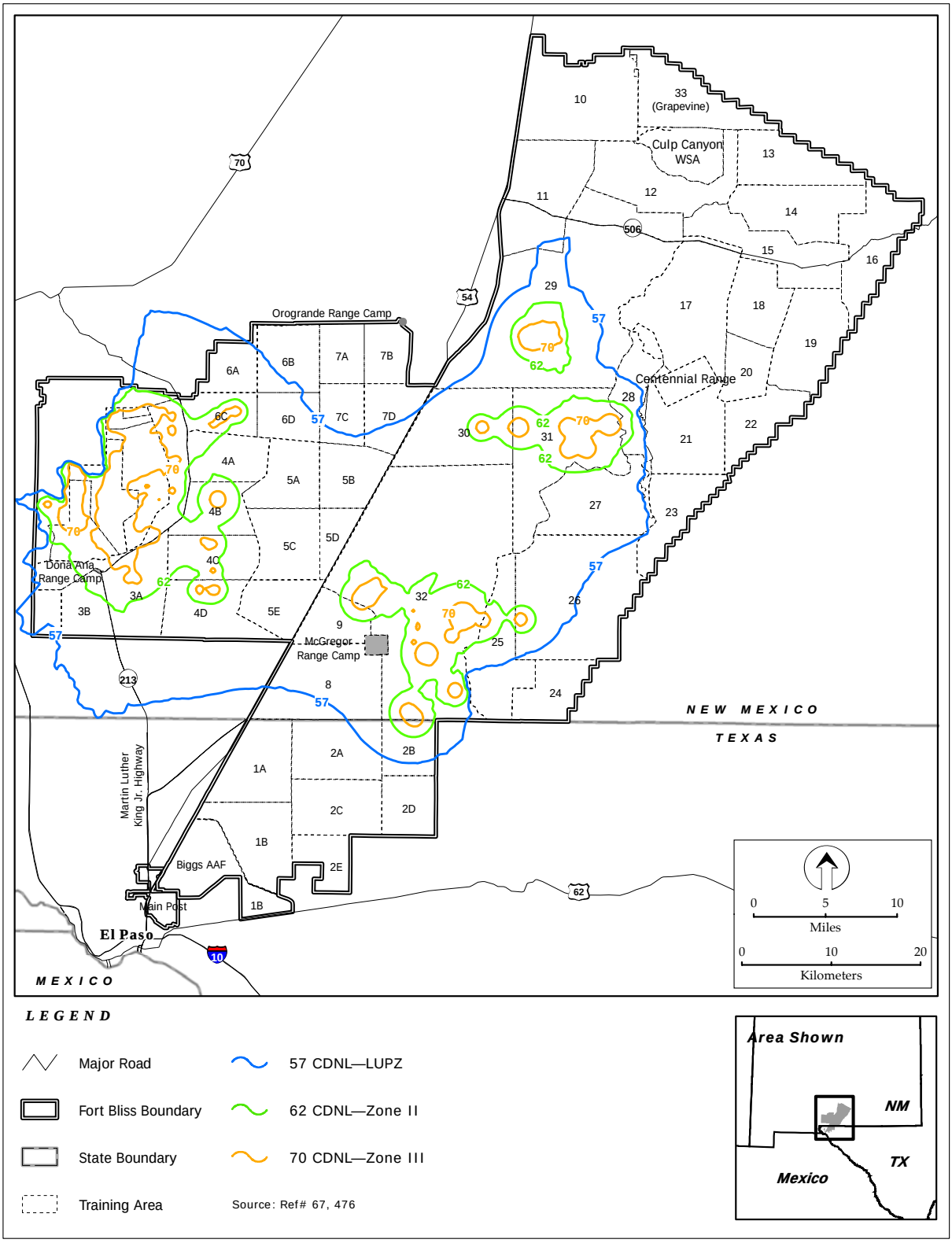

Figure 5.10-1. Day-Night Average Sound Levels for Large Caliber Weapons – No Action Alternative

Table 5.10-2. Acres Affected by Noise from Large Caliber Weapons – No Action Alternative

Land Owner	*Noise Zone (acres)*		
	LUPZ	*Zone II*	*Zone III*
Fort Bliss[1]	374,503	112,486	47,833
WSMR	18,372	0	0
BLM	21,011	0	0
State (NM)	9,153	0	0
Private	15,325	0	0
Total	438,366[2]	112,486	47,833

1. Includes withdrawn land on McGregor Range
2. Includes approximately 1 acre of Texas state-owned land

The PK 15(met) noise contours are shown in **Figure 5.10-2** (Ref# 476). The 115 dB contour extends past the northern and western boundary of Doña Ana Range, the eastern boundary of the South Training Areas, and a small area east of TA 23 on McGregor Range. The 130 dB contour only extends past the southern boundary of McGregor Range.

Table 5.10-3 shows the total area, by type of land ownership, affected by PK 15 (met) levels above 115 and 130 dB. The new demolition range being constructed in the south part of TA 32 will cause peak noise levels to extend off the installation south of McGregor Range. Approximately 24,609 acres of land outside Fort Bliss is affected by PK 15(met) levels of between 115 and 130 dB, an increase of 11,973 acres over current conditions. This noise level generally carries a moderate risk of complaints. The affected area does not have a road network or utilities, so new development is not likely in the near term; however, there are no land use controls to preclude development in the future. The area affected includes Hueco Tanks State Park, and visitors may be annoyed by increased noise levels during detonations at the demolition range.

A total of 533 acres of private land will be newly exposed to PK 15(met) levels exceeding 130 dB. This noise level carries a high risk of complaints.

Table 5.10-3. Area Affected by Peak Noise Levels from Large Caliber Firing– No Action Alternative

Land Owner	*Acres Within PK 15(met) Contours*	
	115-130dB	*>130dB*
Fort Bliss[1]	295,326	178,701
WSMR	7,735	17
BLM	3,544	0
Tribal	46	0
State	677	0
Private	12,607	533
Total	319,934	179,234

1. Includes withdrawn land on McGregor Range

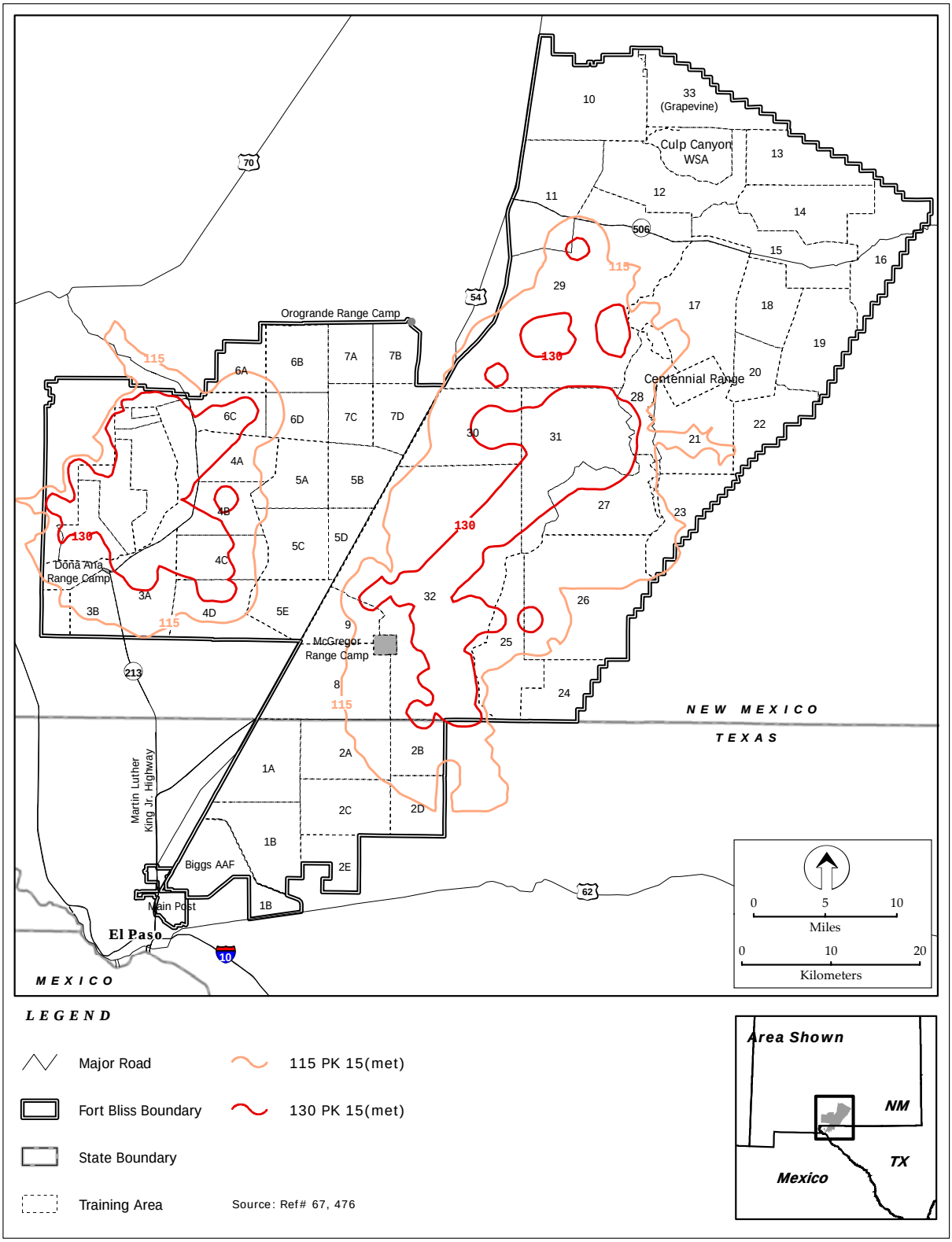

Figure 5.10-2. Projected Peak Level Noise Contours for Large Caliber Weapons

5.10.2.3 Off-Road Vehicle Maneuvers

Under the No Action Alternative, noise generated by off-road vehicles maneuvers will be confined to areas where such maneuvers are currently conducted and have been conducted in the past.

5.10.3 Alternative 1

Under Alternative 1, four Heavy BCTs and one Combat Aviation Brigade would be stationed at Fort Bliss. The noise analysis considers the impacts of training by these and other units that use the Fort Bliss Training Complex.

5.10.3.1 Aircraft Noise

Helicopter operations conducted by the CAB would generate additional noise at Biggs AAF and enroute to the Restricted Airspace. The helicopters would use a path heading north from the airfield and following Railroad Drive/US 54.

The noise contours created by the operations of one CAB are shown in **Figure 5.10-3** (Ref# 200). 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. A total of 821 acres of off-post land would be exposed to noise levels between 60 and 65 ADNL, and 633 acres would be exposed to noise levels between 65 and 70 ADNL.

Noise levels above 65 ADNL are generally not compatible with residential use. There are also commercial and industrial parcels in the affected area, which would be generally compatible with the projected noise levels.

The CAB would use the airstrip at Orogrande Range Camp as a staging area and Forward Area Refuel Point for training operations at the Digital Air Ground Integration Range. Helicopters would take off and land at Orogrande Range Camp, crossing over US 54 at altitudes ranging from 250 to 2,000 feet AGL to reach the DAGIR on McGregor Range. **Table 5.10-4** shows the maximum sound level of different helicopters at various altitudes. **Figure 5.10-4** shows the proposed flight track for these cross-overs and an annoyance buffer where noise levels are estimated to be 70 dBA or higher (Ref# 476).

Table 5.10-4. Maximum Noise Levels of Helicopters at Various Altitudes

Altitude (feet AGL)	*Maximum dBA*		
	AH-64	*CH-47*	*UH-60*
250	90	90	86
500	83	84	80
1,000	77	75	73
2,000	70	71	66

Source: Ref# 476

The CAB's AH-64 helicopters would also perform low-altitude "Nap-of the Earth" (NOE) training at altitudes between 50 and 200 feet AGL in the Restricted Area airspace overlying McGregor Range. **Figure 5.10-5** shows the expected flight track for these operations and a nominal buffer (not accounting for any terrain features) where noise levels are estimated to be 70 dBA or higher for helicopters traveling at 50 feet AGL (Ref# 200).

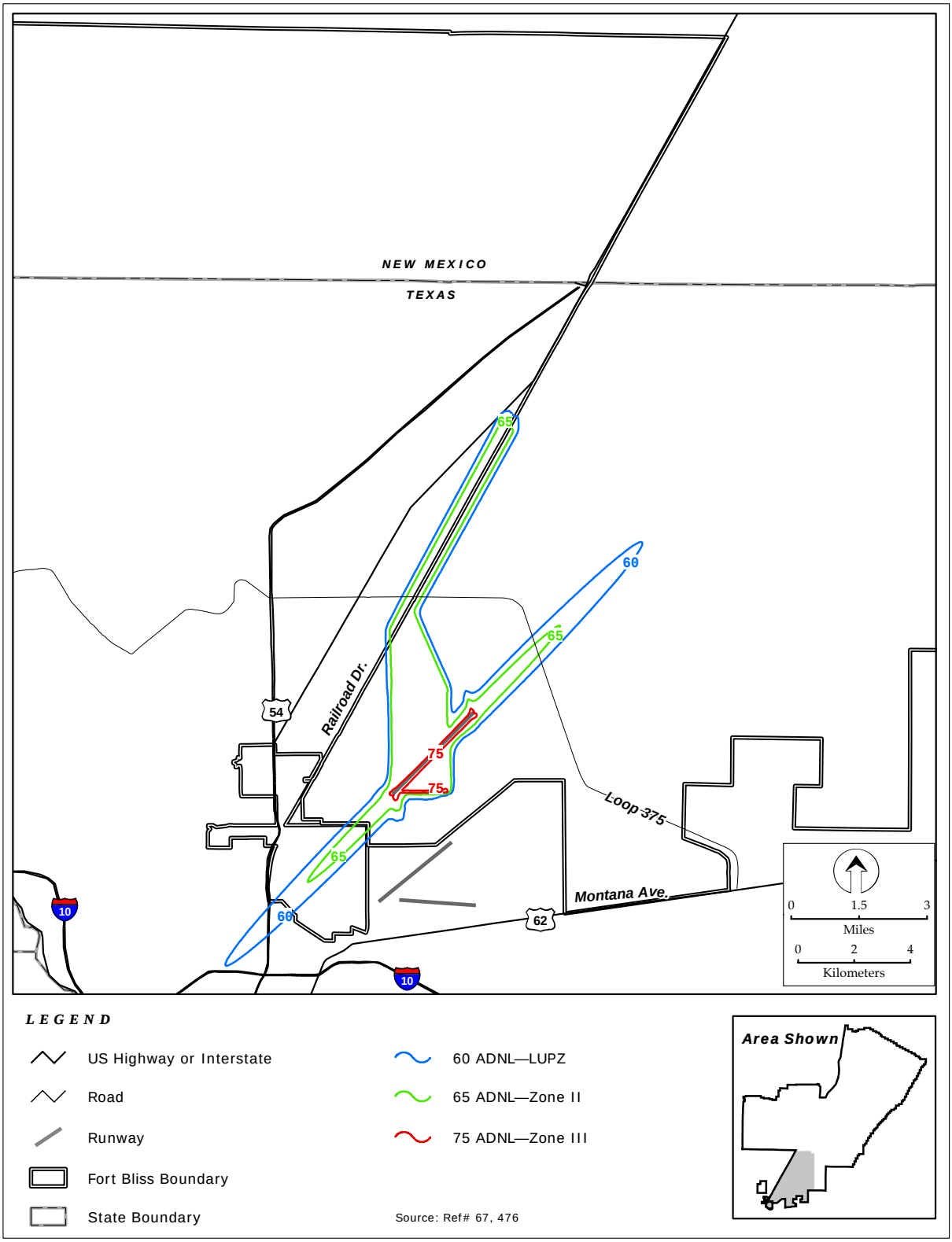

Figure 5.10-3. Day-Night Average Sound Levels at Biggs AAF With One CAB

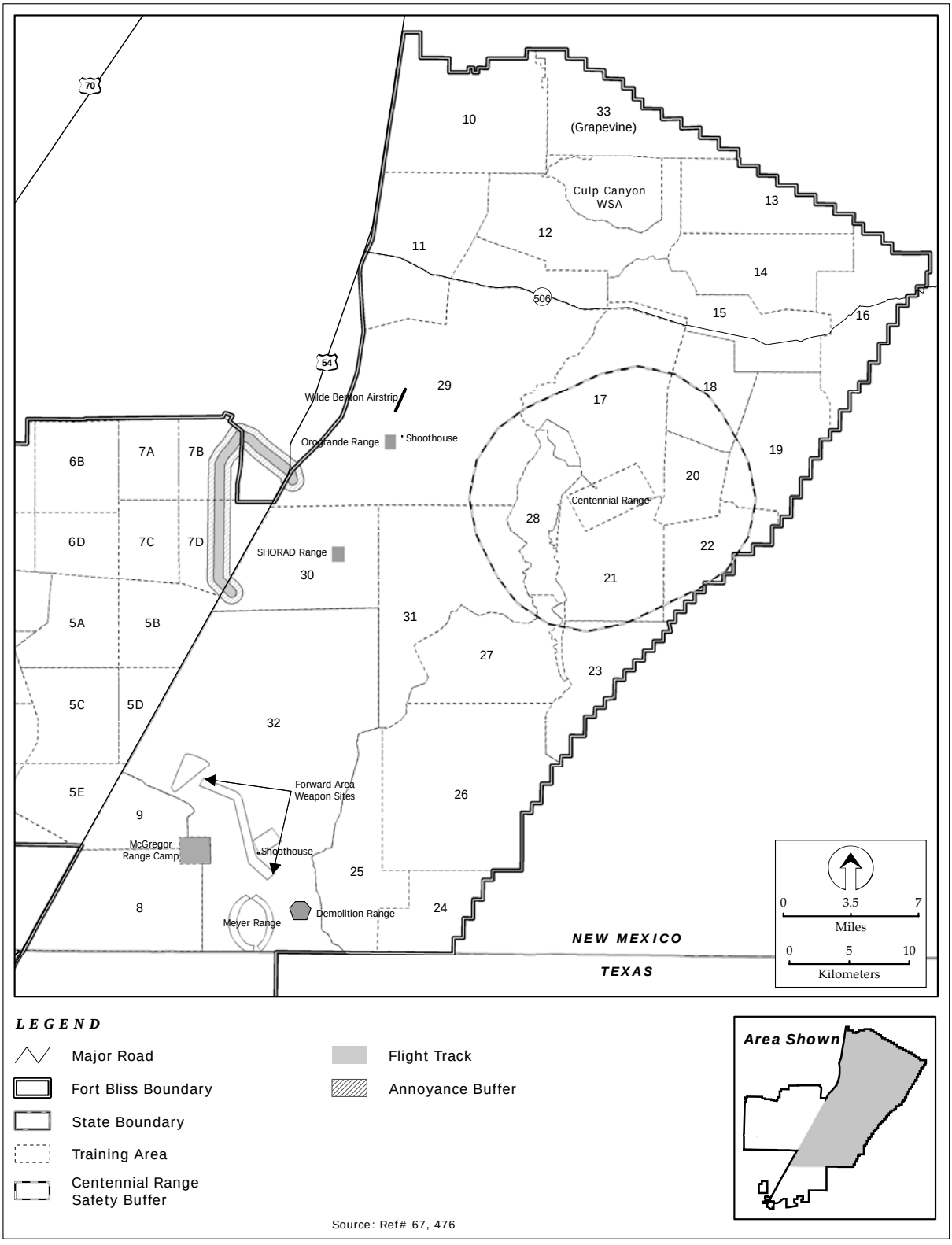

Figure 5.10-4. Helicopter Flight Track and Noise Buffer From Orogrande Range Camp

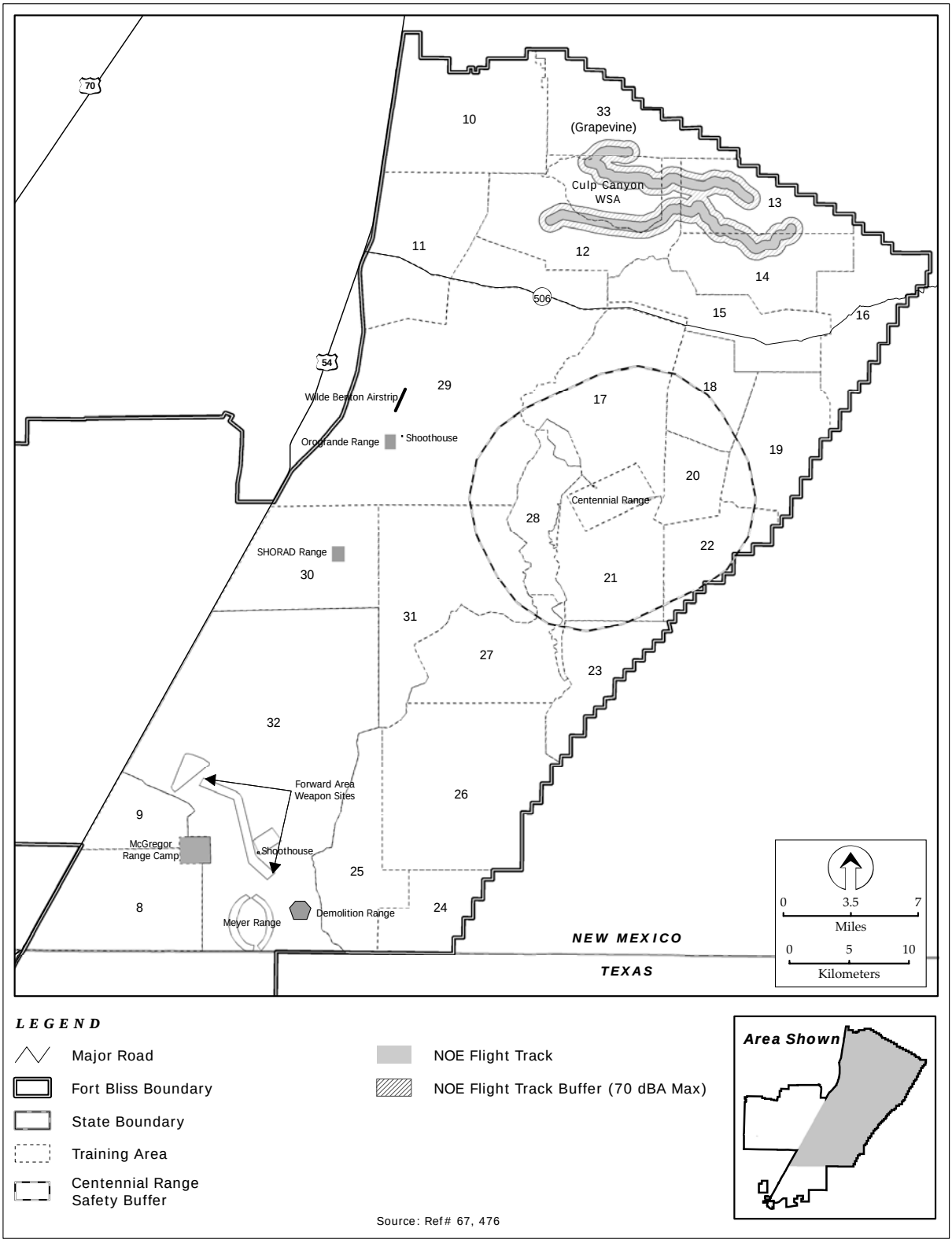

Figure 5.10-5. Nap-of-the Earth Flight Track and Noise Buffer

5.10.3.2 Large Caliber Weapons Noise

The CDNL noise contours associated with large caliber weapons training by four Heavy BCTs are shown in **Figure 5.10-6**. The LUPZ 57 CDNL contour extends off the installation at the northern, southern, and western boundary of the Doña Ana Range complex, the southeastern corner where the South Training Areas and McGregor Range meet, and the eastern boundary of TA 23 on McGregor Range. The Noise Zone II 62 CDNL contour extends off the northern, southern, and western boundary of Doña Ana Range. A total of 167,702 acres outside Fort Bliss would be newly exposed to noise levels between 57 and 62 CDNL and 27,955 acres to noise levels above 62 CDNL, compared to existing conditions.

Table 5.10-5 identifies total acres by type of land ownership within each of the noise zones under Alternative 1. Approximately 2,973 acres of private land would be in Noise Zone II. The Noise Zone II contour for Doña Ana Range would extend south of TAs 3A and 3B to the community of Chaparral. Some households in this area would be affected by noise levels that are generally not compatible with residential use. The community is not incorporated (and has recently voted to remain unincorporated) and has no land use controls. With increasing growth, it is possible for additional homes to be built in incompatible areas near the installation boundary. Grazing is the primary use on affected state and BLM lands. No land outside of Fort Bliss would be in Noise Zone III.

An estimated 57,297 acres of private land would be in the LUPZ. Noise levels in this zone are compatible with most land uses. Communities such as Berino and the outskirts of Anthony, New Mexico, as well as the northeast suburbs of El Paso, would experience an increase in noise exposure. The southern part of the Organ Mountains Recreation Area would also be exposed to noise levels between 57 to 62 CDNL as far north as Pyramid Peak and Pena Blanca.

Weapons firing at the new CACTF and DAGIR would expand the 57 CDNL off the installation along US 54 in Otero County, mostly affecting public lands but also the community of Orogrande. South of TA 32, the LUPZ contour would expand south toward the Hueco Tanks, where the noise would likely be audible to park visitors.

Table 5.10-5. Acres Affected by Noise From Large Caliber Weapons–Alternative 1

Land Owner	*Noise Zone (acres)*		
	LUPZ	***Zone II***	***Zone III***
Fort Bliss[1]	400,119	227,932	71,648
WSMR	56,988	11,096	0
BLM	50,924	9,399	0
State (NM)	7,922	4,487	0
State (TX)	5,488	0	0
Private	57,297	2,973	0
Total	578,738	255,887	71,648

1. Includes withdrawn land on McGregor Range

The PK 15(met) noise contours would be as shown in Figure 5.10-2 for the No Action Alternative.

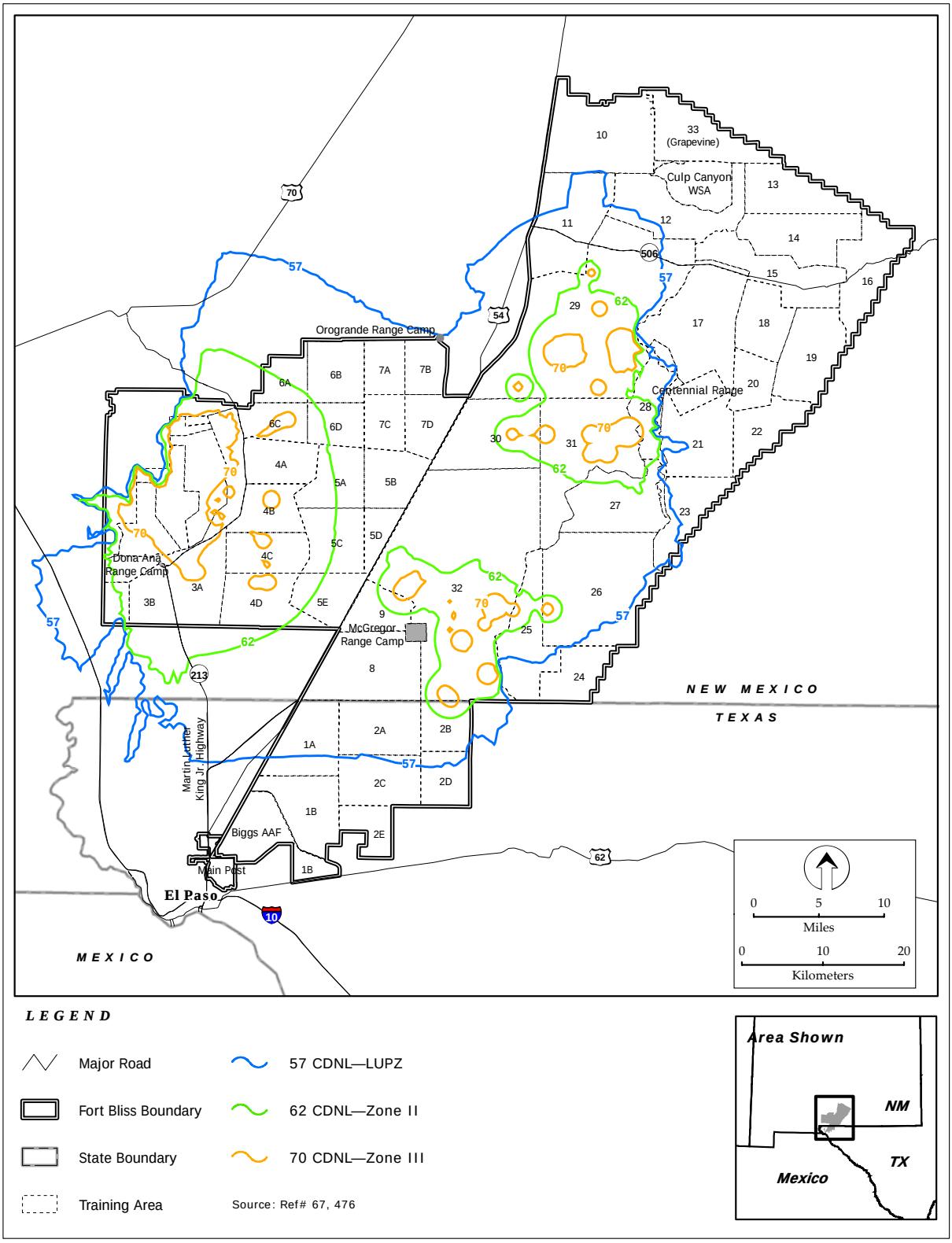

Figure 5.10-6. Day-Night Average Sound Levels for Large Caliber Weapons – Alternative 1

5.10.3.3 Off-Road Vehicle Maneuvers

An analysis of a BCT-level off-road vehicle maneuver exercise using the assumptions described in Section 5.10.1 calculated the distances from the perimeter of the maneuver box to an Leq_{24} noise level of 75 dBA to be 55 feet and to 65 dBA to be 286 feet. The distances for the $Leq_{(h)}$ are 122 feet to 75 dBA and 630 feet to 65 dBA. These are very conservative estimates because they assume all vehicles would be traveling along the perimeter of the maneuver box, when in fact they would be distributed through the area. As an indication of human perception of loudness while a vehicle is driving by, **Table 5.10-6** presents the maximum sound level for a "representative" vehicle at various distances from the perimeter of the maneuver box. This depicts the sound levels that would be heard by an individual standing at the indicated distances as a representative vehicle passed the point on the perimeter of the maneuver area closest to the individual. The noise level of the representative vehicle was derived by averaging the noise levels for the entire fleet engaged in the exercise.

Table 5.10-6. Maximum Sound Level of a Representative Vehicle at Various Distances From the Perimeter of a Maneuver Box

Distance (feet)	*Max dBA*
100	83
200	77
400	71
800	65
1,600	59

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 an $Leq_{(h)}$ of 65 dBA at a distance of approximately 2,000 feet from the convoy.

5.10.4 Alternative 2

Alternative 2 considers the noise impacts associated with training by four Heavy BCTs, two CABs, and other units that use the Fort Bliss Training Complex.

5.10.4.1 Aircraft Noise

The noise contours created by two CABs operating at Biggs AAF are shown in **Figure 5.10-7** (Ref# 200). 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. Approximately 3,300 acres of off-post land would be exposed to noise levels between 60 and 65 ADNL, and 882 acres would be exposed to noise levels between 65 and 70 ADNL. The LUPZ would include land that is planned for low-density residential in the newly approved City of El Paso Northeast Area Master Plan. The area in Noise Zone II would include some residents, although most housing is to the west of the corridor that would be used by helicopters transiting to the Restricted airspace.

Noise from helicopter operations at Orogrande Range Camp and NOE training would be as described for Alternative 1, but more frequent with two CABs.

5.10.4.2 Large Caliber Weapons Noise

The CDNL noise contours associated with large caliber weapons training under Alternative 2 would be the same as shown in Figure 5.10-6 for Alternative 1. The PK15 (met) noise contours would be the same as shown in Figure 5.10-2.

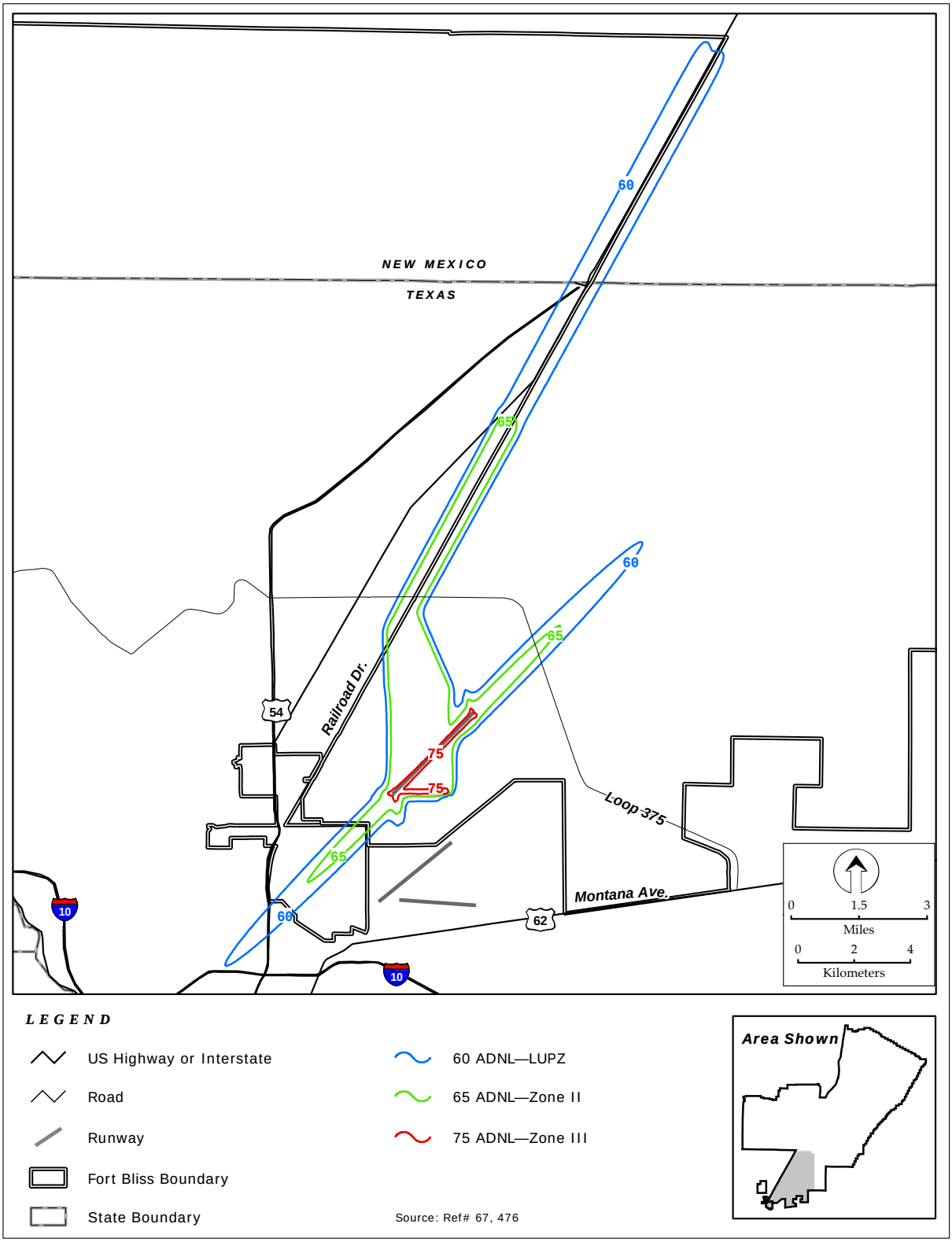

Figure 5.10-7. Day-Night Average Sound Levels for Two CABs at Biggs AAF

5.10.4.3 Off-Road Vehicle Maneuvers

Off-road vehicle maneuver noise under Alternative 2 would be as described for Alternative 1.

5.10.5 Alternative 3

Alternative 3 considers the noise impacts associated with training by four Heavy BCTs, two CABs, and other units that use the Fort Bliss Training Complex.

5.10.5.1 Aircraft Noise

Aircraft noise from CAB operations at Biggs AAF would be as described for Alternative 2 and shown on Figure 5.10-7. Noise from helicopter operations at Orogrande Range Camp (Figure 5.10-4) and NOE training (Figure 5.10-5) would be as described for Alternative 1, but more frequent with two CABs.

5.10.5.2 Large Caliber Weapons Noise

The CDNL contours associated with large caliber weapons training under Alternative 3 would be the same as shown on Figure 5.10-6 for Alternative 1. Peak level noise would be as shown on Figure 5.10-2.

5.10.5.3 Off-Road Vehicle Maneuvers

Off-road vehicle maneuver noise under Alternative 3 would be as described for Alternative 1.

5.10.6 Alternative 4 – Proposed Action

The analysis of the Proposed Action considers the potential impacts associated with training by the equivalent of six Heavy BCTs (with deployments, assuming up to five are training) and two CABs.

5.10.6.1 Aircraft Noise

The noise contours created by two CABs at Biggs AAF are shown in Figure 5.10-7. The impacts would be as described for Alternative 2. Noise from helicopter operations at Orogrande Range Camp (Figure 5.10-4) and NOE training (Figure 5.10-5) would be as described for Alternative 1, but more frequent with two CABs.

5.10.6.2 Large Caliber Weapons Noise

The CDNL noise contours associated with large caliber weapons training by five BCTs are shown in **Figure 5.10-8**. The LUPZ 57 CDNL contour 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. Approximately 193,170 acres outside of Fort Bliss would be newly exposed to noise levels between 57 and 62 CDNL and 40,264 acres to noise levels above 62 CDNL.

Table 5.10-7 identifies the total acres by type of land ownership within each of the noise zones under Alternative 4. The Fort Bliss land within the LUPZ includes 1,314 acres of Castner Range. The increase in activity at the firing ranges would further increase noise exposure in areas around the installation. Private land extending as far south as Transmountain Highway in northeast El Paso would be in the LUPZ. Almost 4,400 acres of private land, primarily in the Chaparral area, would be in Noise Zone II, which is generally incompatible with residential use. Based on current density in the areas affected, the potential number of homes affected is small.

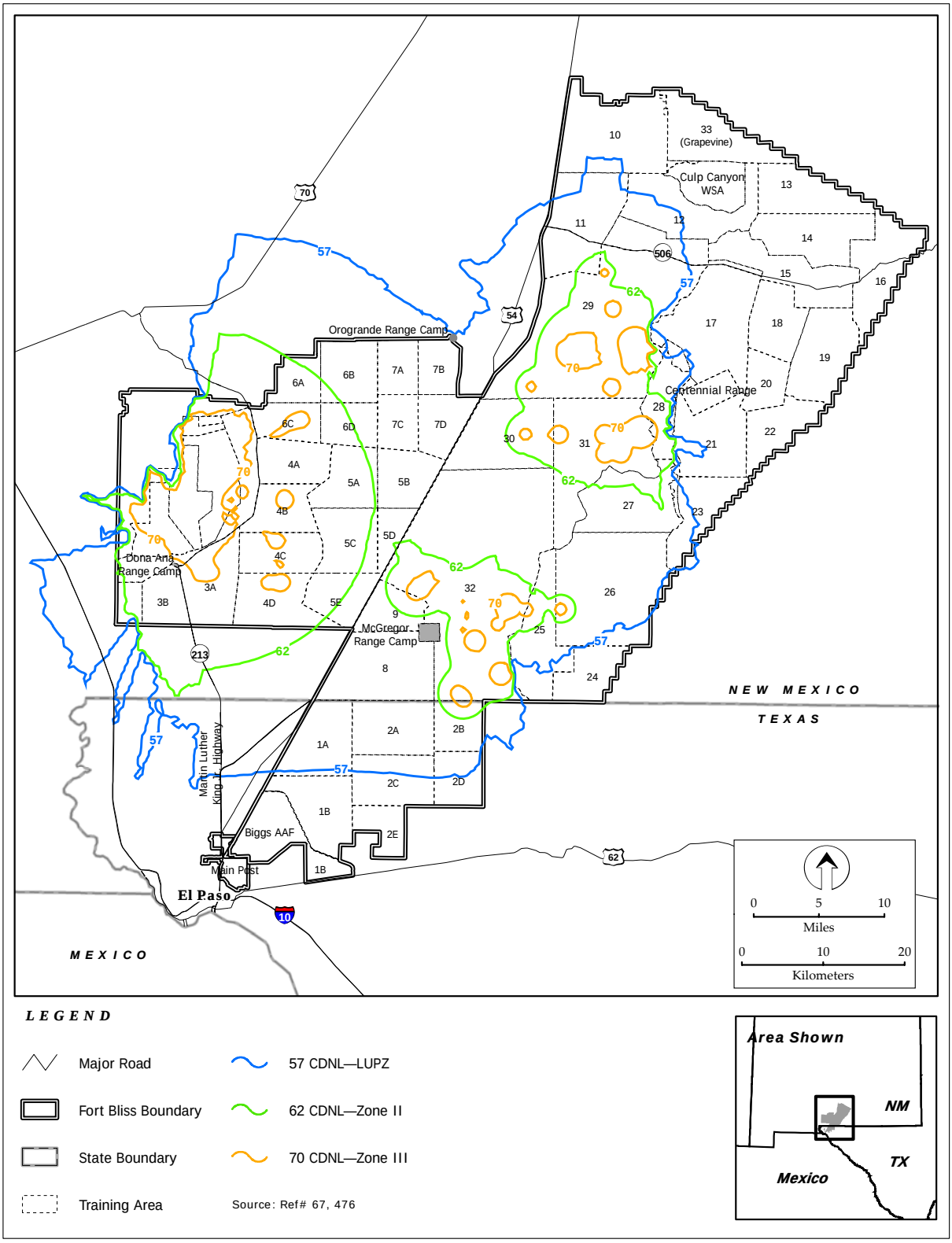

Figure 5.10-8. Day-Night Average Sound Levels for Large Caliber Weapons – Alternative 4

Table 5.10-7. Acres Affected by Noise from Large Caliber Weapons – Alternative 4

Land Owner	*Noise Zone (acres)*		
	LUPZ	***Zone II***	***Zone III***
Fort Bliss[1]	386,046	264,061	76,413
WSMR	71,942	15,357	0
BLM	51,838	14,560	0
State (NM)	7,044	5,985	0
State (TX)	7,551	0	0
Private	65,713	4,363	0
Total	590,134	304,325	76,413

1. Includes land on Castner Range and withdrawn land on McGregor Range

The PK 15(met) noise contours would be as shown in Figure 5.10-2.

5.10.6.3 Off-Road Vehicle Maneuvers

Off-road vehicle maneuver noise under Alternative 4 would be as described for Alternative 1.

5.11 SAFETY

5.11.1 Introduction

Numerous federal, civil, and military laws and regulations govern operations on Fort Bliss. Individually and collectively they prescribe measures, processes, and procedures required to ensure safe operations and to protect the public, military, and property.

For each alternative, the elements of the proposal that have a potential to affect safety were evaluated relative to the degree to which the action would increase or decrease safety risks to military personnel, the public, and property. Ground, fire, and crash safety were assessed for the potential to increase risk and the installation's capability to manage that risk by responding to emergencies and suppressing fire. Ground safety considerations also include risk-exposure to personnel and ordnance use on firing and gunnery ranges. Analysis of flight risks correlates current risk-exposure with projected airspace utilization associated with the alternatives. In considering explosive safety, projected changed uses and handling requirements were compared to current uses and practices.

5.11.2 No Action Alternative

5.11.2.1 Ground Safety

Under the No Action Alternative, operations on Fort Bliss, its associated ranges, and Biggs AAF will continue to be conducted in accordance with applicable laws and regulations. Fire suppression and crash response capabilities are in place. All operations conducted on firing ranges will continue to be conducted in accordance with Army regulations and Fort Bliss Standard Operating Procedures. These processes and procedures will continue to minimize safety risks.

The addition of a Heavy BCT at Fort Bliss and associated personnel will not affect ground safety risks for the U.S. Army overall, but it is reasonable to assume that, statistically, the probability of a Class A mishap occurring on Fort Bliss could increase slightly. Also, ground safety risks will be somewhat increased during the time when off-post personnel are present on Fort Bliss conducting off-road vehicle training.

5.11.2.2 Flight Safety

There are no changes to aviation operations associated with the No Action Alternative. Flight safety assessments remain as discussed in Section 4.11.

5.11.2.3 Explosive Safety

The addition of a Heavy BCT to Fort Bliss will result in some increased expenditure of ordnance. Adequate facilities and infrastructure exist to ensure the safe handling, transportation, and storage of those explosives. While some additional ordnance may be present on the installation as compared to current conditions, the real increase will be in through-put of these items. All explosive safety processes and procedures currently in effect will continue, and the increased risk would be minimal.

5.11.2.4 Installation Compatible Use

The Clear Zones and Accident Potential Zones at Biggs AAF will continue to be in effect and will not change. Safety danger zones will be expanded and modified as needed at the new and upgraded live-fire ranges on the Fort Bliss Training Complex. All surface danger zones will be contained within installation boundaries. No land use compatibility concerns are associated with the No Action Alternative.

5.11.3 Alternative 1

5.11.3.1 Ground Safety

Under Alternative 1, operations on Fort Bliss, its associated ranges, and Biggs AAF would continue to be conducted in accordance with applicable laws and regulations. Fire suppression and crash response capability would be adequate to respond to mission changes. All operations conducted on the firing ranges would continue to be conducted in accordance with Army regulations and Fort Bliss SOPs. Although this alternative would result in an overall increased utilization of the ranges, each specific activity is a discreet event and would be scheduled and managed in accordance with published directives. These processes and procedures would continue to minimize safety risks.

Alternative 1 would increase the number of military personnel assigned to Fort Bliss by approximately 20,000. Based on the Class A Mishap rate for soldiers on duty over the last ten years (0.098 per 1,000 soldiers), statistically, the increased exposure would result in a slight (approximately 2 percent) increase in risk of mishap in the ROI. Ground safety risks would also increase as a result of more off-road vehicle maneuver training.

Based of fire history at Fort Bliss, the primary risk of wildfires is associated with weapons firing and ordnance use. The majority of fires have been in the SDZ for missile firings on McGregor Range. Fires in the Organ Mountains have been infrequent and small because fuels are discontinuous, fuel loading is low, and crown fires are limited to isolated locations. This area has been used for live-fire ranges for many years, and although use of Doña Ana Range is projected to increase, fire hazard is not anticipated to change significantly.

The risk of wildfires from live-fire ranges in the south Tularosa Basin portion of McGregor Range is not expected to be significant due to relatively low fuel loading and fire detection and suppression capabilities. Live-fire ranges are concentrated in discrete areas that are continuously manned and have the infrastructure and fire suppression capability to respond rapidly to any fire outbreak, including Meyer Range, the FAW area, and the Orogrande Range Complex.

Very little data exist on the risk of wildfire from military off-road vehicle training. Factors that contribute to fire danger include fuel load (type, quantity, and moisture content of vegetation), climate, terrain, length of time before a fire is reported, and response capability. The lack of fine fuels in the Tularosa Basin portion of the Fort Bliss Training Complex indicates relatively low risk of fire. Nevertheless, the increased presence of personnel and vehicles in maneuver areas can be expected to lead to higher fire risk. Most fires would be small as has historically been the case in these areas of the installation.

The Fort Bliss Range SOP specifies the following procedures for fire prevention and response:

- All training units are required to furnish a firefighting team while on the Fort Bliss Training Complex.
- All fires must be reported to Range Control immediately on detection. Range Control will immediately place a hold on live fire and dispatch a fire fighting team with suppression equipment.
- Unit commanders are required to ensure that smoke grenades, trip flares, and other fire-causing devices are not used in an area that could cause a range or brush fire. Live or spent devices will not be abandoned or discarded anywhere on the Fort Bliss Training Complex.
- Sufficient unit personnel and firefighting equipment are required to be present at artillery and mortar powder burning areas during use, including at least 10 gallons of water.
- Range Control restricts burning of excess powder bags during extremely dry and windy periods (wind exceeding 12 knots). Unused powder increments that cannot be burned due to weather conditions will be packed in metal containers and returned to the ammunition supply point.

Tracers, pyrotechnics, and illumination projectiles are subject to restriction/suspension during dry periods.

- Fires are not fought in impact areas.

5.11.3.2 Flight Safety

With the assignment of a CAB to Fort Bliss under Alternative 1, aviation operations at Biggs AAF would increase. Currently, the airfield supports approximately 40,000 operations per year. The CAB is expected to conduct approximately 53,250 annual operations, increasing overall operations to approximately 93,000 annually.

Over the last ten years, the Army Aviation Class A Mishap rate averaged 1.71 Class A Mishaps per 100,000 flying hours. Based on these statistics, the operations conducted by the CAB would increase the risk of an aviation Class A mishap on Fort Bliss by a factor of approximately 2.3. However, the risk would still be low.

5.11.3.3 Explosive Safety

The assignment of four BCTs and other units at Fort Bliss would result in an increased expenditure of ordnance. Facilities and infrastructure would be provided to ensure the safe handling, transportation, and storage of explosives. While some additional ordnance would be present on the installation as compared to current conditions, the main increase would be in through-put of these items. All explosive safety processes and procedures currently in effect would continue, and the increased risk would be minimal.

5.11.3.4 Installation Compatible Use

The addition of CAB operations at Biggs AAF would not change the CZs, APZs, or safety zones at the airfield. The development of new live-fire ranges on Doña Ana and McGregor Ranges would involve new and expanded safety danger zones, but none of them would extend off the installation or result in incompatible land uses.

5.11.4 Alternative 2

5.11.4.1 Ground Safety

The ground safety effects of Alternative 2 would be the same as described for Alternative 1. The addition of a second CAB would incrementally increase the risk of a Class A Mishap on Fort Bliss by a small amount compared to Alternative 1.

The TAs in the north Tularosa Basin portion of McGregor Range include Grazing Units 1 and 2 and a part of Grazing Unit 3. The Army is responsible for suppressing and monitoring fires caused by military activities on the range, but BLM responds to and takes the lead in suppressing fires in the grazing units (Ref# 21). The Range SOP described in Section 5.11.3.1 would also apply to Alternative 2. It requires all units to furnish a firefighting team while on the Fort Bliss Training Complex. It also specifies restrictions on use of fire-causing devices during extremely dry and windy conditions. These measures would reduce fire hazard by ensuring timely detection and response in the event of a fire. The TAs north of Highway 506 are not proposed for live-fire use.

5.11.4.2 Flight Safety

With two CABs assigned to Fort Bliss, aviation operations from Biggs AAF under Alternative 2 would increase annual operations by approximately 104,500 to approximately 144,000. This would increase the risk of an aviation Class A mishap on Fort Bliss by a factor of 3.7, but it would still remain low.

5.11.4.3 Explosive Safety

The explosive safety effects of Alternative 2 would be the same as described for Alternative 1, with a slight increase in ordnance use by the second CAB.

5.11.4.4 Installation Compatible Use

Installation compatible use effects from Alternative 2 would be the same as described for Alternative 1.

5.11.5 Alternative 3

The ground, flight, and explosive safety impacts and installation compatible use under Alternative 3 would be the same as described for Alternatives 1 and 2.

The southeast TAs of McGregor Range contain more grasslands than other areas proposed for off-road vehicle maneuver. Grasslands tend to produce fast-moving, low-intensity fires and therefore present higher potential fire hazard due to increased fuel load and the relatively remote locations of the southeast TAs. The increased presence of personnel and vehicles in these TAs would increase the risk of wildfires, however, except during periods of higher than normal rainfall, the height of the grass is generally too low to be ignited by passing vehicles. These training areas are not proposed for live-fire use.

Adherence to the Range SOP procedures described in Section 5.11.3.1 would reduce the risk of fire starts, increase the timeliness of detection, and provide for response in the event of a fire, thereby decreasing the probability of fire spreading over a large area and to Otero Mesa. Grasslands are designated as limited-use areas where bivouacs and concentrations of personnel and vehicles are prohibited except in specified locations, further reducing the risk of ignition. However, this portion of the Fort Bliss Training Complex presents the highest fire hazard of areas proposed for off-road vehicle maneuver.

5.11.6 Alternative 4 – Proposed Action

The impacts from Alternative 4 on ground, flight, and explosive safety and installation compatible use would be similar to those described for Alternatives 1 and 2. The incremental increase in personnel at Fort Bliss and in off-road vehicle maneuvers in the training areas would marginally increase the statistical risk of a Class A mishap.

Fire hazards under Alternative 4 would be as described for Alternatives 1, 2, and 3. The procedures in the Range SOP described in Section 5.11.3.1 would also apply to this alternative.

5.12 HAZARDOUS MATERIALS AND ITEMS OF SPECIAL CONCERN

5.12.1 Introduction

To assess potential impacts from an increase in hazardous materials use and hazardous waste generation, Fort Bliss' most current environmental compliance management plans were reviewed, interviews were conducted with Fort Bliss DOE and WBAMC personnel, and federal and state laws and regulations were reviewed. In reviewing the types of hazardous materials used and hazardous waste generation reports from the 4th BCT, 1st CAV, it was estimated that Heavy BCTs will generate approximately the same waste types and volumes as the 31st ADA. Hazardous waste generated by the 4th BCT, 1st CAV was then used to determine a percentage increase for each additional BCT.

5.12.2 No Action Alternative

5.12.2.1 Hazardous Materials

Under the No Action Alternative, Fort Bliss will continue to store and use hazardous chemicals during training exercises and installation maintenance. There will be an increase in the types and quantities of hazardous materials due to increases in equipment and maintenance facilities associated with one Heavy BCT. This will marginally increase the risk of releases of fuels, oils, and hydraulic fluids during the servicing and operation of military equipment. Construction equipment for demolition, renovation, and development of additional facilities will have negligible impact on the use of hazardous chemicals. Existing programs for the management of hazardous materials and wastes will continue. The slight increased use of hazardous chemicals will have no adverse environmental impacts.

Some M1 tanks include armor that contains encased depleted uranium in the turret. DU is the very dense metal by-product of the uranium enrichment process used to make nuclear materials. That enrichment process removes most of the U234 and U235 isotopes, leaving mostly U238. DU is 40 percent less radioactive than naturally occurring uranium. DU emits alpha, beta, and gamma radiation as it decays. Alpha particles, the primary type produced by DU, are blocked by the skin and pose no hazard. Beta particles are blocked by clothing. Studies of exposure to gamma radiation from DU in tanks were well below the occupational limit (Ref# 543, 544).

The risk of exposure to radiation from the DU in the M1 tank armor is extremely low because the DU is encased (i.e., not exposed to the environment). Further, no maintenance or repair activities performed at Fort bliss would expose DU. In the remote possibility of exposure due to fire or impact, DU can form mixtures of both soluble and insoluble oxide aerosols. Exposure assessments and medical monitoring conducted to date indicate no health hazard from inhaled DU aerosols (Ref# 543).

DU contamination greater than 50 parts per million is believed to be harmful to plants, and wildlife can be affected by high levels of DU in the soil (Ref# 544). However, the potential for exposure of any DU from the armor of M1 tanks at Fort Bliss is remote, and the resulting concentration of DU from a release would be far below levels that could pose a risk to the environment. Therefore, the M1 tanks at Fort Bliss that may contain DU in their armor would not have a significant environmental or health impact.

Fort Bliss will continue to generate hazardous wastes under this alternative. During FY 2005, the 31st ADA generated hazardous waste totaling 1,481 lbs., universal waste volumes totaling 2,399 lbs., and Texas Class waste totaling 68,421 lbs. (Universal waste includes batteries, pesticides, thermostats with mercury, and fluorescent lamp bulbs. Texas Class Waste is hazardous waste that has to be reported to TCEQ.) Based on these volumes, a Heavy BCT can be expected to increase hazardous waste generation at Fort Bliss by approximately 1,500 lbs. per year. In addition, there could be a slight increase in hazardous waste generation due to hazardous chemicals use in the new facilities and during demolition

and renovation of existing facilities. Current hazardous waste disposal processes will continue. The minimal increased generation of hazardous wastes will have no adverse environmental impacts.

Increased use of live-fire ranges will involve more ordnance and explosives at the ranges and in impact areas. This is not expected to measurably increase hazards associated with unexploded ordnance.

AR 385-63, paragraph 2-5A (3) prohibits the firing of DU ammunition from tanks or A-10 aircraft in the continental U.S. unless approved by the Chief of Staff of the Army or the Commandant of the Marine Corps. No exception has been provided for Fort Bliss, nor is one anticipated. Furthermore, live ammunition (rounds that explode) of any sort will not likely be fired by M1 tanks on the live-fire and qualification ranges or anywhere on Fort Bliss. When using the ranges to qualify and train crews, tanks fire a 120 millimeter training round that consists of an inert steel dart. Targets are typically composed of wood, cardboard, or other synthetic materials. "Hits" are registered and scored electronically.

5.12.2.2 Items of Special Concern

Medical and biohazardous wastes will continue to be generated under The No Action Alternative at approximately the same rate as in the past. There will be a slight increase with the addition of new personnel. Waste collection, storage, and disposal processes will remain the same. The generation of medical and biohazardous wastes will not cause adverse impacts.

WBAMC and various Fort Bliss commands will continue to generate small amounts of low-level radioactive wastes. The types and amounts of these wastes will be about the same as described in Section 4.12.2. Management process for the radioactive wastes will remain unchanged. The generation of low-level radioactive waste will not result in adverse impacts.

Asbestos abatement performed prior to facility demolition could generate asbestos waste. Abatement actions to deal with threats arising from past hazardous waste practices will continue. The generation of asbestos material waste will not cause adverse impacts.

The RCI contractor is responsible for conducting lead-safe work practices when it renovates housing. Where necessary, lead-based paint abatement will be conducted, which may include encapsulation as an option. Lead waste generated from demolition of buildings will continue to be characterized to determine if it is a hazardous waste. The generation of lead waste will not result in adverse impacts.

The current storage and use of pesticides and associated certification and management plans will continue. The use of hazardous pesticides will not result in adverse impacts.

The PCB management plan will continue to provide guidance for PCB identification, sampling, removal, disposal, and record keeping. The handling of PCB-contaminated equipment and soils will not result in adverse impact.

Fort Bliss will continue to use both USTs and ASTs for petroleum products, but any new tanks will most likely be ASTs. All USTs were upgraded to meet federal and state environmental requirements by the 1998 deadline. Fort Bliss maintains compliance through an aggressive inspection and maintenance program to avoid releases and minimize environmental impacts.

5.12.2.3 Related Management Programs

Current Installation Restoration Program activities and public interactions will continue. Restoration of currently identified sites will continue and any new sites that are identified will be added to the program. The contaminated wastes that are removed from IRP sites will be managed in accordance with approved practices and procedures; therefore, they will not result in adverse impacts. The overall impact of the IPR program will be beneficial, since contaminated sites will be restored.

Fort Bliss will continue to identify and implement pollution prevention initiatives to reduce the amount and types of hazardous materials used and the amount and type of hazardous waste that are generated

from the use of those materials. The Hazardous Waste Management Plan and the Pollution Prevention Plan will address pollution prevention and waste minimization issues and provide an automated tracking system for hazardous materials and chemicals. Improvements under this program will result in beneficial impacts.

5.12.3 Alternative 1

5.12.3.1 Hazardous Materials

Under Alternative 1, there would be an increase in the use of hazardous chemicals due to the addition of new facilities such as fuel storage/fueling facilities, tactical equipment shops, and motor pools in the Main Cantonment Area and at the range camps. This would increase the potential for releases of fuels, oils, and hydraulic fluids during servicing and operation of additional military vehicles, helicopters, and the operations associated with the new units stationed at Fort Bliss within the Main Cantonment Area and range camps, as well as in the training areas where vehicles and equipment would stage and operate. Increased use of fuel bladders during field training would pose an additional risk of release and resulting contamination. Construction equipment used in demolition, renovation, and development of additional facilities would have a negligible impact on the use of hazardous chemicals. Existing programs for the management of hazardous materials and wastes would continue and would be adequate to manage additional hazardous chemicals. The installation SPCC Plan would need to be amended. With management practices to prevent and respond to accidental releases, the increased use of hazardous chemicals would have no adverse environmental impacts.

As noted for the No Action Alternative, DU in M1 tank armor will pose no significant environmental or health risk.

The types and quantities of hazardous waste generated would also increase with use of increased amounts of hazardous chemicals. Based on hazardous waste generation by the 31st ADA, the volume of hazardous waste generated by Fort Bliss is expected to increase by approximately 6,000 lbs. per year. Hazardous waste disposal processes would be the same as described for the No Action Alternative, and the hazardous waste disposal facilities would be adequate to manage the increase in hazardous waste. The increased generation of hazardous waste would have no adverse environmental impacts.

There would be an increase in ordnance and explosives used by the additional troops and in the additional live-fire ranges at Doña Ana and McGregor Ranges. An additional ordnance disposal facility is planned. The existing ordnance management procedures would be updated as needed. No ammunition containing DU will be used on Fort Bliss.

The new live-fire ranges to be developed in the Fort Bliss Training Complex would be located at or adjacent to existing live-fire ranges and within existing impact areas and would therefore not create new areas of unexploded ordnance contamination. Lead ammunition used on small arms ranges would be captured in berms, and munitions fired from vehicles such as tanks would be contained within defined SDZs. Any ordnance that impacts off post would be subject to the Military Munitions Rule. However, SDZs are designed to ensure that all ordnance used in training impacts within the installation boundary. No live fire would occur in the open maneuver areas outside the ranges (i.e., Doña Ana Range, Meyer Range Complex, FAW area, and Orogrande Range Complex).

5.12.3.2 Items of Special Concern

There would be an increase in medical and biohardous waste generated under Alternative 1 due to the increased military population and the construction of a new dental clinic. Waste collection, storage, and disposal processes would remain the same. The generation of medical and biohazardous wastes would not cause adverse impacts.

There would be an increase in the generation of asbestos containing material during renovation and demolition of family housing and other facilities. Asbestos abatement procedures would continue, and regulated ACM would be disposed of in an approved off-post asbestos disposal facility. Non-pulverized material containing asbestos would be disposed of in the on-post construction waste cell.

Under this alternative, there would be an increase in the generation of lead-contaminated wastes from the renovation and demolition of housing facilities. Waste disposal processes would be the same as described for the No Action Alternative. The increase in the generation of lead wastes would result in no adverse impacts because the wastes would be managed in accordance with applicable standards and regulations.

There would be a slight increase in the use of pesticides and herbicides due to the addition of family housing and other facilities. However, since the majority of pesticides and herbicides occur on the golf course, the increase would be insignificant. Existing programs for the management of pesticides and herbicides would continue, and the management plan would be continually updated as needed. The minimal increase in generation of pesticides and herbicides would result in no adverse impacts.

Under Alternative 1, low-level radioactive waste, PCBs, and petroleum storage tanks would be managed as described under the No Action Alternative.

5.12.3.3 Related Management Programs

The IRP and Pollution Prevention Program at Fort Bliss would continue under Alternative 1 as described under the No Action Alternative. The Hazardous Waste Management Plan and Pollution Prevention 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 Fort Bliss Training Complex.

5.12.4 Alternative 2

5.12.4.1 Hazardous Materials

Generation and management of hazardous materials, hazardous waste, and ordnance and explosives under Alternative 2 would be as described for Alternative 1. The volume of hazardous waste generated would be slightly higher than under Alternative 1 due to the addition of a second CAB. There would be a slight increase in the area potentially exposed to release of fuels and affected by ordnance and explosives due to the extension of off-road vehicle maneuver training in the north Tularosa Basin portion of McGregor Range. The environmental impacts under this alternative would be the same as described for Alternative 1.

5.12.4.2 Items of Special Concern

Generation and management of medical, biohazardous, low-level radioactive, asbestos, and lead wastes; pesticides; PCBs; and petroleum storage tanks would be the same under Alternative 2 as described under the No Action Alternative and Alternative 1. The increased population of Fort Bliss would increase generation of medical and biohazardous wastes and pesticide use. The volume of petroleum storage would increase with a second CAB. Existing procedures would be adequate to ensure that the increases do not adversely affect the environment.

5.12.4.3 Related Management Programs

The IRP and Pollution Prevention Program at Fort Bliss would continue under Alternative 2 as described under the No Action Alternative. The Hazardous Waste Management Plan and Pollution Prevention 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 Fort Bliss Training Complex.

5.12.5 Alternative 3

5.12.5.1 Hazardous Materials

Generation and management of hazardous materials, hazardous waste, and ordnance and explosives under Alternative 3 would be as described for Alternative 1. There would be a slight increase in the area potentially exposed to release of fuels and affected by ordnance and explosives under this alternative due to the extension of off-road vehicle maneuver in the southeast training areas of McGregor Range. The environmental impacts under this alternative would be the same as described for Alternative 2.

5.12.5.2 Items of Special Concern

Generation and management of medical, biohazardous, low-level radioactive, asbestos, and lead wastes; pesticides; PCBs; and petroleum storage tanks would be the same under Alternative 3 as described for the No Action Alternative and Alternatives 1 and 2.

5.12.5.3 Related Management Programs

The IRP and Pollution Prevention Program at Fort Bliss under Alternative 3 would continue as described under the No Action Alternative. The Hazardous Waste Management Plan and Pollution Prevention 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 Fort Bliss Training Complex.

5.12.6 Alternative 4 – Proposed Action

5.12.6.1 Hazardous Materials

Generation and management of hazardous materials, hazardous waste, and ordnance and explosives under Alternative 4 would be as described for Alternatives 1, 2, and 3. The volume of hazardous materials and ordnance used and hazardous and explosive wastes generated would be about 50 percent higher than that used or generated under the other alternatives, but this would be managed in accordance with established procedures and regulations.

5.12.6.2 Items of Special Concern

Generation and management of medical, biohazardous, low-level radioactive, asbestos, and lead wastes; pesticides; PCBs; and petroleum storage tanks would be the same under Alternative 4 as described for the No Action Alternative and Alternatives 1, 2, and 3. If there were additional increases in the population of Fort Bliss, the generation of medical and biohazardous wastes would also increase, as could the use of pesticides and the volume of petroleum storage. Existing procedures would be adequate to ensure that the increases do not adversely affect the environment.

5.12.6.3 Related Management Programs

The IRP and Pollution Prevention Program at Fort Bliss would continue under Alternative 4 as described under the No Action Alternative. The Hazardous Waste Management Plan and Pollution Prevention 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 Fort Bliss Training Complex.

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5.13 SOCIOECONOMICS

5.13.1 Introduction

The socioeconomics analysis addresses five main topic areas: population, economic activity, housing, public services, and quality of life. Indirect population and direct and indirect economic effects were estimated using the U.S. Army's Economic Impact Forecast System (Ref# 178). This model integrates data elements from agencies (BEA and Census) in the U.S. Department of Commerce, as well as supporting data from other government agencies. EIFS projections use an export-base multiplier, calculated through the use of detailed BEA data for each ROI. The multiplier is used to distinguish direct and indirect effects and represent the characteristics of the affected community. In addition, EIFS provides a uniform methodology to determine the significance of projected impacts based on business volume, income, employment, and population.

The criteria for determining the significance of these impacts reflect the local historical year-to-year fluctuations through the use of a Rational Threshold Value (RTV). This technique (Ref# 356) is independent of the estimates or the model used to produce them, and was developed in response to voiced community concerns over arbitrary DoD significance criteria that failed to account for each ROI's peculiar or specific characteristics. It relies on yearly BEA time series data on employment, income, and population to evaluate historical trends within a subject community (region) and uses those trends to measure the "resilience" of the local community to change or its ability to accommodate such change. A positive and negative RTV is derived from these data, based on past inherent fluctuations in the ROI, as well as some weightings (for negative effects) to ensure sound determinations. Only the positive RTVs (for increased activities) are used in this SEIS.

A study conducted in 2002 by UTEP (Ref# 101) examined a "status quo" alternative projecting results to 2020 and included some potential expansion scenarios for Fort Bliss using the UTEP IPED Regional Impact Forecast Model. The following data were provided by Fort Bliss for the model, representing the 2002 time period:

- Number of active duty personnel – 12,021
- Average military wage – $49,904.21
- Number of federal civilian personnel – 6,620
- Average civilian wage – $53,615.22
- Total Fort Bliss expenditures – $421,929,339
- Cost of new barracks each housing 480 – $28,000,000

The "standard regional control" (status quo) covered the period of 2000 to 2020. With no changes in Fort Bliss operations:

- Regional employment is expected to increase by 71,549, or 15.70 percent;
- Population is expected to grow 16.05 percent;
- Gross regional product is expected to grow 64.24 percent;
- Construction increases are expected to be 12.83 percent; and
- Income is expected to grow 55.35 percent.

The majority of these effects will be felt in El Paso County, but surrounding counties may increasingly share in the regional growth.

The UTEP analysis then examined potential increases in Fort Bliss force structure of 1,000, 2,500, 3,500, and 5,000 personnel, along with associated costs and requirements (e.g., barracks, buildings, etc.). Forecasts were made across 10 economic factors and compared to a control forecast. UTEP also

performed some preliminary analyses on an increase of 20,000 new military personnel (Ref# 300), but these were less exhaustive and extensive in terms of data inputs; relied on IMPLAN (as opposed to the UTEP modified REMI model) for a quick, preliminary analysis; and did not specifically address the issue of population increases. Verbal communications (Ref# 501) indicate that a final REMI analysis will be performed in the near future, when input data are fully developed and have stabilized.

For this SEIS, the initial UTEP analysis (Ref# 101) provided useful data for assessing overall impacts on population. The scenario reflecting a 5,000 troop increase indicates a total population change of 14,911 over a four year period, including estimates for indirect support of these military changes (in terms of both civilian employees and military construction). This represents an induced (indirect) population change of 2.98 for each additional military person, or approximately 0.75 per year spread over a 4-year period.

The quantitative analysis presented in this section is based on the best information available on the magnitude and timing of changes in personnel assignments at Fort Bliss. The results are provided for general planning and analysis purposes only and are subject to change as plans continue to evolve.

5.13.1.1 Population

The analysis of population effects from the alternatives considers both direct population changes, including military and government civilian personnel and their dependents, and indirect effects, defined as the population growth from in-migration induced by the economic activity associated with the personnel and other expenditures at Fort Bliss. Induced population projections were derived using EIFS (Ref# 170), based partly on studies performed by UTEP (Ref # 101).

5.13.1.2 Economic Activity

The analysis of economic activity evaluates the effects of military salaries, civilian salaries, and purchases and expenditures on business volume, local employment, and income using the EIFS model (Ref# 170). Yearly changes in EIFS were estimated using the projected yearly direct changes in military and civilian personnel under each alternative and applying their average annual salaries to ascertain the direct economic effects. An average military salary of $43,500 was derived from sample military grade distributions and salaries, including off-post housing allowances and other adjustments. In addition, the percent of military personnel housed on post was estimated. A survey conducted by UTEP (Ref# 308) indicates that 67.5 percent of current military employees reside off post. Other estimates were derived from the most recent Housing Market Analysis for Fort Bliss.

Purchases and expenditures are comprised of local expenditures for goods and services. These include direct purchases of materials and supplies as well as contracts and purchase orders. The salaries of contract employees are also commonly included in the reports of contracts and purchase orders in the local region. Military construction and renovation projects are the major and predominant component of local purchases and expenditures. These construction projects involve large dollar amounts and span multiple years and are the predominant inputs for this analysis. The estimated construction expenditures for individual projects were spread over multiple years, reflecting the required execution time for major projects.

The EIFS model results for changes in total business volume, income, and employment are presented both quantitatively and as percentages of the activity in the total ROI, which are compared to the following RTVs for the three-county ROI:

- Total business volume – 4.74 percent
- Income – 5.00 percent
- Employment – 4.01 percent

5.13.1.3 Housing

The housing demands associated with each alternative comprise the number of incoming military personnel to Fort Bliss, the number of additional direct civilian employees, and the increase in population induced by the actions at Fort Bliss. The number of military households that seek private sector housing is determined by U.S. Army policies. For this analysis, the on-post housing is assumed to be fully occupied, and the households not provided housing on post will seek private sector housing.

5.13.1.4 Public Services

The analysis of public service impacts considers public finance, schools, law enforcement, fire protection, and medical services.

Public Finance

The fiscal impact of the increase in military personnel at Fort Bliss is estimated in terms of increased property taxes and sales taxes for the City of El Paso and El Paso County. This analysis is based on fiscal year 2005 base data. Property tax estimates are based on total per-household property taxes in fiscal year 2005. In the City of El Paso, the number of households was estimated by assuming an average household size of 2.4, for a total of 251,732 households. This results in a slight underestimation of per-household property tax because there were fewer dwellings in the City El Paso, but it provides a consistent basis of estimating the effects of the changes associated with each alternative. The baseline 2005 property taxes for El Paso County reflect a total of 240,600 households in 2004. This number was used to calculate the per household property tax rate for the county. The City of El Paso collected $137,711,242 in property taxes in fiscal year 2005. El Paso County collected an estimated $97,514,414 in property taxes in fiscal year 2005 (Ref# 552, 553).

Sales tax revenues were calculated based on the per capita sales tax. The City of El Paso had an estimated population of 604,156 in fiscal year 2005 and collected $80,236,149 in sales taxes. El Paso County had an estimated population of 713,126 and collected an estimated $22,356,982 in sales taxes (Ref# 552, 553). Additional sales taxes under each alternative were calculated assuming local expenditures of military personnel living on post is approximately 32.5 percent, and of military personnel living off post is approximately 57.5 percent, of civilians (Ref# 513, 514).

In addition to sales and property taxes, the city and county receive revenues from fees, fines, licenses, and permits, grants, bond proceeds, and fund transfers. Property and sales taxes comprised approximately 41 percent of the City of El Paso's total revenues, and all taxes (predominantly property and sales) comprised approximately 55 percent of the County of El Paso's revenues in FY 2005 (Ref# 552, 553).

Estimating the net increase in cost associated with project-related increases in population is difficult, they are not necessarily linear. In the absence of a detailed assessment, however, the analysis in this SEIS assumes a directly proportional increase in costs based on per capita appropriations by the two jurisdictions in fiscal year 2005 (Ref# 552, 553). For purposes of analysis, costs associated with the projected population increases were calculated for persons living off post. It was assumed that 100 percent of the population impact would be felt in the County of El Paso and 85 percent in the City of El Paso, conservative assumptions since some percentage of the population would live in other jurisdictions.

In this section, the estimates of increased public service costs and tax revenues are presented in 2005 dollars.

Schools

Two school districts, El Paso ISD and Ysleta ISD, educate approximately 82 percent of Fort Bliss military dependents. Their combined student enrollment in 2004/2005 was 109,610 and the combined number of teachers was 7,492 for a combined student/teacher ratio of 14.6. The SEIS analysis considers

the total Fort-Bliss impact on student population for each alternative and estimates the number of teachers needed for the new enrollment levels, based on the existing student/teacher ratio.

Additional revenues for El Paso and Ysleta ISDs were estimated by applying the per-student impact aid paid for military students in the 2004/2005 school year to the projected increases in military students and the per-student tax revenue for the same year to the projected increases in civilian students. Additional costs were estimated by applying the average per-student operating expenditures that were funded by taxes in school year 2004/2005 to the total increase in students for each alternative. The increase in revenues and expenditures for military students was distributed as 89 percent to El Paso ISD and 11 percent to Ysleta ISD. The increase in revenues and costs for civilian students was distributed as 58 percent to El Paso ISD and 42 percent to Ysleta ISD, reflecting the relative ratio of all students in those districts (Ref# 558, 559)

Law Enforcement and Fire Protection

Anticipated increases in personnel assigned to Fort Bliss, in conjunction with induced population increases, will generate added demand for community services, including law enforcement and fire protection. Existing personnel numbers for law enforcement in and around Fort Bliss, including the Fort Bliss Law Enforcement Battalion, El Paso County Sheriff's Department, and City of El Paso Police Department, reflect a service level ratio of 4.3 law enforcement personnel for every 1,000 persons. Existing personnel numbers for fire protection in and around Fort Bliss, including Fort Bliss Fire Department and City of El Paso Fire Department, reflect a service level ratio of 1.3 fire protection personnel for every 1,000 persons. By comparison, proxy service demand factors developed in Rau and Wooten's "Environmental Impact Analysis Handbook" indicates a law enforcement service level ratio of 1.7:1000 and a fire protection ration of 1.43:1000 (Ref# 355).

The considerable difference in the two ratios probably reflects regional variation in service levels due to local conditions. Both ratios are applied in this analysis to produce a range of initial estimates and provide a basis for community planning and preparation.

Medical Services

Existing numbers for physicians and medical facilities in and around Fort Bliss reflect service level ratios of 1.57 physicians for every 1,000 persons and 2.85 hospital beds per 1,000 persons. By comparison, generalized service demand factors developed in Rau and Wooten indicate a hospital bed per resident ratio of 4.5:1000 (Ref# 355). Both ratios are applied in this analysis to produce a range of initial estimates of increased demand for medical services. It is assumed that WBAMC would continue to service 85-90 percent of the eligible (military and military dependent) population associated with Fort Bliss.

Government Structure

No change in government structure is anticipated in response to the actions at Fort Bliss; however, several departments may increase staffing to meet new demands.

5.13.1.5 Quality of Life

The quality of life analysis in this SEIS addresses three broad categories: cost of living, convenience/access, and physical environment. Specific topics of concern evaluated for each of the three categories are:

- Cost of living considers increases in water purchase rates and housing costs.
- Convenience/access considers increases in traffic congestion and commuting times, overcrowding of schools, and reduction in access to recreation resources.
- Physical environment considers changes in urban and rural landscapes, potential reduction in open space, and increased dust.

Analysis results from other relevant sections of the SEIS are used to address each of these factors.

5.13.2 No Action Alternative

5.13.2.1 Population

Under the No Action Alternative, the stationing of one Heavy BCT at Fort Bliss is estimated to increase the total regional population by 23,250 persons (**Table 5.13-1**). This represents a 20 percent increase in the number of Fort-Bliss related persons residing in the region by the end of 2006, compared to 2005. Total population includes the direct new personnel (both military and civilians), their families, and new population that may in-migrate as a result of the stronger economy and spending that the region would experience (induced). Of this total, 19,680 are projected to live off post, including all civilians and the induced population, as well as some military personnel.

The estimated 2005 population in the three-county ROI of 968,700 is projected to increase to about 1,110,327 by 2010, with an average annual growth rate of 2.9 percent. With the addition of the Heavy BCT, the average annual regional growth rate is expected to increase to 3.4 percent.

Table 5.13-1. Population Impacts – No Action Alternative

	2005 Baseline	*Additional Population*	*Total*
Military[1]	10,200	3,800	14,000
Military Dependents[2]	16,500	6,270	22,770
Civilians	7,500	700	8,200
Civilian Dependents[3]	10,500	980	11,480
Students and TDY Personnel	7,700	100	7,800
Subtotal Direct Population	*52,400*	*11,850*	*64,250*
Induced Population	30,396	11,400	41,796
Total	**82,796**	**23,250**	**106,046**
Off Post Residents	65,641	19,680	85,321

1. Including U.S. and non-U.S military personnel.
2. Assuming a ratio of 1.65 dependents for every military person.
3. Assuming a ratio of 1.40 dependents for every civilian employee.

5.13.2.2 Economic Activity

The variables input into EIFS to calculate the economic effects of the No Action Alternative include the following:

- An increase of 3,800 military personnel over 2005 numbers,
- An increase of 700 civilians, and
- $682.4 million in local expenditures between 2006 and 2010.

Table 5.13-2 summarizes the resultant EIFS projections (model runs) by year for business volume, income, and employment in estimated numbers and in terms of the percent change (impacts) in the region compared to the RTVs for the Fort Bliss economic region.

As indicated by these figures, the No Action Alternation will produce only minimal effects on the ROI, as the changes fall well within the respective RTVs.

Table 5.13-2. Projected Changes in Economic Activity – No Action Alternative

Year	*Total Business Volume*		*Income*		*Employment*	
	$M	*% Change*	*$M*	*% Change*	*No.*	*% Change*
2006	339.1	1.40	249.2	1.73	6,849	1.70
2007	313.6	1.29	57.1	0.40	2,080	0.52
2008	237.8	0.99	43.3	0.30	1,578	0.39
2009	71.5	0.30	12.0	0.09	474	0.12
2010	8.2	0.03	1.5	0.01	55	0.01
RTV		4.74		5.00		4.01

5.13.2.3 Housing

The No Action Alternative increases the personnel stationed at Fort Bliss by approximately 3,800 military, 700 civilians, and 100 TDY personnel, bringing the total personnel to about 30,000 including permanent party, temporary duty, civilian government employees, and contractor personnel. Some active duty military personnel will be provided with on-post housing while others will find housing in the private sector. Fort Bliss is currently implementing a Residential Communities Initiative that includes demolition, renovation, and new construction of military family housing. The on-going RCI project is scheduled to be completed in 2009 and result in 859 additional military family housing units on Fort Bliss, bringing the total inventory of military family housing to 3,611 housing units. While the number of military households provided housing on post is dictated by U.S. Army policies, it is assumed that on-post family housing and visitors' quarters will be fully occupied. Any military households not housed on post compete with civilians for the available housing. **Table 5.13-3** projects on- and off-post housing demands for the No Action Alternative and the other alternatives.

Table 5.13-3. Increases in On- and Off-Post Housing Demands by Alternative

	No Action Alternative	*Alternative 1*	*Alternatives 2 and 3*	*Alternative 4*
Increase in Personnel[1]	4,600	22,100	24,900	32,500
Personnel Housed On Post[2]	859	10,609	10,609	10,609
Personnel Housed Off Post	3,741	11,491	14,291	21,891
Induced Personnel Households	4,750	24,865	28,217	37,653
Total Off-Post Households	8,491	36,356	42,508	59,544

1. Total personnel include permanent party military personnel, personnel on temporary duty, civilian government employees, and civilian contractors.
2. Personnel housed on post assuming on-post housing is fully occupied by military personnel.

While the increased demand could contribute to a tightening of the housing market, decreasing the number of vacant housing units in the market, the number of vacant units in El Paso County numbered over 14,000 in 2004. The induced population, estimated at 11,400 additional persons, will also enter the housing market. Based on an average household size of 2.4, this represents about 4,750 additional households, for a total increase of approximately 8,491 households including direct and induced populations seeking housing off post. The number of vacant housing units is able to accommodate the additional demand.

A possible development of approximately 1,000 housing units over the next two years is planned in the northeast portion of the City of El Paso (Ref# 385). Land is available for the expansion of housing; however, homebuilders are concerned with a possible labor shortage in the area (Ref# 386).

5.13.2.4 Public Services

Public Finance

The No Action Alternative involves a direct increase of approximately 3,800 military personnel, 700 civilian personnel, and a total of 7,250 dependents, bringing the Fort Bliss related population to 30,000 by FY 2011. The majority of these personnel will likely reside in El Paso County and the City of El Paso. The estimated increases in sales and property taxes are presented in **Table 5.13-4**. The impact is the largest in the City of El Paso due to a higher rate of sales tax. The increase in the collected tax revenues from the direct population increases could be more than $2.4 million for the City of El Paso. The increased revenue for El Paso County could be over $1.7 million in additional sales and property tax revenues from the direct population increases at Fort Bliss.

The No Action Alternative is estimated to generate an induced population of approximately 11,400 persons. The increased property and sales tax revenues for the City of El Paso from the induced population could be nearly $3.5 million, and for El Paso County the additional tax revenues could be nearly $2.3 million.

The total impact on property and sales tax revenues for the City of El Paso including both direct and induced population effects could be an additional $5.9 million in tax revenues. For El Paso County, the additional tax revenues collected could be $3.9 million. The total tax revenues represent an increase of approximately 3 percent for each jurisdiction.

Table 5.13-4. Estimated Increase in Tax Revenues of El Paso County and City of El Paso – No Action Alternative

Tax Revenue	*El Paso County*		*City of El Paso*	
	$M	*%*	*$M*	*%*
Direct Population Effects				
Property Tax	1.456	1.5	1.671	1.2
Sales Tax	0.208	0.9	0.749	0.9
Subtotal Direct Population	1.664	1.4	2.420	1.1
Induced Population Effects				
Property Tax	1.925	2.0	2.201	1.6
Sales Tax	0.357	1.6	1.283	1.6
Subtotal Induced Population	2.283	1.9	3.484	1.6
Total				
Property Tax	3.381	3.5	3.872	2.8
Sales Tax	0.565	2.5	2.032	2.5
Total Increase	**3.947**	**3.3**	**5.904**	**2.7**

Source: Ref# 552, 553

Based on FY 2005 revenues and appropriations, total per capita revenues in El Paso County were approximately $304 and per capita appropriations were approximately $329 (Ref# 553). Property and sales taxes represent approximately 55 percent of the total revenues; based on this ratio, the total revenue to the county associated with the population increases is estimated to be approximately $6.6 million. Total costs to the county of providing services to the increased off-post population, based on the FY 2005 per capita average appropriations, are estimated at approximately $6.5 million.

Based on FY 2005 revenues and appropriations, per capita revenues in the City of El Paso were approximately $870 and per capita appropriations were approximately $884 (Ref# 552). Property and sales taxes represent approximately 41 percent of total revenues; based on this ratio, total revenue to the city associated with the population increase is estimated to be approximately $15.0 million. Total costs to the city of providing services to the increased off-post population are estimated at $14.8 million.

Schools

Under the No Action Alternative, the Fort Bliss-related student population is estimated to increase by approximately 5,056 (**Table 5.13-5**), requiring approximately 346 additional teachers. Assuming that 80 percent will attend school in the El Paso and Ysleta districts, this represents an increase of less than 4 percent over 2004/2005 school year levels for these districts. This is a minor impact on the public school system.

Table 5.13-5. Fort Bliss-Related Student Population—No Action Alternative

	2004/2005 Baseline	*No Action Alternative Addition*	*Total*
Military Elementary School	2,663	992	3,656
Military High School	2,272	846	3,118
Civilian Elementary School	8,131	2,197	10,328
Civilian High School	3,775	1,020	4,795
Total	16,841	5,056	21,897

In the 2004/2005 school year, the El Paso ISD received $849/military student and the Ysleta ISD received $465/military student in impact aid payments. Total General Fund revenues in the 2004/2005 school year were $6,172/student in the El Paso ISD and $6,076/student in the Ysleta ISD. Total General Fund expenditures were $6,157/student in the El Paso ISD and $6,243/student in the Ysleta ISD (Ref# 558, 559). Taxes account for 38 percent of El Paso ISD revenues and 23 percent of Ysleta ISD revenues. The increase in students under the No Action Alternative is estimated to generate approximately $5.7 million in additional impact aid and tax revenues and $8.1 million in additional tax-funded costs to the El Paso ISD. The Ysleta ISD is estimated to receive $2.0 million in additional impact aid and tax revenues and incur $2.2 million in additional tax-funded costs.

Law Enforcement

Table 5.13-6 presents the estimated increased need for off-post law enforcement personnel associated with the No Action Alternative and other alternatives. Based on the current local law enforcement service level ratio of 4.3:1000, the off-post population increase under the No Action Alternative generates a need for 85 additional law enforcement personnel, representing a 3 percent increase above current levels. By comparison, applying the Rau and Wooten demand factor of 1.7:1000 for law enforcement personnel results in an estimated need for 33 additional personnel, a 1 percent increase. In either case, an increase of this magnitude will not have a significant impact on law enforcement services in the region.

Table 5.13-6. Law Enforcement Effects by Alternative

	No Action Alternative	*Alternative 1*	*Alternatives 2 and 3*	*Alternative 4*
Total Population Change	23,250	202,892	218,091	260,879
Off-Post Population Change	19,680	101,328	116,527	159,315
Law Enforcement Demand				
Local Service Ratio[1]	85	436	502	685
Rau and Wooten Ratio[2]	33	172	198	271

1. Estimated increase in demand for law enforcement personnel based on current service levels.
2. Estimated increase in demand for law enforcement personnel based on demand factors provided in Rau and Wooten, 1980.

Fire Protection

Table 5.13-7 presents the estimated increased need for off-post fire protection personnel associated with the No Action Alternative and other alternatives. Based on the current local fire protection service level ratio of 1.3:1000, the off-post population increase under the No Action Alternative generates a need for

26 additional fire protection personnel, a 3 percent increase above current levels. Applying the Rau and Wooten demand factor of 1.43:1000 for fire protection personnel results in an estimated need for 28 additional personnel. In either case, an increase of this magnitude will not have a significant impact on fire protection services in the region.

Table 5.13-7. Fire Protection Effects by Alternative

	No Action Alternative	*Alternative 1*	*Alternatives 2 and 3*	*Alternative 4*
Total Population Change	23,250	202,892	218,091	260,879
Off-Post Population Change	19,680	101,328	116,527	159,315
Fire Protection Demand				
Local Service Ratio[1]	26	132	152	207
Rau and Wooten Ratio[2]	28	145	167	228

1. Estimated increase in demand for fire protection personnel based on current service levels.
2. Estimated increase in demand for fire protection personnel based on demand factors provided in Rau and Wooten, 1980.

Medical Services

Table 5.13-8 presents the estimated increased need for off-post medical personnel and hospital beds associated with the No Action Alternative and other alternatives. Based on current local medical service ratios for physicians and hospital beds, the additional population using off-post medical services under the No Action Alternative generates a demand for 23 additional physicians and 41 additional hospital beds, a 2 percent increase above current levels. By comparison, applying the Rau and Wooten demand factor results in an estimated demand for 65 additional hospital beds, a 3 percent increase. In either case, an increase of this magnitude, while not significant, could exacerbate the existing shortage of medical services available in the region.

Table 5.13-8. Medical Services Effects by Alternative

	No Action Alternative	*Alternative 1*	*Alternatives 2 and 3*	*Alternative 4*
Total Population Change	23,250	202,892	218,091	260,879
Change in Off-Post Demand[1]	14,351	74,464	84,147	109,312
Physician Demand				
Local Service Ratio[2]	23	117	132	172
Rau and Wooten Ratio	NA	NA	NA	NA
Hospital Bed Demand				
Local Service Ratio[2]	41	212	240	312
Rau and Wooten Ratio[3]	65	335	379	492

1. Assuming 12.5% of military and their dependents and 100% of civilians.
2. Estimated increase in demand for physicians and hospital beds based on current service levels.
3. Estimated increase in demand for hospital beds based on demand factors provided in Rau and Wooten, 1980.

NA = not available

The considerable difference between the local and Rau and Wooten hospital bed ratios reflects regional variation in service levels and supports the conclusion that the El Paso region already lacks adequate numbers of health care practitioners and facilities to serve the medical needs of the existing population. El Paso has a disproportionately low number of medical practitioners compared to other urban counties in Texas (Ref# 255). In general, the relative number of physicians in El Paso is about 40 to 50 percent of the number in other major urban areas in the state.

The Team El Paso Healthcare Council, in collaboration with the Greater El Paso Chamber of Commerce and the Institute for Policy and Economic Development at UTEP, examined health care access issues in El Paso and developed measures needed to attract and retain primary care and specialist physicians. The

need for such measures, including state establishment of a medical school at Texas Tech University Health Sciences Center at El Paso, creation of a state healthcare infrastructure fund, and financial incentives for physicians in underserved areas, would be intensified by the actions occurring at Fort Bliss.

5.13.2.5 Quality of Life

Cost of Living

The population increase associated with the No Action Alternative increases the demand for potable water by approximately 3,100 acre feet per year, an amount that is not likely to have appreciable impacts on water supply. EPWU has plans in place for projects that would support projected baseline growth through 2010. Stationing of one Heavy BCT at Fort Bliss will increase the demand for potable water in the Fort Bliss-EPWU service area by approximately 2 percent. EPWU's water rates are already increasing because of the projects planned in the near future.

The No Action Alternative will not significantly impact the housing market. The increased demand could contribute to a tightening of the market, decreasing the number of vacant housing units. Rental prices and sales prices could increase to compensate for the increased demand.

Convenience/Access

The No Action Alternative adds about 26,300 trips in the vicinity of the Main Cantonment Area. This will further aggravate roadways that are already congested and contribute marginally to traffic delays, especially along segments of I-10 between the intersections with US 54 and McRae Blvd. Fred Wilson and Airport Road, which provide access to installation gates, are also congested during peak hours.

The No Action Alternative will not alter existing public access to and use of the training areas currently open to public access by permit, including the joint-use areas of McGregor Range. The increase in off-road vehicle maneuvers may decrease the time available for public access for recreation in the South and North Training Areas. Public use of these areas is low in number and managed through a permitting system requiring approval for each entry onto the range. Public access will still be available for specific hunting events and game bird hunting on weekends.

Projected increases in baseline population in the ROI through 2010, not including growth at Fort Bliss, will result in increased recreation demand and potential need for additional facilities such as neighborhood parks and sports fields as new development occurs. The No Action Alternative will contribute marginally to that increased demand.

Physical Environment

Projected development in the El Paso area will result in a reduction in the amount of open space as land is converted to developed uses. Population growth also increases the demand for access to open space, estimated at 7-25 acres per 1,000 persons.

Under the No Action Alternative, development for one Heavy BCT on the east side of Biggs AAF is converting open land to developed areas. Some of this is visible from Loop 375 and the expanded Sergeants Major Boulevard. This development is consistent with the existing surrounding context of Biggs AAF, EPIA, and urbanized areas of El Paso. Live-fire ranges being constructed under the No Action Alternative are in areas already developed for this use.

Most of the growth in the county in recent years has occurred in east El Paso, and this trend is expected to continue. The City of El Paso recently changed its Master Plan to proceed with zoning an 18,000-acre area in northeast El Paso. The conceptual planned development for this area includes about 62,000 homes, commercial and industrial areas, community facilities, parks, and schools.

In summary, the physical environment of the El Paso region is changing due to baseline population growth. The No Action Alternative will contribute minimally to this change.

5.13.3 Alternative 1

5.13.3.1 Population

Table 5.13-9 presents the estimated direct and indirect (induced growth) population change for Alternative 1 between 2006 and 2014 using the implied relationships from the REMI model (Ref# 101).

Table 5.13-9. Population Increases by Year -- Alternative 1

Year	*Military*[1]	*Military Dependents*	*Civilian*	*Civilian Dependents*	*Students and TDY*	*Induced Population*	*Total*	*Percent Change*
2006	3,800	6,270	700	980	100	2,850	14,700	1.0
2007	200	330	1,000	1,400	0	2,999	5,929	0.6
2008	2,400	3,960	200	280	0	4,787	11,627	0.9
2009	8,600	14,190	1,200	1,680	-1,800	11,194	35,064	2.7
2010	4,000	6,600	600	840	0	11,324	23,364	1.9
2011	1,000	1,650	100	140	0	11,920	14,810	1.4
2012	0	0	0	0	0	10,132	10,132	1.0
2013	0	0	0	0	0	3,725	3,725	0.3
2014	0	0	0	0	0	745	745	<0.1
Total	20,000	33,000	3,800	5,320	-1,700	59,676	120,096	
RTV								1.29

<0.1 = less than 0.1 percent

Civilian dependents were estimated using a ratio of 1.4 dependents per civilian employee. The projected off-post population change includes all civilians and approximately 52 percent of the military personnel and their dependents. Based on the initial analysis of Fort Bliss impacts conducted by UTEP (Ref# 101), an induced (indirect) population change of 2.98 can be expected for each additional military person assigned to Fort Bliss. This induced population influx is estimated to occur over a 4-year period, which accounts for the induced population increases extending past the direct population increases.

The major potential population impacts are projected to occur in 2009 and 2010, driven by the arrival of 8,600 military in 2009 (offset by the departure of 1,800 ADA students) and 4,000 in 2010. The RTV for population. 1.29, would be exceeded in 2009 through 2011. The RTV reflects a fairly consistent (and constant) population growth pattern in the ROI and relatively little historical fluctuation. Therefore, Alternative 1 would create a major change in the region. The projected population growth would require considerable expansion of supporting infrastructure and services. While the economic expansion (in terms of business volume or sales, income, and employment, discussed in the next subsection) can likely be assimilated and would improve the overall economic health of the El Paso region, the associated demand on community infrastructure and services due to the projected population growth is unprecedented.

Table 5.13-10 indicates that the overall increase in population, estimated at over 120,000 for this alternative, is 145 percent over the baseline population impact of Fort Bliss. Under baseline conditions in 2005, Fort Bliss-related population comprised about 8 percent of the ROI population. The projected baseline ROI population for 2010 is 1,110,327, compared to 1,201,011 under Alternative 1, resulting in Fort Bliss-related population comprising 17 percent of the ROI population.

The baseline population in the three-county ROI is projected to increase at an average annual growth rate of 2.9 percent. Under Alternative 1, the average annual regional growth rate between 2006 and 2014 would increase to 4.1 percent.

Table 5.13-10. Fort Bliss-Related Population Impacts - Alternative 1

	2005 Baseline	*Alternative 1 Increase*	*Total*
Military[1]	10,200	20,000	30,200
Military Dependents[2]	16,500	33,000	49,500
Civilians	7,500	3,800	11,300
Civilian Dependents[3]	10,500	5,320	15,820
Students and TDY Personnel	7,700	(1,700)	6,000
Subtotal Direct Population	*52,400*	*60,420*	*112,820*
Induced Population	30,396	59,676	90,072
Total	**82,796**	**120,096**	**202,892**
Off Post Residents	65,641	101,328	167,125

1. Including U.S. and non-U.S. military personnel.
2. Assuming a ration of 1.65 dependents for every military person.
3. Assuming a ration of 1.4 dependents for every civilian employee.

5.13.3.2 Economic Activity

Alternative 1 would have an impact on local economic activity through personnel salaries, direct purchases, and construction projects. The inputs to the EIFS model, which include both the No Action Alternative and Alternative 1 increases, are as follows:

- A total increase of 20,000 military personnel between 2006 and 2011,
- A total increase of 3,800 civilian personnel between 2006 and 2011,
- $3.041 billion in local expenditures between 2006 and 2011.

Using the EIFS model, percent change by year in business volume, income, and employment was estimated for Alternative 1 (**Table 5.13-11**). The percentage changes are compared to the relevant RTVs for the Fort Bliss economic region.

Alternative 1 would produce unprecedented effects in business volume (local sales) in 2008. This primarily results from the large construction expenditures planned in that year. While these relative impacts only exceed the RTV for business volume in 2008 and employment in 2009, the continuous indicated impacts over multiple years would be substantial and could be exacerbated by other actions in the region that may occur during the same timeframe. Cumulatively, these projects may compete for the economic resources of the community, straining the labor base and other components of the local economy.

Table 5.13-11. Projected Changes in Economic Activity – Alternative 1

Year	*Total Business Volume*		*Income*		*Employment*	
	$M	*% Change*	*$M*	*% Change*	*No.*	*% Change*
2006	339.1	1.40	249.2	1.73	6,849	1.70
2007	1,103.3	4.55	248.5	1.72	8,519	2.11
2008	1,414.4	5.84	363.3	2.52	11,983	2.97
2009	1,061.3	4.38	592.9	4.11	16,840	4.17
2010	307.4	1.27	243.5	1.69	6,639	1.20
2011	138.8	0.57	70.2	0.49	2,021	0.50
RTV		4.74		5.00		4.01

Overall, these economic consequences would be generally positive in the ROI, accelerating economic growth in a local economy that has been sluggish at best (Ref# 146). The historical unemployment rate has been high relative to the state and the nation. The increased demands for construction and other

services would have a major initial impact, stimulating considerable growth over several years and offsetting the decline of historical manufacturing in the ROI. Although the long-term demand for construction and other services would materialize as the increased mission is assimilated, there is a risk of a "boom-bust" phenomenon occurring.

Under Alternative 1, as the demand for construction and services rises in the ROI, considerable labor (particularly in the construction trades) would likely be supplied by trans-border employees, as immigrants or day-to-day (though repeat) labor. This would likely be a major component of the labor market that is available to respond to the Fort Bliss mission expansion. Its utilization would provide the needed short-term labor during the "boom" period without the accompanying infrastructure and other facilities that can create problems after economic expansions end and a "bust" occurs.

5.13.3.3 Housing

The increase in housing demand under Alternative 1 is shown in Table 5.13-3. This alternative includes construction/renovation of approximately 8,000 barracks and RCI construction of approximately 1,750 military family housing units on post, in addition to the RCI construction occurring under the No Action Alternative. The number of units to be constructed under the RCI program is based on a market analysis of housing available off post to meet the military demand. If this analysis finds that fewer units are available off post than anticipated, RCI plans may change.

An estimated 7,691 additional military personnel would be housed off post. An additional 3,800 direct and 24,865 induced civilian households would also compete for off-post housing for a total demand of approximately 36,356 units. This is more than 2.6 times the estimated number of vacant housing units in the area and would cause a tightening of the housing market, stimulating housing construction. The decreased number of available housing units would likely lead to an increase in housing prices. A report by the National City Corp and Global Insight named the City of El Paso as the second-most undervalued market out of nearly 300 of the biggest cities in the U.S. (Ref# 387). The affordability of the current housing market in addition to an increase in demand could stimulate more investment in rental housing.

Over time, investors would likely enter the market, providing more housing units to satisfy the increased demand. The severity of the impact from the increased housing demand would depend on the timing of new housing starts relative to the influx of new personnel and population increases. This timing, as well as resulting housing costs, would be affected by the competition for construction labor presented by the on-post construction projects.

5.13.3.4 Public Services

Alternative 1 would result in substantial increases in tax revenue to the City of El Paso and El Paso County. The City of El Paso would receive an estimated increase in tax revenues from direct population changes at Fort Bliss of over $9.9 million including sales tax and property tax. In El Paso County, the additional tax revenue from the direct personnel increases at Fort Bliss could be almost $6.4 million (**Table 5.13-12**). The induced population could result in additional tax revenues for the City of El Paso of over $18.2 million and for El Paso County of over $11.9 million.

With over 120,000 people entering the El Paso area, the total impact on tax revenues could be over $28 million in additional tax revenue for the City of El Paso and over $18 million for El Paso County. This represents an increase of over 15 percent for the city, and almost 13 percent for the county.

Based on the assumptions described in Section 5.13.2.4, total additional annual revenues could be $32.1 million to El Paso County and $75.2 million to the City of El Paso. Additional annual costs associated with the increase in off-post population are estimated to be approximately $33.3 million for the county and $76.0 million for the city.

Table 5.13-12. Estimated Increase in Tax Revenues of El Paso County and City of El Paso – Alternative 1

Tax Revenue	*El Paso County*		*City of El Paso*	
	$M	*%*	*$M*	*%*
Direct Population Effects				
Property Tax	5.327	5.5	6.111	4.4
Sales Tax	1.064	4.8	3.830	4.8
Subtotal Direct Population	6.391	5.3	9.941	4.6
Induced Population Effects				
Property Tax	10.078	10.3	11.524	8.4
Sales Tax	1.871	8.4	6.714	8.4
Subtotal Induced Population	11.949	10.0	18.238	8.4
Total				
Property Tax	15.405	15.8	17.635	12.8
Sales Tax	2.935	13.1	10.544	13.1
Total Increase	**18.340**	**15.3**	**28.179**	**12.9**

Source: Ref# 552, 553.

Schools

Under Alternative 1 the Fort Bliss-related student population is estimated to increase by 26,649 (**Table 5.13-13**), requiring about 1,825 additional teachers. Assuming that 80 percent would attend school in the El Paso and Ysleta ISDs, this represents an increase of 19 percent over 2004/2005 levels for these districts. It would be a significant increase in the student population with associated costs to the affected school districts, likely requiring capital investment in new facilities and school sites, as well as additional personnel. The increased costs would be mitigated by military impact aid and an increase in revenues.

Based on the assumptions described in Section 5.13.2.4, the increase in students are estimated to generate an additional $30.0 million in annual military aid and tax revenues and $42.6 million in annual tax-funded costs to the El Paso ISD. Annual military aid and tax revenues to the Ysleta ISD are estimated to increase by $10.4 million and annual tax-funded costs by $11.8 million. The DoD Office of Economic Adjustment is consulting to the school districts to assist in acquiring grants and funds to offset the increased costs.

Table 5.13-13. Fort Bliss-Related Student Population—Alternative 1

	2004/2005 Baseline	*Alternative 1 Increase*	*Total*
Military Elementary School	2,663	5,249	7,912
Military High School	2,272	4,477	6,748
Civilian Elementary School	8,131	11,558	19,688
Civilian High School	3,775	5,366	9,141
Total	16,841	26,649	43,490

Law Enforcement

Alternative 1 would increase regional off-post population by an estimated 101,328 persons. Based on the current local law enforcement service level ratio of 4.3:1000, Alternative 1 would generate a need for 436 additional law enforcement personnel, a 15 percent increase above current levels (see Table 5.13-6). By comparison, applying the Rau and Wooten demand factor of 1.7:1000 for law enforcement results in an estimated need for 172 additional personnel, a 6 percent increase. In either case, an increase of this magnitude would affect law enforcement services in the region. The El Paso County Sheriff and City of El Paso Police could be expected to increase their recruitment and training efforts in anticipation of the expected population influx. Given the relatively high service level ratios existing in the region, however

(4.3 law enforcement personnel per 1,000 versus the more typical 1.7 per 1,000 of the Rau and Wooten factor), the existing staffing should be able to accommodate a temporary lag in increased staffing levels.

Fire Protection

Based on the current local fire protection service level ratio of 1.3:1000, the anticipated off-post population increase under Alternative 1 would generate a need for 132 fire protection personnel, a 14 percent increase above current levels (see Table 5.13-7). By comparison, applying the Rau and Wooten demand factor of 1.43:1000 for fire protection results in an estimated need for 145 additional personnel, a 16 percent increase. In either case, an increase of this magnitude would affect services in the region. The City of El Paso Fire Department could be expected to increase their recruitment and training efforts in anticipation of the expected population influx.

Medical Services

WBAMC is expected to continue serving 85-90 percent of the military and military dependent population associated with Fort Bliss. Based on the current local medical service level ratios, the anticipated increase in non-military population, combined with 10-15 percent of the military population increase under Alternative 1, would generate a need for 117 additional physicians and 212 additional hospital beds, a 11 percent increase above current levels (see Table 5.13-8). By comparison, applying the Rau and Wooten demand factor results in an estimated need for 335 additional hospital beds, a 17 percent increase. In either case, an increase in demand of this magnitude would significantly affect medical services in the region, especially given the existing shortfall.

5.13.3.5 Quality of Life

Cost of Living

The population growth created by the activities at Fort Bliss under Alternative 1 would increase water demand by an estimated 20,710 acre feet per year, an increase of approximately 15 percent. It is likely EPWU would need to develop projects more rapidly than currently anticipated to meet the increased demands for potable water (see Section 5.7). This may impact water rates as capital is needed to finance the new projects; however, EPWU does not expect rates to increase by more than 5 percent (Ref# 510).

Increased demand on the housing market due to incoming personnel relocating to Fort Bliss between 2006 and 2011 could have a significant impact on the housing market in El Paso County. The affordability of the current housing market, in addition to an increase in demand, could stimulate investment in additional housing. Overall, the decreased number of housing units available could cause housing prices to increase at a more rapid pace (see Section 5.13.3.3).

Access/Convenience

By 2016, LOS on some roadways would decline under Alternative 1, but most roadways would still operate at acceptable levels. LOS along on portions of I-10 would still be at unacceptable levels despite planned improvements (see Section 5.2). In 2021, LOS on several roadways would decline further, but only one segment of US 54 (Pershing Drive to Van Buren Ave) would change to an unacceptable level.

The increase in Fort Bliss military personnel and dependents living off post, civilian staff and their dependents, and induced population growth would substantially increase demands on the affected El Paso school districts over the next decade. This is likely to require the districts to develop projects more rapidly than currently anticipated to meet those demands (see Section 5.13.3.4). If facility expansion lags behind the population growth, school overcrowding could occur. Should future demand indicate that earlier development of facility projects is necessary, there may be an impact on school financing which could, in turn, affect local tax rates. Increased service costs would be mitigated by increased tax revenues, and the DoD is consulting to the local school districts to assist in finding additional revenues to offset the additional costs associated with BRAC changes.

The projected population increase would increase the demand for recreation. Using Rau and Wooten multipliers for calculating the demand for various size parks (Ref# 501), an estimated additional 3,040 acres of parks, including neighborhood parks, district parks, large parks, and regional parks, would be needed under Alternative 1. This assumes 2.5 acres of neighborhood parks, 2.5 acres of district parks, 5 acres of large parks, and 20 acres of regional parks per 1,000 persons.

Under Alternative 1, additional use of the North and South Training Areas for off-road vehicle maneuvers could limit the time available for non-military access for recreation. Since there is very little public recreational use (documented by the number of annual permits issued) and demand has not been increasing, the impact is expected to be minor (see Section 5.1). On McGregor Range, military use may increase slightly in areas where public access and joint use are permitted. Conversely, the duration of closures for missile firings would likely decrease. Therefore, no impact is projected on public activities in the Otero Mesa and Sacramento Mountains foothills portions of McGregor Range.

Physical/Environment

The increased population growth projected under Alternative 1 and resulting development would affect local land use plans and infrastructure development, especially in El Paso County. A large-scale initiative planned for northeast El Paso, involving 62,000 homes and other development, could meet future housing needs, but in the interim, new housing supplies may not be able to keep up with demand, creating interim shortfalls in residential capacity in the city. Residents may seek areas that are already established, accessible, or less expensive such as Chaparral and Anthony, New Mexico. The planned Northeast Loop highway project could also influence the location of new growth in the region into northeast El Paso. Open space areas would be converted to residential and other development.

The increased demand for housing in El Paso from in-migrating households in rural communities such as Chaparral and Anthony could stimulate greater development and urbanization of those communities, affecting the rural landscape and small-town character of those areas.

Alternative 1 would increase development east of Biggs AAF, resulting in about 1,500 acres of new urbanized landscape. This visual change would be evident to travelers along major roadways such as Loop 375 and Sergeants Major Boulevard. Off-road vehicle maneuvers in the south Tularosa Basin portion of McGregor Range would change the vegetative cover over time, and areas close to key facilities such as the Orogrande Range Complex and McGregor Range Camp would become more bare. The changes may be visible from observation points along the rim of Otero Mesa overlooking the Tularosa Basin (see Section 5.1).

Increased dust and noise may reduce the desirability of some areas adjacent to the Fort Bliss Training Complex for residential and recreation use, particularly on the south, east, and west side of Doña Ana Range and east of TA 2B (see Sections 5.6 and 5.10).

5.13.4 Alternative 2

5.13.4.1 Population

Under Alternative 2, with the addition of a second CAB to the changes described for Alternative 1, population in the three-county ROI is projected to increase by approximately 135,295 persons (**Table 5.13-14**). The population increase is anticipated to be the same as Alternative 1 through 2011, with the additional increase occurring after 2011.

Table 5.13-14. Fort Bliss-Related Population Impacts for Alternative 2

	2005 Baseline	*Alternative 2 Increase*	*Total*
Military[1]	10,200	22,700	32,900
Military Dependents[2]	16,500	37,455	53,955
Civilians	7,500	3,800	17,500
Civilian Dependents[3]	10,780	5,320	13,720
Students and TDY Personnel	7,700	(1,700)	6,000
Subtotal Direct Population	*52,400*	*67,575*	*119,975*
Induced Population	30,396	67,720	98,116
Total	**82,796**	**135,295**	**218,091**
Off Post Residents	65,641	116,527	182,168

1. Including U.S. and non-U.S military personnel.
2. Assuming a ratio of 1.65 dependents for every military person.
3. Assuming a ratio of 1.40 dependents for every civilian employee.

5.13.4.2 Economic Activity

Additional personnel and spending under this alternative would slightly increase regional growth in business volume, income, and employment over Alternative 1 (see Table 5.13-11), extending the growth period beyond the 2010 timeframe. This would provide added benefits for the regional economy; however, expansion of community services would be a challenge for community planners.

Following are inputs into the EIFS model for Alternative 2:

- A total increase of 22,700 military personnel,
- A total increase of 3,800 civilian personnel,
- $3.298 billion in local expenditures.

The impact of Alternative 2 on total business volume, income, and employment would be the same as reported for Alternative 1 through 2010. If additional construction for a second CAB started as soon as 2011, the increase in total business volume could be $270.9 million in 2011, $221.5 million in 2012, and $132.1 million in 2013. These increases would range from 1.12 percent in 2011 to 0.55 percent in 2013, well within the RTV of 4.74 percent. The increase in total income could be $94.2 million in 2011, $150.9 million in 2012, and $24.0 million in 2013. These increases would range from 0.65 percent in 2011 to 1.05 percent in 2012 and 0.17 percent in 2013, all well within the RTV of 5.00 percent. Employment could increase by 2,897 (0.72 percent) in 2011, 4,170 (1.03 percent) in 2012, and 876 (0.22 percent) in 2013, compared to the 4.01 percent RTV. Thus, the addition of a second CAB at Fort Bliss would extend the growth period, but not at the high levels experienced in the 2008-2009 timeframe.

5.13.4.3 Housing

Population growth and associated housing demand under Alternative 2 would be marginally higher than under Alternative 1 (see Table 5.13-3). As the military households and incoming civilians compete for housing, fewer housing units would be available, contributing to a tighter housing market. As fewer housing units became available, prices would likely increase in response to the increased demand. Over time, new housing units would be constructed; investors could add housing units to the overall supply in response to the increased demand.

5.13.4.4 Public Services

Alternative 2 would result in substantial increases in tax revenues to El Paso County and the City of El Paso. The increase in tax revenues from the projected direct personnel increases could exceed $11.6 million for the City of El Paso and $7.6 million for El Paso County (**Table 5.13-15**).

Table 5.13-15. Estimated Increase in Tax Revenues of El Paso County and City of El Paso – Alternative 2

Tax Revenue	*El Paso County*		*City of El Paso*	
	$M	*%*	*$M*	*%*
Direct Population Effects				
Property Tax	6.421	6.6	7.367	5.4
Sales Tax	1.193	5.3	4.294	5.4
Subtotal Direct Population	7.614	6.4	11.661	5.4
Induced Population Effects				
Property Tax	11.436	11.7	13.077	9.5
Sales Tax	2.123	9.5	7.619	9.5
Subtotal Induced Population	13.559	11.3	20.696	9.5
Total				
Property Tax	17.857	18.3	20.444	14.9
Sales Tax	3.316	14.8	11.913	14.9
Total Increase	**21.173**	**17.7**	**32.357**	**14.9**

Source: Ref# 552, 553

In addition, the impact on tax revenues of the induced population increase could be almost $20.7 million in additional tax revenue for the City of El Paso and $13.6 million in additional tax revenue for El Paso County. With a total population increase of over 135,000 people into the El Paso area, the total impact could be over 32 million in tax revenues for the City of El Paso and $21 million for El Paso County. The additional revenues represent an increase of almost 15 percent for the city and 18 percent for the county.

Based on the assumptions described in Section 5.13.2.4, total additional annual revenues could be $37.0 million to El Paso County and $86.5 million to the City of El Paso. Additional annual costs associated with the increase in off-post population are estimated to be approximately $38.3 million for the county and $87.4 million for the city.

Schools

Under Alternative 2, the Fort Bliss-related student population would increase by an estimated 29,886 (**Table 5.13-16**), requiring about 2,047 additional teachers. Assuming that 80 percent attend school in the El Paso and Ysleta districts, this represents an increase of 22 percent over 2004/2005 levels for these districts. The impacts would be similar to Alternative 1. Costs and revenues to the affected school districts would be approximately 12 percent higher than estimated for Alternative 1.

Table 5.13-16. Fort Bliss-Related Student Population—Alternative 2

	2004/2005 Baseline	*Alternative 2 Increase*	*Total*
Military Elementary School	2,663	5,927	8,591
Military High School	2,272	5,056	7,327
Civilian Elementary School	8,131	12,909	21,040
Civilian High School	3,775	5,994	9,768
Total	16,841	29,886	46,726

Law Enforcement

Based on the current local law enforcement service level ratio of 4.3:1000, the anticipated off-post population increase under Alternative 2 would generate a need for 502 law enforcement personnel, a 17 percent increase above current levels (see Table 5.13-6). By comparison, applying the Rau and Wooten demand factor of 1.7:1000 for law enforcement results in an estimated need for of 198 additional personnel. In either case, an increase of this magnitude would affect law enforcement services in the region. The El Paso County Sheriff and City of El Paso Police could be expected to increase their

recruitment and training efforts in anticipation of the projected population influx. Given the relatively high local service level ratios compared to the national average, however, the existing staffing should be able to accommodate a temporary lag in increased staffing.

Fire Protection

Based on the current local fire protection service level ratio of 1.3:1000, the anticipated off-post population increase under Alternative 2 would generate a need for 152 additional fire protection personnel, a 16 percent increase above current levels (see Table 5.13-7). By comparison, applying the Rau and Wooten demand factor of 1.43:1000 for fire protection results in an estimated need for 167 additional personnel, a 18 percent increase. In either case, an increase of this magnitude would affect fire protection services in the region. The City of El Paso Fire Department would be expected to increase their recruitment and training efforts in anticipation of the projected population influx.

Medical Services

Based on the current medical service level ratios, the anticipated additional population needing off-post medical services under Alternative 2 would generate a demand for 132 additional physicians and additional 240 hospital beds, a 12 percent increase above current levels (see Table 5.13-8). By comparison, applying the Rau and Wooten demand factor results in an estimated demand for 379 additional hospital beds, a 19 percent increase. In either case, an increase in demand of this magnitude would significantly affect medical services in the region that are already short of standard levels.

5.13.4.5 Quality of Life

The quality of life effects of Alternative 2 would be similar to those described for Alternative 1, with an additional increase in water and housing demand. An estimated additional 3,500 acres of parks would be needed. In addition, off-road vehicle maneuvers would be expanded into TAs 10, 11, and 12 north of Highway 506. TAs 10, 11, and 12 offer opportunities for bird hunting and other recreation. Public access is expected to continue to be available on weekends. Recreation activities would be permitted on a non-interference basis with military activities.

Under Alternative 2, areas of bare soil and reduced vegetation could develop in the north Tularosa Basin portion of McGregor Range over time, converting the physical and visual character of this area. Viewers on Highway 506 and US 54 would be able to see near-field changes in the landscape (see Section 5.1).

5.13.5 Alternative 3

Population, economic activity, housing, and community service impacts under Alternative 3 would be the same as described for Alternative 2. In general, quality of life effects would also be similar, except off-road vehicle maneuvers would not occur on the north Tularosa Basin portion of McGregor Range. Instead, under this alternative, off-road vehicle maneuvers would be extended to the southeast training areas of McGregor Range. These areas have somewhat more interesting landscape features in the near and middle ground, more varied terrain, and more vegetative cover than other parts of the range. Off-road vehicle operations could alter the vegetation and disrupt some of the natural drainages. Over time, as training levels increase, this land could undergo major changes in the landscape, with more gullies, less vegetation, and loss of soil due to erosion. This change in character could be perceived as a reduction in the visual quality of the landscape (see Section 5.1).

5.13.6 Alternative 4 – Proposed Action

5.13.6.1 Population

Under Alternative 4, with the potential addition of two BCTs on top of the units included in Alternatives 1, 2, and 3, the estimated population in the three-county ROI could increase by another 42,788 direct and induced people after 2010 (**Table 5.13-17**).

Table 5.13-17. Fort Bliss-Related Population Impacts for Alternative 4

	2005 Baseline	*Alternative 4 Increase*	*Total*
Military	10,200	30,300	40,500
Military Dependents	16,500	49,995	66,495
Civilians	7,500	3,800	11,300
Civilian Dependents	10,500	5,320	15,820
Students and TDY Personnel	7,700	(1,700)	6,000
Subtotal Direct Population	*52,400*	*87,715*	*140,115*
Induced Population	30,396	90,368	120,764
Total	**82,796**	**178,083**	**260,879**
Off Post Residents	65,641	159,315	224,956

1. Including U.S. and non-U.S military personnel.
2. Assuming a ratio of 1.65 dependents for every military person.
3. Assuming a ratio of 1.40 dependents for every civilian employee.

5.13.6.2 Economic Activity

The potential additional personnel and spending under Alternative 4 would moderately increase regional growth in business volume, income, and employment over Alternatives 1, 2, and 3 and extend the growth period beyond the 2010 timeframe. While this would provide added benefits for the regional economy, expansion of community services would be a challenge for community planners. Because the additional BCTs are unlikely to arrive before 2010, the increase in demand for community services would be phased over time, smoothing out the impact of any downturn and mitigating the risk of a "boom-bust" growth pattern.

Inputs into the EIFS model for Alternative 4 are as follows:

- Total increase of 30,300 military personnel,
- Total increase of 3,800 civilian personnel, and
- $3.895 billion in local expenditures.

The impact of Alternative 4 on total business volume, income, and employment would be the same as reported for Alternative 1 through 2010. If additional construction for a second CAB and two additional BCTs started as soon as 2011, total increase in business volume could be $567.4 million in 2011, $518.1 million in 2012, and $383.9 million in 2013. These increases of 2.34 percent in 2011, 2.14 percent in 2012, and 1.58 percent in 2013 would all be well within the RTV of 4.74 percent. Total increase in income could be $148.2 million in 2011, $204,9 million in 2012, and $381.3 million in 2013. These increases would range from 1.03 percent in 2011 to 2.64 percent in 2013, all well within the RTV of 5.00 percent. Employment could increase by 4,864 (1.2 percent) in 2011, 6,137 (1.52 percent) in 2012, and 10,147 (2.51 percent) in 2013, compared to the 4.01 percent RTV. Thus, the addition of a second CAB and two more BCTs at Fort Bliss would provide higher extended growth than Alternatives 2 and 3, but still not at the high levels experienced in the 2008-2009 timeframe.

5.13.6.3 Housing

Alternative 4 would extend the increase in demand for housing further into the future, potentially creating a sustained market for new housing starts beyond the 2010-11 timeframe (see Table 5.13-3). Some additional on-post housing might be developed. Depending on how well housing development kept up with the continuing increase in demand, tightening of the housing market could become more serious and prolonged. Housing prices could increase in response to the reduced number of available units.

5.13.6.4 Public Services

Alternative 4 could result in substantial additional increases in tax revenues to the City of El Paso and El Paso County. The additional direct population associated with the growth on Fort Bliss could add nearly $17 million to the City of El Paso and over $11 million in El Paso County (**Table 5.13-18**).

Table 5.13-18. Estimated Increase in Tax Revenues of El Paso County and City of El Paso – Alternative 4

Tax Revenue	*El Paso County*		*City of El Paso*	
	$M	*%*	*$M*	*%*
Direct Population Effects				
Property Tax	9.501	9.7	10.901	7.9
Sales Tax	1.556	7.0	5.601	7.0
Subtotal Direct Population	11.057	9.2	16.502	7.6
Induced Population Effects				
Property Tax	15.261	15.7	17.451	12.7
Sales Tax	2.833	12.7	10.168	12.7
Subtotal Induced Population	18.094	15.1	27.619	12.7
Total				
Property Tax	24.762	25.4	28.352	20.1
Sales Tax	4.389	19.6	15.769	19.7
Total Increase	**29.151**	**24.3**	**44.121**	**20.2**

Source: Ref# 552, 553

In addition, the induced population increase could add nearly $28 million to the tax revenues collected by the City of El Paso and over $18 million to the tax revenues collected by El Paso County. The total increase in tax revenues could be an additional $44 million for the City of El Paso and $29 million for El Paso County. The total increase in revenues would represent an increase of over 20 percent for the city and 24 percent for the county.

Based on the assumptions described in Section 5.13.2.4, total additional annual revenues could reach $50.7 million to El Paso County and $118.3 million to the City of El Paso. Additional annual costs associated with the off-post population increase could reach $52.4 million in the county and $119.4 million in the city.

Schools

Under Alternative 4, the Fort Bliss-related student population would increase by more than 39,000 (**Table 5.13-19**), requiring about 2,680 additional teachers. Assuming that 80 percent attend school in the El Paso and Ysleta districts, this represents an increase of 28 percent over 2004/2005 levels for these districts. The increased costs would be mitigated by additional military impact payments and increases in revenues. The increases in costs and revenues would be approximately 46-47 percent higher than the estimates for Alternative 1, with an estimated increase in impact aid and taxes of approximately $59 million and an estimated $80 million in increased tax-funded costs.

Table 5.13-19. Fort Bliss-Related Student Population — Alternative 4

	2004/2005 Baseline	*Alternative 4 Increase*	*Total*
Military Elementary School	2,663	7,912	10,575
Military High School	2,272	6,748	9,020
Civilian Elementary School	8,131	16,714	24,845
Civilian High School	3,775	7,760	11,535
Total	16,841	39,134	55,975

Law Enforcement

Based on the current local law enforcement service level ratio of 4.3:1000, the potential off-post population increase under Alternative 4 could generate a need for 685 additional law enforcement personnel, representing a 23 percent increase above current levels (see Table 5.13-6). By comparison, applying the Rau and Wooten demand factor of 1.7:1000 for law enforcement results in an estimated increased need for 271 additional personnel, a 9 percent increase. In either case, an increase of this magnitude would affect law enforcement services in the region. The El Paso County Sheriff and City of El Paso Police would be expected to increase their recruitment and training efforts in anticipation of the potential population influx.

Fire Protections

Based on the current local fire protection service level ratio of 1.3:1000, the potential off-post population increase under Alternative 4 could generate a need for 207 fire protection personnel, a 22 percent increase above current levels (see Table 5.13-7). By comparison, applying the Rau and Wooten demand factor of 1.43:1000 for fire protection results in an estimated need for 228 additional personnel, a 25 percent increase. In either case, an increase in demand of this magnitude would significantly affect fire protection services in the region. The City of El Paso Fire Department would be expected to increase their recruitment and training efforts in anticipation of the potential population influx.

Medical Services

Based on the current local medical service level ratios, the potential additional population needing off-post medical services under Alternative 4 could generate a demand for 172 additional physicians and 312 hospital beds, a 16 percent increase above current levels (see Table 5.13-8). By comparison, applying the Rau and Wooten demand factor results in an estimated demand for 492 additional hospital beds, a 25 percent increase. In either case, an increase in demand of this magnitude would significantly affect medical services in the region.

5.13.6.5 Quality of Life

The effects of Alternative 4 on quality of life would be similar to those described for Alternatives 1, 2, and 3. In general, the El Paso area can be expected to become substantially more urbanized, with development extending farther north and east. This would result in longer commute times, increased congestion, and increased competition for housing and community services. Cost of living would likely increase, at least in the short term. An estimated additional 4,700 acres of parks would be needed. Open space would become more rare.

The increase in off-road vehicle maneuver training would also affect the landscape of the Fort Bliss Training Complex. Overall, the landscape changes in the Tularosa Basin would be substantial, but this area is not classified as a distinctive and valued resource. The more valued grassland areas on Otero Mesa, especially in the ACEC, would not be directly affected by training and are expected to retain their visual quality.

5.14 ENVIRONMENTAL JUSTICE

5.14.1 Introduction

The Environmental Justice analysis considers whether the alternatives would have disproportionately high and adverse human health or environmental impacts on minority and/or low-income populations. The analysis was performed by reviewing the environmental consequences in each of the other resource areas (Sections 5.1-5.13), identifying any significant adverse impacts reported in those sections, and determining whether those impacts would affect areas with minority and/or low-income populations above the ROI average to a greater degree than the population in general.

Based on that review, the impacts from the following resources are not expected to result in disproportionately high and adverse human health or environmental effects on minority or low-income populations and therefore are not evaluated further in this section: Land Use, Main Cantonment Area Infrastructure, Training Area Infrastructure, Airspace Use and Management, Earth Resources, Air Quality, Water Resources, Biological Resources, Cultural Resources, Safety, Hazardous Materials and Items Of Special Concern, and Socioeconomics. Impacts from these resources would typically fall into one or more of the following categories, and thus would not create the potential for disproportionately high and adverse health or environmental effects on minority and/or low-income populations:

- The impact would be adverse but less than significant;
- The impact would primarily affect natural or physical resources as opposed to the public and/or residential populations; or
- The impact would affect the population more generally, as opposed to affecting a particular population group in a delineated location within the study ROI. Minority and/or low-income populations may be affected, but either the impact is not specifically concentrated in those populations, or the specific location of the impact is not known and it cannot be determined whether the effect on minority and/or low-income populations would be disproportionately high and adverse.

Only the Noise analysis was found to present the potential for higher adverse impacts in locations where the minority and/or low-income population is higher than the ROI average.

Section 5.10 discusses noise impacts from two types of sources: large caliber weapons (CDNL and peak noise) and aviation (helicopter) noise (ADNL). For the Environmental Justice analysis, areas exposed to the following noise levels were evaluated further:

- Large caliber weapons noise – Day-Night Average Sound Levels of 62 CDNL or greater. In areas exposed to noise level over 62 CDNL, restrictions or qualifications are placed on certain land uses, specifically residential development.
- Peak noise level from large caliber weapons – Studies have shown a greater percentage of people are highly annoyed at peak noise levels of 115 dB or greater.
- Aviation noise – Day-Night Average Sound Levels of ADNL 65 or greater.

For areas within the above noise contours, population densities were estimated for geographic census units containing private lands. Only areas with private land were considered because residential land use is generally limited to private land. This was done by allocating population based on the percent of land contained within the noise contour compared to the total land area of the geographic census unit. Depending upon the size of the area affected, the analysis was performed at the census tracts or the census block group level. The percent minority and percent low-income populations within the noise contours were estimated for each noise source and each alternative, where there were differences. If the percent minority or percent low income is measurably greater than the percent in the three-county ROI, (i.e.,

greater than 77 percent minority and greater than 24 percent low income), these populations are considered to be disproportionately impacted.

5.14.2 No Action Alternative

Under the No Action Alternative, neither aviation noise nor average noise levels from large caliber weapons will be significant. Peak noise levels from large caliber weapons will be 115 dB or greater in census tracts 12.02 and 18.02 in Doña Ana County, census tract 103.19 in El Paso County, and block group 1 in census tract 6.01 and block group 9 in census tract 9 in Otero County. The population in the affected area is approximately 77 percent minority and 42 percent low income. The percent minority population in the area of elevated peak noise is similar to the percent minority in the three-county ROI. The population in the affected area is 42 percent low income, compared to the three-county ROI average of 24 percent. However, the peak noise threshold for 115 dB is only associated with increased potential for noise complaints. There are no land use or health criteria indicative of a significant adverse impact from this noise exposure. As described in Section 4.10, sound pressure levels exceeding 130 dB would be considered high and adverse. No off-post areas would be exposed to PK (met) levels exceeding 130 dB. Therefore, the No Action Alternative will not have any disproportionately high and adverse impacts on minority or low-income populations.

5.14.3 Alternative 1

Under Alternative 1, noise from large caliber weapons would be 62 CDNL or greater in census tract 18.04 in Doña Ana County in the vicinity of the community of Chaparral. The population in the affected area is approximately 68 percent minority and 31 percent low income. Because 68 percent is less than the 77 percent minority average for the three-county ROI, even though it is greater than 50 percent, the impact on minority populations is not considered disproportionately high and adverse. However, because 31 percent low income in the area affected by elevated noise levels is appreciably greater than the 24 percent average for the three-county ROI, the impact on low-income populations can be considered disproportionately high.

Aviation noise levels under Alternative 1 would be 65 ADNL or higher in census tracts 2.03, 2.04, 101.02, and 102.07 in El Paso County. The population of the affected area is approximately 70 percent minority and 21 percent low-income, both of which are less than the average for the three-county ROI. Therefore, aviation noise would not result in disproportionately high and adverse impacts on minority or low-income populations.

5.14.4 Alternative 2

The impacts of noise from large caliber weapons would be the same for Alternative 2 as Alternative 1. With the addition of two CABs under Alternative 2, noise levels would be 65 ADNL or higher in census tracts 2.03, 2.04, 101.02, and 102.07 in El Paso County. The population of the affected area is approximately 71 percent minority and 21 percent low income, both of which are less than the averages for the three-county ROI. Therefore, aviation noise would not result in disproportionately high and adverse impacts on minority or low-income populations.

5.14.5 Alternative 3

The impacts of noise under Alternative 3 would be the same as reported for Alternative 1.

5.14.6 Alternative 4 – Proposed Action

Under Alternative 4, with training by five Heavy BCTs, noise levels from large caliber weapons would exceed 62 CDNL in census tracts 12.02, 18.02, and 18.04 in Doña Ana County, census tract 102.06 in El Paso County, and block group 9 within census tract 9 in Otero County. The population of the affected area is approximately 73 percent minority and 34 percent low income. The minority population is not

greater than the average for the ROI, but the low-income population is. Therefore, large caliber weapons noise impacts would result in disproportionately high and adverse effects on low-income populations.

Impacts from aviation noise would be the same under Alternative 4 as reported for Alternative 2. Neither minority nor low-income populations would be affected by disproportionately high and adverse aviation noise.

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5.15 CUMULATIVE IMPACTS

In addition to identifying the direct and indirect environmental impacts of their actions, the Council on Environmental Quality's 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 (Section 5.15.1) and discusses those impacts for each of the resources addressed in Chapter 4 and the first 14 sections of Chapter 5 (Section 5.15.2).

5.15.1 Process for Identification of Cumulative Impacts

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. Each of these is addressed below.

5.15.1.1 Identification of Significant Issues

Issues to be addressed in this cumulative impacts analysis were identified based on (1) concerns expressed by the affected 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. Comments received during scoping for this SEIS are summarized in Table 2-4 and include:

- Impacts of dust on local and regional air quality.
- Damage to soils, vegetation, habitat, and wildlife.
- Transportation and access.
- Impacts on cultural resources.
- Impacts on other uses of McGregor Range, including grazing, recreation, special land designations such as Culp Canyon Wilderness Study Area, and Bureau of Land Management plans and management activities.
- Impacts of increased population on water supply, public services, education, utility costs, and quality of life.
- Cumulative impacts of military training in combination with the effects of drought.
- Cumulative impacts of Army actions in combination with other plans, uses, and development.

The scoping issues also frame the analysis of direct and indirect impacts, presented in the preceding 14 sections of this chapter, which identified effects that may have more than discrete, localized consequences and therefore have the potential to combine with the effects of other actions to produce a larger cumulative impact. These include:

- Effects of increased development on and off post on land use in the region.
- Changes in the visual character of the landscape.
- Impacts of increased traffic on local and regional roadways.
- Increased demand for utilities (water, wastewater treatment, solid waste disposal) and energy consumption.
- Increased military use of the regional airspace.
- Changes in physical and natural resources including soils, vegetation, wildlife, and protected species.
- Effects of increased air pollutant emissions and fugitive dust on regional air quality.
- Depletion of surface and groundwater resources due to increased demand for potable water.
- Loss of historic properties that could be eligible for listing in the National Register of Historic Places.
- Increased pressure on socioeconomic resources, including housing, schools, law enforcement and fire protection, and medical services.

National and International Concerns

The proposed actions will have impacts that may contribute to issues of national or international scope, such as depletion of non-renewable fossil fuel resources, energy shortages and increasing costs, and global warming due to increased emissions of greenhouse gasses. These issues are not discussed further because of the very broad nature and variability of both the contributing actions and the resulting impacts. Although it is acknowledged that activities at Fort Bliss will add, however marginally, to cumulative impacts related to these issues, they are outside the scope of this SEIS. It is neither feasible nor practical for the Army to address these larger national or global impacts in the context of the actions proposed at Fort Bliss, other than through conservation measures aimed at mitigating the direct and indirect effects of those actions.

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 impacts, (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 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.

5.15.1.2 Geographic and Temporal Extent of Analysis

A region of influence was defined for each of the 14 resources in Chapter 4. These ROIs represent the geographic areas within which all notable impacts from the proposed actions and alternatives are expected to occur. Impacts from the proposed actions that might extend beyond the defined ROI are expected to be negligible and do not have the potential to contribute measurably to cumulative impacts. Therefore, the geographic extent of the cumulative impacts analysis generally coincides with the ROI of each resource;

in most instances the three-county region encompassing El Paso County, Texas and Doña Ana and Otero Counties in New Mexico. A few exceptions are warranted by the nature of the affected resource. As noted in Section 5.7, the El Paso area obtains the majority of its potable water supply from the same aquifer, the Hueco Bolson, as Ciudad Juárez, Mexico. Therefore, consideration of cumulative impacts on water resources includes trans-border influences on that source. Similarly, as discussed in Section 5.13, the economies of El Paso and Juárez are intertwined, and the consideration of cumulative socioeconomic impacts addresses that interrelationship. Although most impacts on natural resources are local or regional in nature, effects to species that are listed under the Endangered Species Act are by definition of national concern, and cumulative impacts on those species must be considered irrespective of geographic location.

CEQ Regulations specify that cumulative impacts analyses encompass past, present, and reasonably foreseeable future actions. As a practical matter, the impacts of past actions are already reflected in the conditions that currently exist, as described in the affected environment in Chapter 4. Where appropriate and feasible, those sections note past activities that may have cumulatively contributed to the current condition of the environment. For example, the Earth Resources and Biological Resources sections indicate that the present ecological transition states of the Fort Bliss Training Complex are believed to be the result of cumulative stresses from past grazing, ground disturbance, and drought conditions. As another example, the Water Resources section describes the effect of past withdrawals on the Hueco Bolson.

Other present and reasonably foreseeable future actions considered in the analysis are identified in Section 5.15.1.3 below. In general, this SEIS assumes a 20-year horizon for estimating future impacts; actions beyond that timeframe become increasingly speculative and difficult to assess

5.15.1.3 Identification of Other Actions

The direct and indirect effects of the proposed actions at Fort Bliss described in preceding sections of this SEIS generally address the impacts of adding Fort Bliss-related population influx to the existing population of the ROI. However, the population of the ROI is projected to grow, albeit to a lesser extent, independent of the changes projected for Fort Bliss. This "baseline" population growth would be additive to the growth induced by Fort Bliss and thus has the potential to further exacerbate the impacts from the Army's activities.

The ROI has been historically affected by military activity at Fort Bliss, White Sands Missile Range, and Holloman Air Force Base, as well as other government and non-government industrial, business, and institutional activities. The latter influences have included foundries, diverse manufacturing, mixed agriculture, mining, government, financial institutions, educational institutions, health services, and other, smaller entrepreneurial sources of growth. Many of these activities have been shaped by the geographic position of El Paso as an international border crossing and "sister city" of Ciudad Juárez and as a historical transportation hub. Future impacts will mostly occur through the continued growth of these diverse components of the El Paso community, exacerbated and accelerated by the continued growth and expanded influence of much larger Ciudad Juárez.

Castner Range, an approximately 7,000-acre closed range on Fort Bliss, has been a subject of substantial interest in El Paso. The Army currently has no plans for its future use or disposal. A small parcel on the range was recently transferred to the Department of Homeland Security for construction of a Border Patrol facility. Other proposals promoted by organizations such as the Franklin Mountains Wilderness Coalition, El Paso Regional Economic Development Corporation, and others vary from making the range part of Franklin Mountains State Park and preserving it as open space, to developing the property as a joint-use light-industrial-commercial-residential-recreation area.

Military plans in the ROI outside of Fort Bliss include expansion of Defense Threat Reduction Agency activities (Ref# 522) and Future Combat Systems test program (Ref# 521) at WSMR and Transformation of the 49th Fighter Wing at Holloman AFB (Ref# 524). FCS testing also involves use of Fort Bliss

training areas and Orogrande Range Camp and would be performed by the Army Evaluation Force stationed at Fort Bliss. The transformation of the 49th Fighter Wing would bring in F/A-22 aircraft to Holloman AFB to backfill for the F-117 aircraft that are being retired. The retirement of the F-117s would reduce Holloman AFB use of Centennial Range on Fort Bliss; conversely, beddown of the F/A-22 would involve use of Restricted Area airspace overlying the Doña Ana Range-North Training Areas and McGregor Range.

Non-military land management activities of other federal agencies in the ROI (e.g., Bureau of Land Management and U.S. Forest Service) focus on land management and multiple use (Ref# 21), including development and/or expansion of transportation infrastructure, pipelines, and energy transmission lines. BLM is currently reviewing plans to expand oil and gas exploration and extraction on Otero Mesa east of McGregor Range outside the Fort Bliss boundary (Ref# 512).

Economic expansion in the region will likely include activities by the 70 Fortune 500 companies represented in El Paso, including vacuum cleaner manufacturers, defense contractors, and automobile component manufacturers, as well as current manufacturing activities such as food products, clothing, construction materials, electrical and medical equipment, plastics, and agricultural activities (cotton, fruits and vegetables, livestock, pecans). Recent trends have seen expansion of call center operations (14 centers and over 10,000 employees, currently representing seven of the top ten business employers), health care, business/trade services, international trade, and telecommunications.

Many ongoing initiatives are related to management of water resources in the region. The U.S. Army Corps of Engineers, Bureau of Reclamation, and New Mexico Interstate Stream Commission are engaged in joint planning of infrastructure and management policies for the Rio Grande (Ref# 523). The United States Section of the International Boundary and Water Commission, in cooperation with the Bureau of Reclamation, has developed long-term plans for management of the Rio Grande Canalization Project along a 105-mile river corridor extending from Percha Dam in Sierra County, New Mexico to American Dam in El Paso, Texas. The Far West Texas Water Plan addresses long-term projects to provide a sustainable water supply to the El Paso region (Ref# 317). El Paso Water Utilities, a principal participant in this plan, has worked with Fort Bliss to construct and operate a brackish water desalination plant on Fort Bliss land aimed at reducing freshwater withdrawals from the Hueco Bolson (Ref# 222). The El Paso-Las Cruces Regional Sustainable Water Project is designed to provide year-round water from the Rio Grande to the cities of El Paso and Las Cruces. Other water-related initiatives have included reuse of treated wastewater, aquifer recharge, and aggressive water conservation measures, including limitations on water use for landscaping.

Recent State of New Mexico plans include development of a civilian regional spaceport near Upham, New Mexico supported by the New Mexico Economic Development Department. Although WSMR is a cooperating agency on that initiative, it is not expected to affect resources potentially impacted by Fort Bliss activities and is therefore outside the region of influence of this analysis.

5.15.1.4 Establishment of Cause and Effect Relationship

The objective of this cumulative impact analysis is to aid in the understanding of the full extent of the environmental consequences of making the decisions ensuing from the SEIS. To accomplish this, the impacts addressed in this section must be related to those decisions in a material way. At a broad level, all actions can be considered as cumulatively contributing to the degradation of the environment if they use natural resources or produce waste. However, taking a global view of cumulative effects in that manner does not assist in meaningfully understanding the implications of the proposals contemplated in this document and making an informed decision, in accordance with the following purpose stated in the CEQ Regulations: "NEPA's purpose is not to generate paperwork – even excellent paperwork – but to foster excellent action. The NEPA process is intended to help public officials make decisions that are based on understanding of environmental consequences, and take actions that protect, restore, and enhance the environment." (40 CFR 1500.1) Accordingly, the cumulative impacts discussed in this

section focus on issues with an identifiable cause and effect relationship to the Proposed Actions and other alternatives and the potential for leading to better decisions and actions on the part of both the Army and the communities that would be affected by the Army's actions.

5.15.1.5 Determination of the Magnitude and Significance of Cumulative Impacts

The nature, magnitude, and significance of potential cumulative impacts from the proposed actions and the alternatives added to the actions identified in Section 5.15.1.3 are described by resource in Section 5.15.2.

5.15.1.6 Possible Modifications to the Proposed Action to Avoid, Minimize, or Mitigate Significant Cumulative Impacts

In general, opportunities for avoiding, minimizing, or mitigating cumulative impacts related to the Proposed Actions and other alternatives have been incorporated by design or through the management processes described in Chapter 2 to address the direct and indirect impacts identified in this SEIS. They include such measures as siting and consolidating facilities and live-fire ranges to reduce the area affected; ensuring land use compatibility in the Real Property Master Plan; energy-efficient facility design; executing a Programmatic Agreement for historic properties; implementing projects in the Integrated Natural Resources Management Plan; promoting a sustainable range and training base through the Integrated Training Area Management program; and maintaining Solid Waste Management (including an aggressive recycling program), Storm Water Management, Spill Prevention, Control, and Countermeasures, Asbestos Management, Lead Hazard Management, and Pollution Prevention Plans. Fort Bliss is implementing an Environmental Management System that will monitor environmental compliance and waste reduction metrics and provide data for adaptive management programs in the future. In addition, the procedures described in Appendix A provide a process for determining the appropriate level of environmental impact analysis under NEPA based on potential environmental effects of future development and operations at the installation.

The Army has established multiple programs to reduce the accumulated effects of its actions nationwide and worldwide, which are already incorporated as applicable in the actions contemplated in this SEIS. They include the Installation Sustainability Program and The Army Sustainable Range Program, as outlined in Army Regulation 350-19.

In addition, Fort Bliss is actively involved in joint planning initiatives with the Metropolitan Planning Organization to address transportation needs of the installation and community; El Paso Water Utilities to address water and wastewater treatment needs; and other city services (e.g., school districts) in connection with the mission changes occurring at the installation.

5.15.2 Cumulative Impacts by Resource

This section describes potential cumulative impacts related to the actions occurring and proposed at Fort Bliss by resource. For each resource, the following subsections first list the significant cumulative impact issues related to that resource, then identify other actions that could combine with the proposed actions at Fort Bliss to produce larger cumulative impacts, and finally describe the nature and magnitude of the cumulative impact, to the extent feasible considering uncertainties inherent in this kind of analysis.

5.15.2.1 Land Use

The important land use cumulative impact issues considered in this analysis are:

- The cumulative effects of development associated with baseline population growth in the El Paso region, unrelated to Fort Bliss, in addition to the growth stimulated by the mission changes at Fort Bliss.

- Increased urbanization of developing areas on the fringes of El Paso and in surrounding rural areas.
- Changes in the visual landscape, including increased urbanization and decreased open space.

Other activities that could combine with actions at Fort Bliss to produce cumulative land use impacts include any future plans for Castner Range (although the Army has no such plans), development plans for the City of El Paso, and Otero and Doña Ana County plans to jointly address the infrastructure needs of the Chaparral area (see Section 4.1.2.2). Two major projects that will affect land use in the ROI include (1) a plan to develop mixed commercial-industrial-residential uses, incorporating community and recreation facilities, on 16,000 acres in northeast El Paso and (2) the Northeast Parkway around the north end of the Franklin Mountains to Anthony, New Mexico, and connecting to Mexico around the perimeter of Ciudad Juárez.

The City of El Paso has grown and developed as an urban hub as a result of historic manufacturing and more recent border economic initiatives such as the North American Free Trade Act and the establishment of trans-border maquiladora industries. Although the recent economic downturn has slowed population growth in the city, it is anticipated to continue growing at an average rate of approximately 2.9 percent per year, independent of Fort Bliss expansion, reaching 750,250 by 2015. This baseline growth necessarily means further expansion and urbanization on the outskirts of the city and across the state boundary into southern New Mexico communities such as Anthony, Sunland Park, and Chaparral. The Metropolitan Planning Organization forecasts future city growth will be concentrated to the northeast and east. The population expansion will lead to demand for more commercial facilities and services in areas that are now largely rural or residential.

The actions at Fort Bliss are expected to accelerate the rate of population growth in the region. This would likely stimulate more rapid development of the northeastern and eastern sections of El Paso, as well as towns in southern New Mexico, as investors and developers respond to the impending influx of people. The pressures of development would make it more difficult to maintain open space, at the same time that population growth would increase the demand for more open space for recreation and quality of life. Castner Range could ultimately be a factor in those competing interests, depending on its future land use, by either providing an open respite in an increasingly urban environment or supporting facilities and services to meet increased development demands.

Rural communities like Chaparral could be susceptible to increased density and urbanization, and the overall open visual quality of the landscape, especially in southern New Mexico, can be expected to be changed by the combination of development in the Main Cantonment Area of Fort Bliss, increased urbanization in surrounding communities, and more intense training use of the Fort Bliss Training Complex. The increase in off-road vehicle maneuvers at Fort Bliss, combined with increased supersonic aircraft operations from Holloman AFB, could cumulatively decrease solitude and the attractiveness of outdoor recreation resources in the region. Although the landscape of Fort Bliss would be affected by increased military training, the amount of additional facilities development in the training areas would be modest, and the vast expanses of land will remain in a relatively open, natural visual state.

5.15.2.2 Main Cantonment Area Infrastructure

The important Main Cantonment Area infrastructure cumulative impact issues considered in this analysis are:

- Impacts of population growth in the El Paso region on the regional transportation network.
- Impacts of baseline population growth in the El Paso region, in combination with the population growth generated by the mission changes at Fort Bliss, on the infrastructure of utilities (potable water, wastewater, and solid waste) and energy (electricity and natural gas) suppliers.

Other actions that could combine with actions at Fort Bliss to produce cumulative impacts include increased development in northeastern and eastern El Paso that would use Martin Luther King, Jr. Boulevard, US 54, and Montana Avenue as major arterials. Increased trans-border traffic could also contribute to further traffic pressures on US 54 as well as I-10.

Plans to extend EPWU water supply and wastewater treatment capabilities to currently unserviced areas, including Colonias east and south of the City of El Paso, have the potential to contribute to cumulative infrastructure effects. EPWU currently has infrastructure in place to treat and deliver over 305 million gallons per day of potable water to its service area (Ref# 510). With an existing demand of 162 MGD, this is adequate to meet the projected demands of both the Fort Bliss expansion and the baseline population growth. The ability of the utility to supply water to the community is limited more by available resources than by adequate infrastructure (see Section 5.15.2.7).

EPWU's wastewater treatment capacity is more limited. While substantial unused capacity still exists at the Haskell Street and Northwest Wastewater Treatment Plants, the two plants that service the fastest growing areas of El Paso could be strained by accelerated development. The Fred Hervey plant, which services northeast El Paso, has the smallest capacity of all EPWU plants and an excess capacity of only approximately 3.5 MGD. The current excess capacity of the Roberto Bustamante plant is approximately 14 MGD, but it services the east, southeast, and Lower Valley areas of El Paso. In addition to being an area of highest future growth, this service area encompasses 1,730 new military family housing units planned for construction under the Fort Bliss Residential Communities Initiative.

Cumulative growth and development in the ROI would also increase demands on El Paso Electric Company and El Paso Gas Company. Although those companies' access to their respective resources is not a constraint, the additional demand would likely require some infrastructure expansion, including substations, transmission lines, gas pipelines, etc. The proposed development at Fort Bliss and related population growth would consume between 33 and 46 percent of EPEC's excess power supply. EPEC would eventually need to expand its capacity to respond to continued population growth. The impact of increases in energy demand associated with new facilities at Fort Bliss would be mitigated by the use of more energy-efficient construction methods that will reduce the overall per-square-foot gas consumption for heating.

Communities in southern New Mexico such as Anthony, Sunland Park, and Chaparral could also require infrastructure improvements as a result of baseline population growth in combination with the growth generated by the actions at Fort Bliss.

5.15.2.3 Training Area Infrastructure

The important training area infrastructure cumulative impact issues considered in this analysis are:

- Impacts from military convoys traveling from the Main Cantonment Area to the Fort Bliss Training Complex on roadways passing through and serving growing and developing areas of the community.
- Cumulative impacts of increased demand at Orogrande Range Camp for potable water from WSMR supplies.

Other actions in the ROI that could combine with proposed actions at Fort Bliss to produce cumulative infrastructure impacts include planned development in northeast El Paso and activities at WSMR.

Fort Bliss units propose to transport military vehicles and equipment via public roads from the Main Cantonment Area to Doña Ana Range Camp and the North Training Areas, as well as northern portions of McGregor Range, to conduct training exercises. Main arterials expected to be used include Martin Luther King, Jr. Boulevard (Highway 213 in New Mexico) and US 54. Military convoys (some of which could be long and require several days to transport equipment to and from the training areas) include heavy equipment transporters that tend to slow overall traffic speed. These convoys could substantially reduce

level of service, especially on two-lane roads with little or no opportunities for passing. Roads that may currently be underutilized and experiencing unrestricted flows could become more congested as general population growth and development increased in this area of El Paso, as well as in communities served by Highway 213 and US 54 in New Mexico. The cumulative impacts could be further exacerbated by increased trans-border traffic on US 54. Potential adverse effects of military convoys in more developed areas near the Main Cantonment Area would be mitigated by Texas Department of Transportation projects to build overpasses over US 54 to separate military and civilian traffic.

Expansion of the range camps and range complexes on Fort Bliss is not expected to combine with other actions to produce larger cumulative impacts. Orogrande Range Camp receives potable water from WSMR. However, WSMR currently has no plans for major expansions that would significantly increase its water demand.

5.15.2.4 Airspace Use and Management

The important cumulative impact issues concerning airspace use and management considered in this analysis are:

- Cumulative impacts from increased aircraft operations at Biggs AAF in combination with increased airline traffic at El Paso International Airport resulting from population growth in the El Paso region.
- Increased military operations in Special Use Airspace in the region.

Other actions in the ROI that have the potential to combine with proposed actions at Fort Bliss to produce cumulative airspace impacts include the Phase One FCS test program at WSMR and the transformation of the 49th Fighter Wing at Holloman AFB. Airspace use in connection with Phase One FCS testing would be minor and not affect airspace use in any measurably way. The transformation of the 49th Fighter Wing would involve bedding down F/A-22 aircraft at the base and using Special Use Airspace in the region, including Restricted Areas overlying Fort Bliss, to conduct training, including supersonic flight operations and use of self-protection chaff and flares.

Both current and projected aircraft operations at Biggs AAF are negligible in comparison to operations at El Paso International Airport and too few to significantly affect airspace use or management. As the El Paso region continues to grow, airline traffic at EPIA can be expected to increase. However, the cumulative impact with increased operations at Biggs AAF is not expected to be significant.

With the stationing of at least one and potentially two CABs at Fort Bliss, helicopter flights to and within Restricted Area airspace overlying the Fort Bliss Training Complex would increase. Unmanned aerial vehicles would also operate in Restricted Areas and could be extended to other classes of airspace in the future. Restricted Area airspace overlying McGregor Range is also used for air-to-ground training operations on Centennial Range. In addition, the proposed F/A-22 aircraft beddown at Holloman AFB would increase subsonic and supersonic training in Fort Bliss airspace, primarily at high altitude. The cumulative use of this Special Use Airspace is not anticipated to adversely affect either military training or civil airspace use, and any potential conflict would be managed though routine scheduling procedures.

5.15.2.5 Earth Resources

The important earth resources cumulative impact issues considered in this analysis are:

- Cumulative changes in the transition states of ecological sites in the region due to increased development, oil and gas production, and other military and non-military uses.
- Potential for wind erosion caused by off-road vehicle maneuvers to generate increased fugitive dust.

- Potential for cumulative increases in sedimentation from increased water erosion on Fort Bliss land in combination with other sources of sedimentation in down-stream surface waters.

Other projects in the ROI that could combine with proposed actions at Fort Bliss to produce cumulative impacts on earth resources include off-road vehicle maneuvers planned in connection with Phase One FCS tests at WSMR, expansion of oil and gas development on Otero Mesa outside of Fort Bliss, and general construction and development in the ROI. Other influences that contribute to ground disturbance and reduction in vegetation or surface crusts include ongoing recreational off-road vehicle use, livestock grazing, and drought.

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 impacts of multiple disruptions over time have been significant as each subsequent disruption has prevented recovery to a pre-disturbance state.

Continued disturbance can be expected to increase the amount of bare ground, and uncovered soils are more susceptible to wind and water erosion. The proposed increase in off-road vehicle maneuvers at Fort Bliss would result in increases in fugitive dust. Although the direct impact on regional air quality is not expected to be significant outside the installation boundaries (see Section 5.6), visibility could be reduced in nearby areas, especially during periods of high winds. Other ground-disturbing activities such as grazing, agriculture, and construction would contribute to these effects, which are also exacerbated by natural events such as sandstorms.

The drainages on the Fort Bliss Training Complex are in a closed basin, therefore increased water erosion is not anticipated to contribute to cumulative sedimentation of surface waters.

5.15.2.6 Air Quality

The important air quality cumulative impact issues considered in this analysis are:

- Potential for increased emissions of criteria pollutants by Fort Bliss activities, in combination with increased emissions due to population growth, to result in non-attainment of National Ambient Air Quality Standards.
- Impact of increase in ground disturbance and exposure due to construction, off-road vehicle traffic, grazing, and other activities that affect vegetative cover and soils on fugitive dust generation and particulate matter emissions.
- Cumulative effects of increased human-caused dust generation in combination with natural wind-blown dust events on ambient air quality in El Paso and Doña Ana Counties.

Other actions in the ROI that could combine with proposed actions at Fort Bliss to produce cumulative air quality impacts primarily include construction of commercial, industrial, and residential facilities and infrastructure to support the growing population in the ROI, along with associated stationary and mobile sources of air pollutant emissions.

Section 5.6 presents projected construction emissions for facilities and infrastructure on Fort Bliss, operational emissions on Fort Bliss, combustion emissions from military and private vehicles, and fugitive dust from off-road vehicle maneuvers. While these emission sources are analyzed separately, air quality in the ROI would be affected by the cumulative total of these sources, in addition to other off-post sources. The forecast baseline population growth, in combination with Fort Bliss-induced population changes, is projected to result in a 44-52 percent increase in the population of El Paso County between 2004 and 2015. This could ultimately result in exceedances of the NAAQS, especially of carbon monoxide and particulate matter (PM_{10}) (for which the City of El Paso is in moderate non-attainment) and of nitrogen oxides. PM_{10} levels in El Paso and Doña Ana Counties are further aggravated by windblown

dust, especially during dust storms. Additional ground disturbance due to construction both on and off post, in combination with agricultural uses and off-road vehicle use (both military and civilian), would all contribute to potentially significant cumulative increases in PM_{10} emissions in the ROI.

While air pollutant emissions from proposed activities at Fort Bliss are not expected to significantly affect visibility in Class I areas such as Guadalupe National Park, cumulatively, increased emissions in the ROI can be expected to contribute to increasing haze in those areas.

5.15.2.7 Water Resources

The important water resources cumulative impact issues considered in this analysis are:

- Cumulative impacts of increased demand for potable water due to actions at Fort Bliss, in combination with increased population growth in both El Paso and Ciudad Juárez, on regional water sources, including groundwater in the Hueco Bolson and surface water in the Rio Grande.
- Effect of drought and other climatic variations on water production to meet increased demand.

The principal other actions that could combine with proposed actions at Fort Bliss to affect water resources are water management initiatives, including the Far West Texas Water Plan, plans by the Bureau of Reclamation and International Boundary and Water Commission concerning management of the Rio Grande, the desalination plant on Fort Bliss to be operated by EPWU, and EPWU plans to provide potable water to Colonias not currently in their service areas.

Regional surface and groundwater resources have been dramatically affected by past management and use. The Rio Grande has numerous dams, channels, and other improvements designed for flood control or water storage. Agriculture has been a major historic user of Rio Grande water. The primary source of potable water for El Paso and Fort Bliss has been groundwater from the Hueco Bolson. Historically, groundwater withdrawals have exceeded the aquifer's ability to recharge and resulted in aquifer drawdown, subsidence, and salt-water intrusion into the bolson. Ciudad Juárez also depends on the Hueco Bolson for its potable water supply. Withdrawals from the Hueco Bolson by Ciudad Juárez grew from approximately 15,000 acre feet per year in the 1960s to 66,000 acre feet per year by 1984, reflecting the city's growth during that period. From 1903 through 1989, water levels in the bolson declined 150 feet in downtown El Paso and Ciudad Juárez.

The regional water management initiatives are aimed at slowing, stopping, or reversing the historic trends and providing a sustainable water supply for the region. The desalination plant on Fort Bliss, for example, is designed to use brackish water supplies in the Hueco Bolson, thereby preserving freshwater supplies and reducing salt-water intrusions. Other projects, such as reinjection of treated wastewater, are designed to increase aquifer recharge.

The principal recharge areas for the Hueco Bolson are in the Franklin and Organ Mountains, where runoff infiltrates the course alluvial gravel fans. If all, or at least the critical alluvial fans, of Castner Range are preserved, the Franklin Mountains' recharge capability will not be significantly affected. Future development of recharge areas could affect the Hueco Bolson.

Both EPWU and Ciudad Juárez have plans to increase use of Rio Grande water to meet the demands of population growth. EPWU has plans to use agricultural water rights and import water from other basins to increase domestic water supply. The quality of Rio Grande water has declined over time due to agricultural uses and increased salinity. In drought years when less surface water is available, groundwater withdrawals are increased. This in turn results in increased potential for salt-water intrusion.

The impact of the increased demand for potable water generated by a growing population will be offset to some degree by water conservation measures that have been successful in reducing per capita water consumption in El Paso from 201 gallons per day in 1989 to 159 GPD in 2000 and 145 GPD in 2005.

Comments submitted on the Draft SEIS raised questions about the potential for global warming to result in reduced water supply in the ROI at the same time that population growth is increasing the demand for potable water. These comments referred to a report produced in July 2006 by the New Mexico Office of the State Engineer/Interstate Stream Commission, "The Impact of Climate Change on New Mexico's Water Supply and Ability to Manage Water Resources" (Ref# 533). The report noted that Global Climate Models contain a large degree of uncertainty and involve a wide array of assumptions, which affects their precision and can lead to widely varying results. The study conducted by the state used an Accelerated Climate Prediction Initiative model to develop a broad estimate of potential future changes in temperature and precipitation. The report indicated that "by the end of this century, the American Southwest, and more specifically New Mexico, can expect a significant increase in temperature, resulting in a decrease in snowpack." It further notes that "even moderate increases in precipitation would not offset the negative impacts to the water supply caused by increases in temperature." The report does not provide precise predictions that can be used to assess cumulative impacts on water supply in the 20-year planning horizon considered in this SEIS. It acknowledges that other existing climatic variations, such as drought cycles, can lead to greater year-to-year and near-term fluctuations in water availability. As part of the nature of the climate in the ROI, drought cycles are already incorporated in the planning conducted by water resource agencies such as EPWU.

Valdosta State University conducted a study of archaeological tree-ring samples from southern New Mexico to reconstruct precipitation over a 1,373-year period from 622 through 1994. The resulting report, *A 1,373 Year Reconstruction of Annual Precipitation for the Southern Rio Grande Basin* (Ref # 550), shows a wide variability in precipitation levels, ranging from a low of less than 4 inches in the year 1407 to a high of over 15 inches in 1815, with an average of 9 inches. The report reflects a pattern of dry and wet periods throughout the study period that has not changed markedly. The most severe long-term drought is thought to have occurred between the years 940 and 1040, with other prolonged periods of low precipitation occurring in 1270-1295, 1560-1600, and 1946-1965 periods. The wettest long-term period is thought to have been between 1040 and 1210, with above average rainfall in the 14th and 17th Centuries. The Valdosta study was an attempt to shed light on past environmental and cultural changes and is not applicable to predicting future changes in precipitation or their effects.

5.15.2.8 Biological Resources

The important biological resources cumulative impact issues considered in this analysis are:

- Cumulative changes in ecological conditions in the region and increased desertification due to development, grazing, and other ground-disturbing activities in combination with drought conditions.
- Reduction and alteration of habitat, leading to reduced diversity of wildlife species.
- Increased pressures from urbanization, habitat loss or alteration, and human activity on species listed as threatened or endangered under the Endangered Species Act.

Other actions in the ROI that could combine with proposed actions at Fort Bliss to produce cumulative impacts on biological resources include increased development in rural areas and activities at WSMR.

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. Undeveloped areas of Fort Bliss, as well as WSMR and adjacent public lands, have been altered by past and present uses. Land in the Fort Bliss Training Complex supported livestock grazing prior to military use, and much of the transition from historic grasslands to shrublands and mesquite coppice dunes predates military presence. Drought conditions have also contributed to increased desertification of the land in the region.

Ground disturbing activities such as off-road vehicle maneuvers in areas that have not transitioned to a different ecological condition (as have areas already in coppice dunes) contribute to the desertification process. A reduction in vegetation and cover typically leads to decreased wildlife richness and/or density. Because land use on military installations is substantially less intensive than urban development or agriculture, Fort Bliss has been able to maintain relatively high species richness, compared to other parts of the region.

Plans to conduct limited off-road maneuvers at WSMR and expansion of oil and gas development on Otero Mesa outside of Fort Bliss would include ground disturbing activities that can alter vegetation and habitat conditions, but the footprint of disturbance associated with those proposals is relatively small compared to proposed actions at Fort Bliss, and they are not expected to contribute measurably to the transition of the regional ecology.

Overall cumulative ecosystem impacts will be determined by the effects that occur over the broader landscape/ecosystem. While many wildlife species are tolerant of and adaptive to change, moving beyond habitats that are stressed into 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, which may result in regional population impacts over the long term. This change will result from both human activities and weather conditions (such as droughts) and be affected by development trends that alter water consumption (from irrigation to municipal use) and the long-term economic viability of some current land uses (e.g., livestock operations in the face of drought and diminishing grasslands). Given the international expanse of the Chihuahuan desert ecosystem (encompassing more than 200,000 square miles in the U.S. and Mexico), viable "cells" of sensitive habitats (and their species) will likely survive, but they may be limited to discrete geographic areas specifically identified for preservation.

Regionally, cumulative impacts on biological resources are likely to continue incrementally, decreasing available grassland habitat, transitioning ecological states, and increasing desertification, as a result of inevitable urban growth, development, military ground operations, and other smaller actions such as increased oil and gas extraction. The areas proposed for off-road vehicle maneuvers on Fort Bliss comprise 0.3 percent of the Chihuahuan Desert.

The Section 7 consultation process of the Endangered Species Act is designed to consider the individual and cumulative impacts of actions on the viability of federally listed threatened and endangered species. However, cumulative reductions in habitat will inevitably increase the chances of regional population effects. Section 7 consultation by the Army, in combination with the Fort Bliss INRMP, will minimize the installation's contribution to impacts on species protected under the Endangered Species Act.

5.15.2.9 Cultural Resources

The primary cultural resources cumulative impact issue is the potential loss of historic properties and the scientific information they may offer due to increased ground disturbance and increased exposure to vandalism with the population growth. WSMR is also proposing limited off-road vehicle maneuvers in connection with Phase One FCS testing. Off-road vehicle maneuvers at both Fort Bliss and WSMR have the potential to damage archaeological resources. Archaeological resources have also been lost over time due to increased development. In addition, construction at Fort Bliss also has the potential to affect historic buildings. Both Fort Bliss and WSMR are executing Programmatic Agreements with the Advisory Council on Historic Preservation and the cognizant State Historic Preservation Officers, which will ensure that historic properties are managed to avoid, reduce, or mitigate adverse effects. Development on private property, where cultural resources are not protected by federal law, has a higher potential for adversely affecting resources that may have important cultural, scientific, or religious value.

5.15.2.10 Noise

Direct noise increases from training activities on the Fort Bliss Training Complex are not expected to combine with other noise sources to produce cumulative impacts. Construction activities, increased vehicle traffic, and general urbanization associated with population growth and development will cause overall ambient noise levels to increase.

Aircraft noise from increased operations at Biggs AAF would result in increased exposure to elevated noise levels in some areas of El Paso. EPIA also generates aircraft noise levels that are generally incompatible with residential land use in residential areas to the south and southwest. Accelerated population growth in the El Paso region could increase airline traffic at EPIA and resulting noise levels in adjacent areas. However, this could be offset by increasingly quieter aircraft. Noise contours at EPIA in 2005 were substantially lower than they were in 1996.

5.15.2.11 Safety

The primary safety issue that could raise cumulative impact concerns is the potential for wildfires caused by military operations in the Fort Bliss Training Complex. Wildfires can spread rapidly and damage extensive areas, especially in grasslands and during windy and dry conditions. The fire hazard associated with proposed increases in live-fire training and off-road vehicle maneuvers on Fort Bliss are generally expected to be contained within discrete areas and not affect Otero Mesa, the area most susceptible to cumulative impacts from wildfires. Most of the historic wildfires that have affected the Otero Mesa portion of McGregor Range were caused by missile firings or lightning. Natural causes like lightning will continue to combine with human-caused wildfires to generate cumulative impacts.

5.15.2.12 Hazardous Materials and Items of Special Concern

No important cumulative impact issues related to the proposed actions at Fort Bliss were identified for hazardous materials and items of special concern. Increased industrial development and overall population growth would result in increased hazardous waste generation, but no significant adverse impacts have been identified as a result.

5.15.2.13 Socioeconomics

The principal cumulative socioeconomic impact issue considered in this analysis is the potential for baseline population growth, independent of Fort Bliss-related increases, to further aggravate the effects of the population growth induced by the mission changes at Fort Bliss on housing and community services, as well as quality of life. Direct and indirect population effects from the actions at Fort Bliss will stress the community's ability to meet the rapidly increasing housing demand. Baseline population growth would further aggravate the impact. In addition to the staffing and facility increases required in law enforcement and fire protection described in Section 5.13, baseline population growth would add further to those needs. Medical services, which are already unable to meet the needs of the existing population, would become especially stressed with the combination of baseline growth and Fort Bliss-induced population increases.

The cumulative effect of multiple construction projects in the region to meet both military needs and facilities and infrastructure needs associated with the increased population can be expected to put a strain on the available labor pool, attracting temporary workers from out of the area to take advantage of the job opportunities. This could, in turn, exceed the area's capacity to accommodate the temporary influx of personnel, saturating the commercial lodging market over the next 5-7 years, on top of the more permanent population in-migration.

Quality of life is subjective. In some respects, the economic activity stimulated by the changes at Fort Bliss would have beneficial effects that could improve quality of life by increasing job opportunities and income. As competition for housing, utilities, and services increases due to population growth, costs can

also be expected to increase. In addition, increased development and urbanization of the El Paso region in general due to changes at Fort Bliss in combination with other activities will affect living conditions in a variety of ways, ranging from physical changes in the environment to longer commuting times.

5.15.2.14 Environmental Justice

No additional cumulative environmental justice issues have been identified other than those described in Section 5.14. Cost of living increases, including higher housing costs, water rates, and energy costs, have an overall greater impact on low-income populations than on the population in general, but the increases themselves would be the same across the affected population and not disproportionately high and adverse for minority or low-income populations.

5.16 SUMMARY OF IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

All alternatives considered in detail in this SEIS include construction of facilities, ranges, and other infrastructure that involve commitment of construction materials and use of irretrievable petroleum products in the form of fuel and chemicals. Training activities involving ground vehicles and aircraft would also irretrievably commit non-renewable fossil fuel resources.

The potential for further drawdown of the Hueco Bolson due to increased withdrawals above the aquifer's recharge rate could result in subsidence and irretrievably alter the aquifer's structure. This impact can be avoided, however, by meeting more of the additional demand through other water sources or by increasing reinjection of surface water or treated wastewater into the bolson.

While damage to land in the Tularosa Basin portion of McGregor Range from off-road vehicle maneuvers may not be completely irreversible, the time required to recover from significant damage to the biological crust and to vegetation and soil could be sufficiently long to render the impact nearly irreversible. This would especially be the case if long-term use of the land for off-road vehicle maneuver resulted in a change in landform due to erosion and/or change in the vegetative community and habitat.

It would be considered an irretrievable commitment if historic properties that may be eligible for listing in the National Register of Historic Places were inadvertently lost or damaged during ground disturbing activities or training, or due to vandalism.

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5.17 SUMMARY OF RELATIONSHIP BETWEEN SHORT-TERM USE OF THE ENVIRONMENT AND LONG-TERM PRODUCTIVITY

The use of land on Fort Bliss for military training including off-road vehicle maneuvers could result in a long-term reduction in the productivity of that land for others uses. McGregor Range is public land withdrawn for military use. The current and proposed military use of that land will have a long-term effect that could impact its productivity for other uses if the land is returned to the public domain in the future. Similarly, development in the Fort Bliss Main Cantonment Area and in the ROI to accommodate population growth would commit land, especially in the El Paso area, to short-term urban land use and affect long-term options for its use. Rural areas in the vicinity of Fort Bliss, especially in southern Doña Ana County, would likely become more developed as a result of the Fort Bliss-induced influx of population. However, increased growth and development are also expected to occur whether or not the proposed actions are implemented on Fort Bliss. The expansion of the Fort Bliss mission is expected to accelerate local growth, development, and urbanization.

El Paso and Fort Bliss currently withdraw water from the Hueco Bolson in quantities that exceed the aquifer's ability to recharge. This drawdown is expected to continue independent of the actions proposed at Fort Bliss. The increased water demand associated with the increase in personnel at Fort Bliss, coupled with associated direct and indirect population growth, may result in increases in withdrawals from the bolson and accelerate the resulting drawdown in the aquifer's water table, reducing its long-term productivity. However, El Paso Water Utilities does not expect any increase in withdrawals from the Hueco Bolson to last for more than three years, which would not significantly change the rate of drawdown. The impact of increased water demand would be offset to some degree by the desalination plant on Fort Bliss that will be operated by EPWU, which is expected to extend the useful life of the aquifer's freshwater resource. Implementation of projects to acquire water from other sources, including projects to inject water to recharge the Hueco Bolson, would also mitigate the impact.

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5.18 SUMMARY OF PROBABLE ADVERSE IMPACTS THAT CANNOT BE AVOIDED

This section summarizes adverse impacts identified in Chapter 5 for which mitigation is either infeasible or impractical and that are therefore unavoidable. Probable unavoidable impacts from the alternatives include the following:

- Ground disturbance during construction and off-road vehicle maneuvers.
- Wind erosion of areas exposed by off-road vehicle maneuvers and resulting temporary degradation in air quality due to dust generation. Although erosion control measures are available, it is not feasible to implement these measures on the scale needed to prevent erosion and fugitive dust generation in the training areas used for off-road vehicle maneuvers.
- Changes in vegetation type and cover and in habitat type and quality in areas that are heavily used for off-road vehicle maneuver training. Although most areas identified for off-road vehicle maneuvers under any of the alternatives already provide limited habitat for wildlife, some loss of habitat value and mortality of individual animals is unavoidable.
- Impacts to individual plants and animals, including sensitive species, in numbers not expected to significantly affect populations.
- Loss of some archaeological resources in the training areas
- Increase in noise exposure in areas adjacent to the live-fire ranges used for large caliber weapons training.
- Increased development of the El Paso area to accommodate the increase in population, both direct and induced by the economic activity associated with the actions at Fort Bliss. Increased urbanization, reduction in open space, and change in visual character are likely unavoidable consequences of this development.
- Increase in utilities use, including potable water consumption, wastewater treatment, solid waste disposal, and energy, in many cases leading to the need for additional infrastructure and/or resources sooner than previously planned by the various service providers.

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6.0 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 SEIS. Section 6.1 summarizes mitigation measures that have already been incorporated in the alternatives, as described in Chapters 2 and 3. Section 6.2 presents a broad range of possible additional mitigation measures to be considered by the Army and other entities, consolidated from the sections in Chapter 5, and incorporating other measures identified in the public review of the Draft SEIS. The Record of Decision for this SEIS will identify those mitigation measures that the Army will implement. Section 6.3 summarizes monitoring activities that will be employed by the Army at Fort Bliss to track environmental changes, support development of adaptive management strategies, and assess the effectiveness of mitigation measures.

Council on Environmental Quality Regulations for Implementing the Procedural Provisions of NEPA require environmental impact statements to identify measures to mitigate adverse environmental impacts (40 CFR 1502.14(f) and 1502.16(h)), including measures that are outside the lead agency's jurisdiction. Paragraph 1508.20 of the regulations defines mitigation as including the following:

- Avoiding impacts by not taking certain actions;
- Minimizing impacts by limiting the implementation of the action;
- Repairing, rehabilitating, or restoring the affected environment following actions taken;
- Reducing or eliminating the impacts over time by preservation and maintenance operations;
- Compensating for the impact by replacing or providing substitute resources or environments.

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 Fort Bliss Directorate of Environment implements natural and cultural resource conservation and environmental quality programs to provide the optimum environment for supporting the military mission and to maintain, protect, and improve environmental quality and preserve ecological conditions. The Fort Bliss ITAM program is responsible for maintaining and rehabilitating training lands to enhance and sustain their capability.

6.1 MITIGATION MEASURES INCORPORATED IN THE ALTERNATIVES

A number of mitigation measures have been incorporated in the alternatives through site selection, design, and management procedures. They include four primary avenues for avoiding or reducing adverse environmental impacts: (1) siting, design, and construction of facilities and training infrastructure, (2) the Real Property Master Plan and other master planning processes, (3) the installation environmental compliance program and associated plans and procedures, and (4) the environmental impact analysis process.

6.1.1 Siting, Design, and Construction Mitigations

Section 3.2 discusses the procedures used to identify proposed locations for facilities in the Main Cantonment Area and Fort Bliss Training Complex required to support Army Transformation and Base Realignment and Closure. It also describes the process and criteria used to identify the land use alternatives considered in the SEIS. This process minimized potential environmental impacts by:

- Maximizing use of existing facilities through renovation and reuse of buildings on the Main Post that will be vacated by Air Defense Artillery units leaving Fort Bliss.

- Locating new BCT facilities in enclaves or "campuses" that encompass unaccompanied barracks; administrative, maintenance, training, and other mission facilities; and community services, in order to maximize functional adjacencies and reduce commuting and transportation requirements. In addition, the BCT campuses would be located on the east side of the Main Cantonment Area, nearest to the South Training Areas, in order to minimize tank and heavy equipment travel through the Main Cantonment Area.
- Siting new live-fire ranges within existing and proposed range complexes to consolidate heavy activity and minimize conversion of training land. Criteria used in siting the additional live-fire ranges included maximizing the efficiency of range use, overlaying on existing ranges and impact areas when possible, clustering small arms and individual qualification ranges around range camps, and grouping the ranges in complexes. The majority of live-fire ranges are located in areas already containing similar facilities, including Doña Ana Range, Meyer Range, McGregor Range Camp, and the Forward Area Weapons sites. New live-fire ranges that do not fit within those areas are proposed to be consolidated in the new Orogrande Range Complex, which is sited in the location of the existing Orogrande and SHORAD ranges.
- Avoiding the most environmentally sensitive areas of the Fort Bliss Training Complex in the formulation of four land use alternatives for meeting off-road vehicle maneuver requirements. All four land use alternatives would concentrate off-road vehicle activity in the Tularosa Basin portion of Fort Bliss, primarily in ecosites that have already degraded from their historic peak potential. No land use changes are proposed for the Otero Mesa grasslands and the Sacramento Mountains foothills that contain the highest species diversity.

In addition, various conservation measures are being incorporated in facilities designs. For example, new military family housing under the Residential Communities Initiative incorporates water conservation measures such as xeriscaping.

6.1.2 Real Property Master Plan and Other Plans

The RPMP, Training Development Concept/Range Complex Master Plan, Integrated Cultural Resources Management Plan, Integrated Natural Resources Management Plan, and Integrated Training Area Management program described in Section 2.1 provide processes for sustaining environmental stewardship in future use and development of Fort Bliss lands. All of these plans will be updated as appropriate to reflect the alternative selected pursuant to this SEIS.

These plans are designed to achieve, among other things, the following goals (see Section 2.1 for complete listing):

- Improvement of functional efficiency by locating interrelated activities in proximity to one another.
- Development and operation of the installation in harmony with the surrounding community.
- Coordination of on-post natural and cultural environment in a manner consistent with effective military training and adherence to environmental guidance and laws.
- Improvement of traffic circulation and functional effectiveness to reduce intra-cantonment travel and encourage pedestrian circulation.
- Regional cooperation on infrastructure systems.
- Reduction of long-term energy and operations and maintenance inefficiencies.
- Integration of important environmental needs into all planning and construction projects.

- Protection and management of the installation's cultural resources in compliance with applicable laws and regulations and in support of the overall mission. Fort Bliss has executed a Programmatic Agreement with the Texas and New Mexico State Historic Preservation Officers, the Advisory Council on Historic Preservation, and interested Tribes for management of historic properties on the installations.
- Conservation of Fort Bliss natural resources and compliance with related laws and regulations while maintaining quality training lands.
- Optimum, sustainable use of training lands.

Section 2.1 also identifies specific activities to be accomplished through the PA/ICRMP, INRMP, and ITAM program. Many of these activities involve 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 (see Section 6.3).

6.1.3 Environmental Compliance Program

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. Section 2.1.6 describes various compliance plans and Standard Operating Procedures, which contain specific activities and requirements for ensuring compliance. They include the following:

- Solid Waste Management Plan, which includes an active recycling program.
- Storm Water Management Plan, which specifies Best Management Practices for minimizing storm water pollutants.
- Waste Analysis Plan, which documents procedures for classifying wastes to ensure compliant management of all waste streams generated at Fort Bliss.
- Spill Prevention, Control, and Countermeasures Plan, which establishes responsibilities, duties, procedures, and resources for containing, mitigating, and cleaning up oil and hazardous substance spills.
- Asbestos Management Plan, which defines procedures for minimizing releases of and exposure to asbestos fibers.
- 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 (see Section 4.12.3.4).

6.1.4 Range Management

The Fort Bliss Range SOP contains specific requirements and restrictions for all users of the Fort Bliss Training Complex, 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 SEIS.

All requests for use of the Fort Bliss Training Complex are scheduled through the Range Facility Management Support System 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 DOE for approval prior to scheduling. DOE 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 siber 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.

6.1.5 Environmental Impact Analysis Process

Section 2.2 describes Fort Bliss' process for reviewing future installation projects and activities in compliance with NEPA. Appendix A details the methodology and criteria that will be used to evaluate mission activities, projects, and environmental management actions to assess their potential for generating significant environmental impacts, as well as determine the level of NEPA analysis and documentation needed. It includes procedures for environmental review of unit requests for use of ranges and training lands through RFMSS.

6.2 OTHER POSSIBLE MITIGATION MEASURES

Table 6-1 presents a summary of potential mitigations that have been identified through the SEIS process and that are under consideration by the Army in its decision-making. It also identifies possible mitigations that could be adopted by other entities to reduce impacts from the Proposed Action and other alternatives. The table identifies the impact that each mitigation addresses, mechanisms for implementing the mitigation, and alternatives to which the mitigation applies. The measures listed in the table address various types and levels of impacts or potential impacts, not just significant adverse impacts. The Army will identify which mitigation measures it will implement in the Record of Decision.

Table 6-1. Summary of Possible Mitigation Measures

Impact	*Mitigation Measure*	*Implementation Mechanisms*	*Alternative*
Land Use			
Public access affected by additional use of training ranges	Develop joint transportation and access plan with BLM to manage public access and identify off-limits or hazardous areas.	BLM RMPA; range permit process	1, 2, 3, 4
Impacts from off-road vehicle maneuvers in Grazing Units 1, 2, and 3	Work with BLM and leaseholders to identify issues and determine future grazing in affected training areas.	BLM RMPA	2, 4
Damage to fences and other range improvements in grazing areas from off-road vehicle maneuvers	Identify fences and other range improvements as off-limits.	Range SOP; RFMSS	2, 4
Main Cantonment Area Infrastructure			
Additional traffic and delays due to development and associated personnel and population increases	Transportation planning; roadway widening projects.	El Paso Metropolitan Planning Organization	1, 2, 3, 4

Impact	*Mitigation Measure*	*Implementation Mechanisms*	*Alternative*
Increased wastewater treatment demand exceeding available capacity	Reroute wastewater to plants with additional capacity; develop additional capacity.	El Paso Water Utilities	1, 2, 3, 4
Increased storm water runoff from new impervious areas	Construct additional storm water management facilities.	Military construction program	No Action, 1, 2, 3, 4
Increased solid waste generation on post	Develop new on-post landfill. Transport refuse to off-post landfills.	Military construction program; installation operations and maintenance	No Action, 1, 2, 3, 4
Increased peak electrical and natural gas demands	Add new substations and gas lines; energy-efficient facility design.	El Paso Electric Company; El Paso Gas Company; military construction program; RCI	1, 2, 3, 4
Training Area Infrastructure			
Delay of civilian traffic on routes between Main Cantonment Area and Fort Bliss Training Complex	Regulate size, spacing, and speed of military vehicle convoys on Martin Luther King, Jr. Blvd./NM Highway 213. Use internal installation routes when practicable.	Range SOP	No Action, 1, 2, 3, 4
Delay of civilian traffic on NM Highway 506	Provide traffic control during unit crossings of NM Highway 506; limit typical civilian traffic delays to 15 minutes or less; notify Otero County Administrator and BLM of Highway 506 closures.	Range SOP	2, 4
Increased demand for utilities and energy	Upgrade wastewater treatment facilities, drainage/storm water facilities, and solid waste and liquefied petroleum gas storage capacity, as needed, at range camps.	Military construction program; range improvements	No Action, 1, 2, 3, 4
Damage to water pipelines from off-road vehicle maneuver	Increase depth of or develop hardened crossings over water pipelines on McGregor Range in areas open to off-road vehicle maneuver. Place water pipelines off limits.	Military construction program; Range SOP	1, 2, 3, 4
Airspace Use and Management			
Increased operations in the Restricted Areas overlying the Fort Bliss Training Complex	Manage through scheduling, balancing training requirements with airspace availability.	Range scheduling; RFMSS	1, 2, 3, 4
Earth Resources			
Accelerated soil erosion during facility construction	Install and maintain Best Management Practices, erosion and sediment controls, and storm water management measures during construction.	U.S. Army Corps of Engineers construction contract terms and conditions	No Action, 1, 2, 3, 4
Accelerated soil erosion in training areas	Establish earth cover; add soil binding materials to the ground surface in areas of concentrated development and use. Install artificial or vegetative windbreaks in highly erosive areas. Perform	Range construction contract terms and conditions; range maintenance; ITAM	1, 2, 3, 4

Impact	*Mitigation Measure*	*Implementation Mechanisms*	*Alternative*
	soil erosion impact surveys and implement Land Rehabilitation and Maintenance to repair damage caused by maneuver training.		
Accelerated soil erosion in loamy soils in the vicinity of Hackberry Tank	Limit maneuver activities in this area; restrict concentrations of vehicles and personnel in this area.	Range SOP; RFMSS	3, 4
Erosion of range access roads	Maintain range roads and tank trails to minimize erosion.	Directorate of Public Works; ITAM; USACAS	1, 2, 3, 4
Air Quality			
Temporarily increased emissions from construction equipment	Use efficient construction practices; avoid long periods with equipment engines idling; carpooling of construction workers; use post-combustion control equipment on heavy duty diesel engines.	U.S. Army Corps of Engineers construction contract terms and conditions	No Action, 1, 2, 3, 4
Temporarily increased fugitive dust during construction activities	Frequent spraying of water on exposed soil during construction and proper soil stockpiling methods; minimize size of exposed areas.	U.S. Army Corps of Engineers construction contract terms and conditions	No Action, 1, 2, 3, 4
Increased emissions from privately owned vehicles	Encourage car pooling.	Fort Bliss policy; El Paso Metropolitan Planning Organization	No Action, 1, 2, 3, 4
Increased fugitive dust from military vehicle convoys	Regulate convoy routes, spacing, and speed. Apply surface treatments (e.g., dust suppressants, gravel) on heavily traveled segments of unpaved range roads and tank trails. Construct or upgrade internal range roadways that lead to training areas away from installation boundaries.	Range SOP; DPW; ITAM; USACAS	No Action, 1, 2, 3, 4
Increased fugitive dust from off-road vehicle maneuver	Reduce training during periods of high wind.	Range SOP	No Action, 1, 2, 3, 4
Water Resources			
Increased demand for potable water leading to increase in withdrawal of fresh water from Hueco Bolson and potential aquifer drawdown	Accelerate implementation of projects for alternative water sources; increase desalination capability.	El Paso Water Utilities	1, 2, 3, 4
Increased demand for potable water taxing fresh water resources	Use more reclaimed water for landscaping on post.	Fort Bliss and EPWU	1, 2, 3, 4
Potential for storm water contamination from hazardous material spills	Construct containment systems such as bermed areas for fuel bladders in Forward Area Refueling Points and other hazardous materials handling areas.	Range improvements	1, 2, 3, 4
Biological Resources			
Loss of habitat due to construction	Minimize size of construction zone; revegetate bare ground after construction.	U.S. Army Corps of Engineers and range construction contracts terms and conditions	No Action, 1, 2, 3, 4

Impact	*Mitigation Measure*	*Implementation Mechanisms*	*Alternative*
Damage to vegetation and loss of habitat from off-road vehicle maneuver	Where practicable and appropriate, rotate off-road vehicle training among training areas to provide for recovery or restoration of vegetation; invasive weed monitoring and control.	INRMP; ITAM program; Range SOP; pest management program	1, 2, 3, 4
Damage to grasslands from off-road vehicle maneuver	Limit maneuver activities in grasslands; restrict concentrations of personnel and vehicles in grasslands.	Range SOP; RFMSS	1, 2, 3, 4
Damage to wetlands and arroyo-riparian areas	Establish limited-use area buffer of 50 meters around arroyo-riparian habitat; limit crossing in these habitats to a small number of defined points; perform selected habitat improvements; invasive weed monitoring and control.	Range SOP; INRMP; RFMSS	No Action, 1, 2, 3, 4
Damage to grasslands and arroyos in southeast training areas of McGregor Range	Restrict concentrations of personnel and vehicles in grasslands.	Range SOP; RFMSS	3, 4
Impacts on sensitive species from construction, maintenance, and training activities	Identify Restricted areas and Limited-use areas in sensitive species habitat.	INRMP; Range SOP; RFMSS	No Action, 1, 2, 3, 4
Cultural Resources			
Adverse impact from renovation or new construction to properties in the Main Cantonment Area that are on or eligible for listing on the National Register of Historic Places	Adhere to SOPs in the Programmatic Agreement; consult with Fort Bliss HPO during facility design; follow Secretary of the Interior Standards for the Rehabilitation of Historic Buildings.	PA/ICRMP; installation Architectural Design Guide; facility design specifications	No Action, 1, 2, 3, 4
Adverse effects to historic properties from training activities	Establish Restricted areas as appropriate; mitigate potential adverse effects in accordance with procedures in PA.	PA; Range SOP; RFMSS	No Action, 1, 2, 3, 4
Loss of unrecorded archaeological resources during construction	Survey facility sites prior to construction; stop construction activities if unknown archaeological deposits uncovered; consult with Fort Bliss HPO and adhere to SOPs in the PA to mitigate potential adverse effects to NRHP-eligible historic properties.	PA; U.S. Army Corps of Engineers construction contract terms and conditions	1, 2, 3, 4
Loss of archaeological sites due to off-road vehicle maneuver	Survey 30 percent of unsurveyed maneuver lands; implement continuing survey program (target of 10,000 acres/year) in unsurveyed areas, focusing on areas that receive greater military use; establish Restricted areas and Limited-use areas as appropriate; mitigate potential adverse effects to historic properties in accordance with procedures in the PA.	PA/ICRMP; Range SOP; RFMSS	1, 2, 3, 4

Impact	*Mitigation Measure*	*Implementation Mechanisms*	*Alternative*
Noise			
Elevated helicopter noise in residential areas, especially during night operations	Route helicopter traffic between Biggs AAF and the Fort Bliss Training Complex over Fort Bliss land.	Combat Aviation Brigade SOP	1, 2, 3, 4
Elevated helicopter noise at the town of Orogrande	Route helicopter traffic between Orogrande Range Camp and the DAGIR at sufficient distance from Orogrande to keep Day-Night Average Sound Levels at residences in the town below 65 ADNL.	Combat Aviation Brigade SOP	1, 2, 3, 4
Incompatible noise from large-caliber weapons firing	Restrict new residential development in areas with Day-Night Average Sound Levels above 62 CDNL.	City of El Paso, El Paso County, Doña Ana County, Otero County plans and zoning ordinances	No Action, 1, 2, 3, 4
Incompatible noise levels in off-post residential areas due to military activities	Provide sound attenuation of existing residences exposed to Day Night Average Sound Levels above 62 CDNL and 65 ADNL.	Army encroachment prevention programs	No Action, 1, 2, 3, 4
Safety			
Risk of wildfires in Fort Bliss Training Complex	Units furnish on-site fire-response personnel and equipment for all training exercises and report all fires immediately to Range Control.	Range SOP	No Action, 1, 2, 3, 4
Risk of wildfires in Fort Bliss Training Complex	Avoid use of fire-producing ammunition and flares in high-risk areas such as grasslands during extremely dry and windy conditions.	Range SOP	No Action, 1, 2, 3, 4
Risk of wildfires in Fort Bliss Training Complex	Establish schedule to monitor and maintain strategic fire breaks.	DPW	No Action, 1, 2, 3, 4
Preclude off-post explosive safety impacts	Site all live-fire ranges in accordance with safety criteria to ensure all Surface Danger Zones remain within installation boundaries.	Range Complex Master Plan; Future Range Mission Analysis Planning	No Action, 1, 2, 3, 4
Hazardous Materials and Items of Special Concern			
Increase in generation of hazardous waste and items of special concern	Ensure proper storage and disposal of hazardous waste and items of special concern (e.g., asbestos) and compliance with regulatory requirements; reduce use of hazardous materials.	U.S. Army Corps of Engineers, RCI, and range construction contracts terms and conditions; Range SOP	No Action, 1, 2, 3, 4
Risk of release of hazardous materials and petroleum products	Continue aggressive inspection and maintenance program to avoid releases and minimize environmental impacts; comply with USEPA and applicable state notification requirements.	Waste Analysis Plan; SPCC Plan; Range SOP; Range Liaisons	No Action, 1, 2, 3, 4

Impact	*Mitigation Measure*	*Implementation Mechanisms*	*Alternative*
Socioeconomics			
Increased housing demand from Fort Bliss military personnel	Construct additional on-post housing.	Housing Requirements and Market Analysis; RCI	1, 2, 3, 4
Impact of increase in student population on area schools	Military student impact aid; additional grants and funding for school improvements	DoD Office of Economic Adjustment consultation and assistance; El Paso and Ysleta ISD plans and programs	1, 2, 3, 4
Impact of increased demand for medical services on top of existing shortfalls	Establish medical school in El Paso; create state healthcare infrastructure fund; provide financial incentives for physicians and healthcare professionals.	Team El Paso Healthcare Council, Texas Tech University, University of Texas at El Paso plans and programs	1, 2, 3, 4

6.3 MONITORING

Monitoring will be conducted at Fort Bliss for two main purposes: (1) support adaptive management of training lands and (2) evaluate the effectiveness of mitigation measures. Future monitoring activities at Fort Bliss will depend on the availability of funding. Planned monitoring activities are listed in Tables 2-1, 2-2, and 2-3 and include remote sensing analysis confirmed through field surveys of soils erosion, vegetation, wildlife populations, and cultural resources.

As part of adaptive management, monitoring will assist in determining what mitigation measures are needed and where they need to be implemented. It is important to recognize that monitoring and implementation of mitigation measures are an iterative and ongoing process that must regularly be adapted for site-specific conditions. Under adaptive management, proposed mitigations are implemented, a period of monitoring and research occurs, and activities are modified based on an analysis of the data collected, with cycles of further measurement and adjustment to reach and sustain management objectives.

Fort Bliss already employs adaptive management as an effective approach to reducing adverse effects of training. After surveying and monitoring FTX sites on Otero Mesa, Fort Bliss adjusted the rotation schedule to reflect different levels of recovery among the sites, resting less resilient sites for longer periods between use. Restricted and limited-use areas are monitored for compliance with use restrictions, and when violations are identified, an investigation is conducted and the cause is rectified. Lessons learned from these investigations have resulted in modifications in the way units are informed about use restrictions and educated in environmental awareness. Changes have included new signs and markers to help soldiers comply with the restrictions. Fort Bliss is implementing an Environmental Management System that will monitor environmental compliance and waste reduction metrics and support adaptive management programs in the future. The EMS includes “root cause analysis” as part of the process designed to document and correct problems.

The Fort Bliss ITAM office is preparing a Range and Training Land Assessment protocol to identify Land Rehabilitation and Maintenance needs and establish management objectives and projects to respond to those needs. The overall goals of the RTLA program are to assess the impacts of live training and testing activities, recommend options for sustained use, and prioritize and assess land management

activities in order to maximize the capability and accessibility of the lands to meet the training mission. The RTLA will support LRAM by organizing and prioritizing projects so that available funding is concentrated on the highest priority needs.

The near-term focus of the Fort Bliss RTLA includes the following activities:

- Work with Fort Bliss DOE to establish benchmarks for measuring the impact of new missions and training activities. DOE has used remote sensing to classify ecosite types and is ground truthing these classifications with field plots. These plots will be adapted and expanded through the RTLA program.
- Identify areas susceptible to water erosion that may create a safety hazard, reduce accessibility to training lands, or impede maneuver. Many of the water erosion problems that occur on Fort Bliss are created by tank trails and unpaved range roads channeling storm-water runoff. The general management objective for unpaved roads in the Fort Bliss Training Complex is to minimize transport of sediment and concentrated runoff from roadways to drainages and to provide safe driving conditions for vehicles. Arroyos generally contain vegetation that stabilize the soil, while tank trails and range roads are devoid of this protection and can rapidly deteriorate during storm events. RTLA plans to ground truth all erosion points along range roads, tank trails, and Forward Area Weapon sites to detect erosion problems that may slow down or stop training. This analysis will then be used to identify future LRAM projects. The objective of this effort is to prioritize rehabilitation projects to protect the training mission.
- Map and monitor areas of off-road vehicle maneuver to evaluate changes in vegetative cover. This will be accomplished through analysis of remote sensing combined with field survey to identify changes in vegetation and cover. The objective of this effort is to determine thresholds in the extent of bare ground that lead to ecosite transition and identify the most viable rehabilitation strategy to inhibit ecosite decline.
- Maintain grasslands and shrub invaded grasslands. Grasslands will be monitored by establishing additional vegetation plots and through remote sensing analysis. The objective of this effort is to identify where measures to sustain the diversity of ecological conditions in the Fort Bliss Training Complex should be applied.
- Map and monitor concentrated use areas (e.g., bivouac and assembly areas). The objective of this effort is to develop recommendations for dispersing and reducing the intensity of disturbance from those uses. This information will also be used to determine the best rehabilitation strategy for disturbed areas.

RTLA will support LRAM by monitoring past, current, and future rehabilitation and maintenance projects to assess project success, determine the durability of mitigations, and analyze the effect on surrounding areas. The analysis of monitoring results will be used for iterative improvements to mitigation measures.

Fort Bliss DOE also conducts monitoring in support of natural and cultural resources management. DOE collects and analyzes remote sensing data to identify changes in vegetation conditions. DOE biologists continue to monitor species lists and conduct planning level surveys of suitable habitat for the presence of sensitive species. Professional archaeologists at Fort Bliss perform periodic checks of restricted areas and properties eligible for listing on the NRHP near grid locations that have been requested for training use through RFMSS. Adverse effects to historic properties from training will be documented in a Record of Historic Property Consideration for consultation with the SHPO, ACHP, and Tribes that are parties to the PA. Appropriate mitigation will be developed in consultation with the parties to the PA, which could include controlling access to the site, data recovery, or other measures.

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8.0 GLOSSARY

Acre-foot (af)	The volume of water that covers 1 acre to a depth of 1 foot; approximately 326,000 gallons.
Active Component	The part of the U.S. Army comprised of full-time, active duty military personnel.
Adverse Effect	A term used to characterize the impact of an action on a historic property (property listed in or eligible for listing in the National Register of Historic Places). An adverse effect is one that destroys, damages, or alters the qualities of a historic property, including relevant features of its environment or use that contribute to its eligibility for listing.
Airspace management	The coordination, integration, and regulation of the use of airspace of defined dimensions.
Ambient Air Quality Standards (AAQS)	Standards established on a state or federal level that define the limits for airborne concentrations of designated criteria pollutants (NO_2, SO_2, CO, $PM_{10,}$ O_3, and Pb) to protect public health with an adequate margin of safety (primary standards) and to protect public welfare, including plant and animal life, visibility, and materials (secondary standards).
Aquifer	A body of rock that contains enough saturated permeable material to transmit groundwater and to yield significant quantities of groundwater to wells and springs.
Archaeological Resource Protection Act	Law that strengthens preservation and protection laws through civil and criminal felony-level penalties for the destruction of resources and sites (enacted 1979).
Army Campaign Plan (ACP)	The detailed plan for implementing Army Transformation.
Army Transformation	A 30-year, phased program to change U.S. Army doctrine, training, organization, installations, materiel, and personnel to be able to respond more rapidly to different types of operations requiring military action. The transformation is intended to fulfill the Army vision for a force that is more responsive, deployable, agile, versatile, lethal, survivable, and sustainable.
Asbestos	Any of several minerals (e.g., chrysotile) that readily separate into long flexible fibers suitable for use as a noncombustible, nonconducting, or chemically-resistant material. Asbestos has been used in the construction of floor tile, wall panels, brake pads in vehicles, ceiling tile, pipe material, and as insulating material around pipes and buildings. Inhalation of asbestos fibers can cause lung cancer.
Attainment area	A region that meets the National Ambient Air Quality Standards for a criteria pollutant under the Clean Air Act.

Attenuation of sound	The diminishing of any noise level with distance from the source in a mathematically predictable manner. Under normal conditions, distance alone reduces the noise level by 6 decibels for each doubling of the distance from the source. For example, a noise source that produces an 80 dB noise level at a distance of 50 meters would produce 74 dB at 100 meters. Absorption of sound energy by the atmosphere reduces noise levels even further.
Average annual daily traffic (AADT)	For a 1-year period, the total volume passing a point or segment of a highway facility in both directions divided by the number of days in the year.
A-weighted decibels	Sound measurement scale that emphasizes frequencies in the 1,000 to 4,000 hertz range that are most sensitive to human hearing.
Base Realignment and Closure (BRAC)	The commonly used acronym for the Defense Base Closure and Realignment Commission. The BRAC Commission was created to provide a thorough, objective, accurate, and non-partisan review and analysis, through a process determined by law, of the list of bases and military installations which the Department of Defense has recommended be closed and/or realigned.
Baseline	The initial environmental conditions against which the environmental consequences of various alternatives are evaluated.
Basin	A drainage or catchment area of a stream or lake.
Battalion	An Army unit composed of a headquarters and two or more batteries, companies, or troops.
Battalion Task Force	A force generally organized by combining tank and mechanized infantry elements under a single battalion commander to conduct specific operations. A Battalion Task Force may be tank-heavy, mechanized infantry-heavy, or balanced, depending on the concept and plan of operation.
Battery	An artillery unit of equivalent size to a company.
Biodiversity	Different life forms or species within a defined area.
Bolson	An intermontane basin extending from the divide of one block-faulted mountain to the divide of the adjacent mountain, generally with no external drainage, but that may be transected by regional streams.
Brigade Combat Team (BCT)	The basic deployable unit of maneuver in the U.S. Army. A Heavy BCT consists of two Combined Arms Battalions, a Reconnaissance Battalion, and attached support and fires units. A BCT carries with it support units necessary to sustain its operations separate from its parent division.

Brigade	Organizational element commanding the tactical operation of two to five combat battalions. Brigades are employed on independent or semi-independent operations.
Candidate species	Species for which the U.S. Fish and Wildlife Service has on file sufficient information on biological vulnerability and threat(s) to support the issuance of a proposed rule to list as a threatened or endangered species, but issuance of the proposed rule is precluded.
Capacity (traffic)	The maximum rate of flow at which vehicles can be reasonably expected to traverse a point or uniform segment of a lane or roadway during a specified time period under prevailing roadway, traffic, and control conditions.
Carbon monoxide (CO)	A colorless, odorless, poisonous gas formed by incomplete combustion of carbon or a carbonaceous material, including gasoline and other petroleum fuels.
Census block	Cluster of blocks within the same census tract. Census blocks do not cross county or census tract boundaries and generally contain between 250 and 550 housing units.
Company	Organizational element capable of performing a function on its own, consisting of three to five platoons.
Component Plans	Those documents that, when taken together, comprise the Real Property Master Plan of a military installation. This series of documents consists of the Long Range Component, Short Range Component, and Capital Improvement Strategy.
Controlled-access field training exercise (FTX) sites	FTX sites where military access is subject to higher control and restricted to activities with limited ground-disturbing effects. Examples include training involving off-road wheeled vehicle movement limited to entering and exiting the site, no site improvements, no clearing of vegetation on the site, and no digging on the site.
Coppice dunes	Sand dunes characterized by a thicket of woody vegetation.
Corps	Organizational element consisting of two to five divisions. The Corps provides the framework for multi-national operations.
Criteria pollutants	The Clean Air Act required the USEPA to set air quality standards for common and widespread pollutants after preparing criteria documents summarizing scientific knowledge on their health effects. There currently are standards for six criteria pollutants: NO_2, SO_2, CO, PM, O_3, and Pb.
Culture	The system of behavior, beliefs, institutions, and objects that human beings use to relate to each other and to the environment.

Cultural resource	Cultural resources include historic properties as defined by the National Historic Preservation Act and 36 CFR 800, properties of traditional religious and cultural importance, Native American human remains, sacred objects, and objects of cultural patrimony, as defined in the Native American Graves Protection and Repatriation Act and 43 CFR 10.
Cumulative impact	The environmental impact resulting from the incremental impact of a particular activity when added to other past, present, or reasonably foreseeable future activities. Cumulative impacts may be individually insignificant but collectively become significant.
C-weighted decibels	Sound measurement scale that gives equal emphasis to all frequencies but suppresses very low and very high bands. Used to measure impulsive sounds such as explosions.
Day-Night Average Sound Level (DNL)	Sound-pressure levels averaged over a 24-hour period with 10 decibels added for events occurring between 10 p.m. and 7 a.m. ADNL is for A-weighted sounds and CDNL is for C-weighted sounds.
Decibel (dB)	A standard unit of measuring sound-pressure levels based on a reference sound pressure of 0.0002 dynes per square centimeter. This is the smallest sound a human can hear.
Depleted uranium (DU)	Very dense metal by-product of the uranium enrichment process with most of the higher radioactive isotopes removed. DU is approximately 40 percent less radioactive than natural uranium.
Direct effect/impact	Beneficial or detrimental impact that is caused by an action and occurs at the same time and place.
Division	Organizational element usually consisting of three to six brigade-size elements. Divisions are numbered and assigned missions based on their structures. The Division performs major tactical operations for the Corps and can conduct sustained battles and engagements.
Endangered species	A plant or animal species that is threatened with extinction or serious depletion in its range and is formally listed as such by the USFWS.
Endangered Species Act	An act of the U.S. Congress of 1972; 16 USC 1531-1544 that requires federal agencies to ensure that their actions do not jeopardize the existence of endangered or threatened species.
Environmental impact statement	A detailed written statement that helps public officials make decisions that are based on understanding of environmental consequences and to take actions that protect, restore, and enhance the environment.

Ephemeral stream	A stream or reach of a channel that flows only in direct response to precipitation in the immediate locality, whose channel is at all times above the zone of saturation.
Equivalent sound level (L_{eq})	A single number representing the fluctuating sound level in decibels over a specified period of time; the average of a fluctuating level of sound energy.
Erosion	The set of all processes by which soil and rock are loosened and moved downhill or downwind.
Escarpment	A long, usually continuous cliff or steep slope facing in one general direction, separating two level or gently sloping surfaces, and produced by erosion or faulting.
Explosive ordnance	All munitions containing explosives, nuclear fission or fusion materials, biological, or chemical agents. This includes bombs and warheads; guided and ballistic missiles; artillery, mortar, rocket, and small arms ammunition; mines, torpedoes, and depth charges; pyrotechnics; clusters and dispensers; cartridge- and propellant-actuated devices; electro-explosive devices; clandestine and improvised explosive devices; and similar or related items or components explosive in nature.
Field artillery	Equipment, supplies, ammunition, and personnel involved in the use of cannon, rocket, or surface-to-surface missile launchers. Field artillery cannons are classified according to caliber as: light–(120 mm and less); medium–(121 mm to 160 mm); heavy–(161 mm to 210 mm); and very heavy–(greater than 210 mm).
Field training exercise (FTX)	An exercise conducted in field training areas under simulated war conditions in which troops and armament of one side are actually present, while those of the other side may be imaginary or in outline.
Firing fan	The fan-shaped area encompassing all firing scenario directions and their associated surface danger zones.
Force packaging	The process of grouping units and equipment to accomplish a specific mission or achieve a desired capability. A force package is a predefined standardized grouping of manpower and/or equipment to provide a specific wartime capability.
Force Projection Platform	An installation having the mission and providing the infrastructure needed to move military forces from the continental U.S. or another area in response to war or other requirements. Force projection operations include mobilization and deployment, redeployment, and demobilization.

Fugitive dust	Particulate matter composed of soil. Fugitive dust may include emissions from haul roads, wind erosion of exposed soil surfaces, and other activities in which soil is either removed or redistributed.
Geologic	Any natural process acting as a dynamic physical force on the earth, including faulting, erosion, and mountain-building resulting in rock formations.
Groundwater	Subsurface water within the zone of saturation.
Groundwater recharge	Water that infiltrates the land surface and is not lost to evaporation or consumed by plants, which percolates downward and replenish the groundwater aquifers. This deep percolation is called recharge.
Guided missile	An unmanned vehicle moving above the surface of the earth whose trajectory or flight is capable of being altered by an external or internal mechanism.
Habitat type	A land area capable of supporting a given plant association at climax. It represents a mature vegetation association and is usually characterized by two indicator species.
Hazardous air pollutants (HAPs)	Also known as air toxics, air pollutants known or suspected to cause cancer or other serious health effects. USEPA has identified and established national emission standards for 188 HAPs.
Hazardous material	Any substance or material in a quantity or form that may be harmful to humans, animals, crops, water systems, or other elements of the environment if accidentally released. Hazardous materials include explosives, gases (compressed, liquefied, or dissolved), flammable and combustible liquids, flammable solids or substances, oxidizing substances, poisonous and infectious substances, radioactive materials, and corrosives.
Hazardous waste	Wastes that are designated as hazardous by the USEPA or state regulations. Hazardous waste, defined under the Resource Conservation and Recovery Act, is waste from production or operation activities that poses a potential hazard to human health or the environment when improperly treated, stored, or disposed; hazardous wastes that appear on special USEPA lists or possess at least one of the four following characteristics: ignitability, corrosivity, reactivity, and toxicity.
Herbicide	A chemical used to kill or inhibit the growth of plants.
Historic property	Property included in or eligible for inclusion in the National Register of Historic Places.

Hydric soils	Soils that are saturated to the surface sometime during the growing season.
Impact	Effect of an action. The terms "impacts" and "effects" are synonymous as used in NEPA. Impacts may be beneficial or adverse and may apply to natural, aesthetic, historic, cultural, and socioeconomic resources. Where applicable, impacts may be classified as direct or indirect.
Indirect effect/impact	Effect/impact caused by an action that occurs later in time or farther removed in distance but is still reasonably foreseeable. Indirect impacts may include growth-inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air, water, and other natural systems, including ecosystems.
Infiltration	Water that falls on the land surface that does not run off but percolates into the ground. Some of this water evaporates, some is used by plants, and some percolates downward to the groundwater.
Infrastructure	Utilities and other physical support systems, including electric distribution systems, water supply systems, sewage disposal systems, roads, and others.
Integrated Global Presence Basing Strategy (IGPBS)	A Department of Defense initiative to reduce U.S. overseas forces over a 6-8 year period from the numbers and locations of overseas bases left over from the Cold War to new locations optimized to support current allies and to confront new threats.
Intermittent stream	An intermittent stream is a stream or reach of a channel that flows only during certain times of the year (e.g., when it receives water from springs or seeps).
Level of service (traffic)	A qualitative measure describing operational conditions within a traffic stream and how they are perceived by motorists and/or passengers.
Limited-use area	An area with a dense concentration of archaeological sites or sensitive biological resources where only vehicle travel is allowed and no digging, bivouac sites, or concentrations of personnel or vehicles are allowed.
Long-term impacts	Impacts that persist beyond the initial activity that produces them.
Low-altitude flight	Flight that is less than 300 feet above the ground.
Main Cantonment Area	Part of a military installation where the majority of administrative, industrial, housing, and community support facilities are located.

Military Training Route (MTR)	A route developed for the high-speed (greater than 250 knots) low-altitude training of tactical aircrews. Instrument flight rules MTRs are mutually developed by the Federal Aviation Administration and the DoD. Visual flight rules MTRs are developed by the DoD. MTRs are published on aeronautical charts. Each MTR has its own unique number consisting of either three or four digits. Three digits indicate that at least one segment of the route is 1,500 feet above ground level, and four digits indicate that the entire route is at or below 1,500 feet AGL. The number is preceded by either instrument flight rules (IR) or visual flight rules (VR) designator respectively. Since routes are one way, the same route flown the opposite direction will have a separate, distinct number.
Mission	The primary purpose and function of an organization.
Mitigation	Measure to reduce or eliminate an impact. Mitigations generally include avoiding the impact altogether by stopping or modifying a proposed action; minimizing impacts by limiting the degree or magnitude of the action and its implementation; rectifying the impact by repairing, rehabilitating, or restoring the affected environment; reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; or compensating for the impact by replacing or providing substitute resources or environments.
Mobilization mission	Mobilization is the process of assembling and organizing resources to support Army objectives in time of war or other emergencies. It involves the deployment of active duty, Reserve, and National Guard units and individuals. Fort Bliss' mobilization mission is to provide facilities, infrastructure, and training to military personnel and units in order to prepare them for deployment or areas of engagement.
Modular force	A military structure comprised of standardized, independent components that include all support elements needed to deploy and operate as self-contained units.
Mounted maneuver	A military activity undertaken within or on a ground vehicle or platform (i.e., not on foot).
National Ambient Air Quality Standards (NAAQS)	Section 109 of the Clean Air Act requires the USEPA to set nationwide standards for widespread air pollutants. Currently, six pollutants are regulated: NO_2, SO_2, CO, PM, O_3, and Pb.

National Historic Preservation Act (NHPA)	Law that states that the federal government will cooperate with other governments (including state and local), Native American Tribes, and private organizations and individuals to ensure that prehistoric and historic resources are properly preserved for present and future generations (enacted 1966).
National Register of Historic Places (NRHP)	Document containing those resources deemed to be important in American history, architecture, anthropology, engineering, or culture and associated with significant past events or persons and/or representing distinctive construction or high artistic value.
Native American	A generalized term referring collectively to individuals, Tribes, bands, or organizations that trace their ancestry to indigenous populations of North America.
Native American Graves Protection and Repatriation Act (NAGPRA)	Law that states that any remains of Native Americans (and associated objects) must be professionally curated and made available to any descendents for a traditional tribal burial (enacted 1990).
Neotropical migrants	Birds that breed in the temperate zone and then migrate in winter to tropical zones.
Nitrogen dioxide (NO_2)	Gas formed primarily from atmospheric nitrogen and oxygen when combustion takes place at high temperature. Nitrogen dioxide emissions contribute to acid deposition and formation of atmospheric ozone.
Nitrogen oxide (NO_x)	Gases formed primarily by fuel combustion, which contribute to the formation of acid rain. Hydrocarbons and nitrogen oxides combine in the presence of sunlight to form ozone, a major constituent of smog.
Noise	Any sound that is undesirable because it interferes with speech and hearing or is intense enough to damage hearing.
Nonattainment area	An area that has been designated by the USEPA or the appropriate state air quality agency as exceeding one or more national or state AAQS.
Nonpotable	Water that is unsafe or unpalatable to drink because it contains pollutants, contaminants, minerals, or infective agents.
Obscurant	A substance used to simulate extreme weather conditions or battlefield settings such as explosive-generated smoke and dust.
Off-road vehicle	Any motorized vehicle designated for cross-country travel over any type of natural terrain.
Ordnance	Explosives, chemicals, pyrotechnic and similar stores; for example, bombs, guns, ammunition, flares, and smoke.

Ozone (O_3)	A major ingredient in smog. O_3 is produced from reactions of hydrocarbons and nitrogen oxides in the presence of sunlight and heat.
Particulate	Fine liquid or solid particles such as dust, smoke, mist, fumes, or smog, found in air or emissions. PM_{10} are particulates that are 10 microns or less in diameter, and $PM_{2.5}$ are particulates 2.5 microns or less in diameter.
Peak hour (traffic)	The hour of highest traffic volume on a given section of roadway.
Pesticide	Chemical used to kill or inhibit growth of undesirable species.
Platoon	Organizational element consisting of two to four squads or sections.
Polychlorinated biphenyls (PCB)	A class of toxic, nonflammable, nonvolatile chlorinated oils used in transformers, capacitors, and fluorescent ballasts. PCBs are potential carcinogens and are regulated under the Toxic Substances Control Act.
Property of traditional cultural and religious importance	Cultural resource associated with cultural practices and beliefs of a Tribal community, which is rooted in its history and is important in maintaining the continuing cultural identity of the Tribe.
Range complex	Firing ranges and weapons training facilities designated for firing ammunition and explosives, heavy rockets, and guided missiles for training and target practice.
Real estate outgrant	Lease, license, easement, permit, use agreement, or other arrangement that changes government control of real property by conferring property rights to another governmental agency or private party.
Recharge	Percolation of rainwater and snowmelt through the unsaturated soil zone to the groundwater table.
Reconnaissance	A mission undertaken to obtain, by visual observation or other detection methods, information about the activities and resources of an enemy or potential enemy or to secure data concerning the meteorological, hydrographic, or geographic characteristics of a particular area.
Record of Decision (ROD)	A public document that explains which of the alternatives evaluated in an environmental impact statement has been selected.
Regiment	Armored cavalry, ranger, and special forces units of comparable size to a brigade.
Reserve Component	The part of the U.S. Army comprised of part-time, active duty military personnel, including the Army National Guard of the United States and the Army Reserve.

Restricted area	An area defined based on the density and significance of historic properties and that is off limits to all military and public entry and travel, except through-traffic on existing roads.
Riparian	Of or pertaining to the banks of a body of water.
Scoping	Process in the beginning stages of an EIS during which the public and federal and state agencies may voice concerns they wish the study to address.
Seismicity	The worldwide or local distribution of earthquakes in space and time; a general term for the number of earthquakes in a unit time.
Short-term impacts	Temporary direct or indirect impacts usually occurring during the construction phase of an activity.
Significance	A measure of the degree of impact of an action. Significance requires consideration of the context and intensity of the impact or effect. Context may include consideration of the effects on a national, regional, and local basis. Both short- and long-term effects may be relevant. Impacts may also be evaluated in terms of their intensity or severity.
Sound	A physical disturbance in a medium (e.g., air) that is capable of being detected by the human ear.
Squad	The smallest element in the Army structure; its size is dependent on its function.
Square kilometer days (km^2d)	Measure combining geographic area in square kilometers and time in days to calculate how much of the available training area is used in an individual exercise or cumulatively over the course of a year.
Sulfur dioxide (SO_2)	Gas formed from the combustion of sulfur compounds, including coal and petroleum. Sulfur dioxide emissions can be catalyzed by nitrogen dioxide to form acid rain.
Surface danger zone (SDZ)	That area which is endangered by projectiles, fragments, or explosions and the associated peripheral safety areas.
Tactical maneuver	Positioning and moving soldiers and equipment to counter and destroy enemy forces on the battlefield.
Threatened species	A species that is likely to become endangered within the foreseeable future throughout all or a significant portion of its range.
Tiering	Process of covering general materials in a broad NEPA document, with further documents to cover subsets of the broader program or to provide more precise information and analysis.

Traditional Cultural Properties (TCP)	A legal term referring to properties of traditional cultural and religious importance that are eligible for listing in the National Register of Historic Places.
Trafficability	Capacity of soil to support vehicles driving on it.
Trip generation	A determination of the quantity of trip ends associated with a parcel of land.
Troop	An armored or air cavalry unit of comparable size to a company.
Unconfined aquifer	An aquifer in which the water table defines the upper limit of the aquifer; also known as a water-table aquifer.
Underground storage tank (UST)	Typically used to contain gasoline or other petroleum fuels; buried beneath the ground surface.
Unemployment rate	The number of civilians, as a percentage of the total civilian labor force, without jobs but actively seeking employment.
Unexploded ordnance	Explosive ordnance that has been primed, fused, armed, or otherwise prepared for action, and which has been fired, dropped, launched, projected, or placed in such a manner as to constitute a hazard to operations, installations, personnel, or material and remains unexploded due to malfunction, design, or any other cause.
Water table	The depth or level below which the ground is saturated with water.
Waters of the U.S.	A legal term referring to interstate lakes, rivers, streams, (including intermittent streams), mud flats, sand flats, wetlands, playa lakes, and tributaries to such features.
Well yield	The sustainable volume of water discharged from a well per unit of time, often expressed in gallons per minute.
Wetland	An area that is regularly saturated by surface water or groundwater and subsequently supports vegetation that is adopted for life in saturated soil conditions.
Woodland	Plant community characterized by a generally open growth of small trees.

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Fort Bliss Training Area Land Use Categories

Training Area Land Use Category	*Fort Bliss Training Categories*											
	1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*	*ENV*	*PA*
	Mission Support Facility	Weapons Firing	Surface Impact	SDZ/Safety Footprint	Off-Road Vehicle Maneuver	On-Road Vehicle Maneuver	Controlled Access FTX	Dismounted Training	Aircraft Operations	Built-Up Areas	Environmental Management	Public Access
A		●		●	●	●		●	●		●	❍
A with Mission Facilities	●	●		●	●	●		●	●		●	❍
B					●	●		●	●		●	❍
B with Mission Facilities	●				●	●		●	●		●	❍
C		●		●		●	●	●	●		●	❍
C with Mission Facilities	●	●		●		●	●	●	●		●	❍
D		●		●		●		●	●		●	❍
D with Mission Facilities	●	●		●		●		●	●		●	❍
E				●		●	●	●	●		●	❍
F				●		●		●	●		●	❍
G				●				●	●		●	●
H			●						●			
I	●			●		●			●	●	●	❍

● Training Category occurs in Land Use Category – uses may be concurrent.
❍ Public access in some areas. Fort Bliss Training Complex permit required.
ENV = Environmental Management; PA = Public Access; SDZ = Surface Danger Zone; FTX = Field Training Exercise

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Acronym List

°F	Fahrenheit
µg/m^3	micrograms per cubic meter
AADT	Annual Average Daily Traffic
AAF	Army Air Field
AAM	Annual Arithmetic Mean
AAQS	ambient air quality standards
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ACM	asbestos containing material
ACP	Army Campaign Plan
ACR	Armored Cavalry Regiment
ACRG	annual compound rate of growth
ADA	Air Defense Artillery
ADNL	Day-Night Average Sound Level for A-weighted noise
ADT	Average Daily Traffic
AEF	Army Evaluation Force
af	acre feet
AFI	Air Force Instruction
afy	acre feet per year
AGL	above ground level
AGM	Annual Geometric Mean
AH	Attack Helicopter
AIRFA	American Indian Religious Freedom Act
AM	amplitude modulation
AMP	Asbestos Management Plan
AMT	Asbestos Management Team
APE	Area of Potential Effect
APM	Asbestos Program Manager
APZ	Accident Potential Zone
AR	Army Regulation
ARPA	Archaeological Resources Preservation Act
ARTCC	Air Route Traffic Control Center
AST	above ground storage tank
ATACMS	Army Tactical Missile System
ATC	Air Traffic Control
ATCAA	Air Traffic Control Assigned Airspace
ATSC	Army Transformation Support Center
AUM	Animal Unit Month

AUTODIN	Automated Digital Network
BACT	Best Available Control Technology
BCT	Brigade Combat Team
BEA	Bureau of Economic Analysis
BLM	Bureau of Land Management
BRAC	Base Realignment and Closure
BTEX	benzene, toluene, ethyl benzene, and xylene
btu	British thermal unit
CA	Commercial Activities
CAA	Clean Air Act
CAAA	CAA Amendments
CAB	Combat Aviation Brigade
CACTF	Combined Arms Collective Training Facility
CARC	chemical agent resistant coating
CAV	Cavalry Division
CDNL	Day-Night Average Sound Level for C-weighted noise
CDP	Census Designated Place
CEQ	Council on Environmental Quality
CERCLA	Comprehensive, Environmental Response, Compensation and Liability Act
CFH	cubic feet per hour
CFR	Code of Federal Regulations
CH	Cargo Helicopter
CHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
CIS	Capital Investment Strategy
CO	carbon monoxide
CPI	Consumer Price Index
CPQC	Combat Pistol Qualification Course
CWA	Clean Water Act
CX	Categorical Exclusion
CY	calendar year
CZ	Clear Zone
DA	Doña Ana Firing Range
DAGIR	Digital Air Ground Integration Range
dB	decibel
dBA	A-weighted decibel
dBC	C-weighted decibel
dBP	peak sound pressure level
DCA	Directorate of Community Activities
DEIS	Draft Environmental Impact Statement

DERP	Defense Environmental Restoration Program
DINAH	Desktop Interface Network to the AUTODIN Host
DMPTR	Digital Multi-Purpose Training Range
DNL	Day-Night Average Sound Level
DOC	Directorate of Contracting
DoD	Department of Defense
DODMOM	Department of Defense Measures of Merit
DOE	Directorate of Environment
DOI	Department of the Interior
DOPAA	Description of Proposed Action and Alternatives
DOT	Department of Transportation
DPTMS	Director 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
EAB	Echelons Above Brigade
EBCT	Evaluation Brigade Combat Team
EBS	Environmental Baseline Survey
EIFS	Economic Impact Forecast System
EIS	Environmental Impact Statement
EM	electromagnetic
EO	Executive Order
EOD	explosives ordnance disposal
EMPAC	Engineer Multi-Purpose Assault Course
EPA	Environmental Protection Agency
EPAS	El Paso Archaeological Society
EPCCHED	El Paso City-County Health and Environment District
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
ETZ	Extraterritorial Zone
EUL	Enhanced Use Leasing
FAA	Federal Aviation Administration
FARP	Forward Area Refuel Point

FAW	Forward Area Weapons
FCS	Future Combat Systems
FEIS	Final Environmental Impact Statement
FICUN	Federal Interagency Committee on Urban Noise
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FIREX	Fire Exercise
FM	frequency modulation
FOD	Foreign Object Damage
FONSI	Finding of No Significant Impact
FORSCOM	Forces Command
FRMAP	Future Range Mission Analysis Planning
FTX	field training exercise
FY	fiscal year
GIS	Geographic Information System
gpd	gallons per day
gpm	gallons per minute
GSA	General Services Administration
GWOT	Global War on Terrorism
H_3	tritium
HAP	hazardous air pollutant
HH	Heavy Helicopter
HIMAD	High-to-Medium Altitude Air Defense
HMMWV	High Mobility Multipurpose Wheeled Vehicle
HPO	Historic Preservation Officer
HPP	Historic Preservation Plan
HQ	Headquarters
HWSF	Hazardous Waste Storage Facility
ICRMP	Integrated Cultural Resources Management Plan
ICUZ	Installation Compatible Use Zone
ID	Identification
IDG	Installation Design Guide
IFR	Instrument Flight Rules
IGPBS	Integrated Global Presence Basing Strategy
INRMP	Integrated Natural Resources Management Plan
IPBC	Infantry Platoon Battle Course
IPED	Institute for Policy and Economic Development
IPM	Integrated Pest Management
IR	Instrument Route
IRP	Installation Restoration Program

ISBC	Infantry Squad Battle Course
ISCP	Installation Spill Contingency Plan
ISD	Independent School District
ISDN	Integrated Switch Digital Network
ISO	International Organization for Standardization
ISWM	Integrated Solid Waste Management
ITAM	Integrated Training Area Management
ITU	International Telecommunications Union
JIM	Joint Interagency, Intergovernmental, and Multinational
JTF	Joint Task Force
km	kilometer
km^2	square kilometer
km^2d	square kilometer days
KV	kilovolt
KVA	kilovolt ampere
kWh	kilowatt-hours
LCTA	Land Condition Trend Analysis
LOS	level of service
LPG	Liquefied Petroleum Gas
LRAM	Land Rehabilitation and Maintenance
LRC	Long Range Component
LUPZ	Land Use Planning Zone
MACT	Maximum Achievable Control Technology
MC	Mobilization Component
MCA	Main Cantonment Area
MCL	maximum contaminant level
mg	milligram
mg/L	milligrams per liter
MGD	million gallons per day
MHz	megahertz
MLRA	Major Land Resource Area
MLRS	Multiple Launch Rocket System
mm	millimeter
MMP	Mission and Master Plan
MOA	Military Operations Area
MOU	Memorandum of Understanding
MOUT	Military Operations Urbanized Terrain
mph	miles per hour
MPMG	Multi-Purpose Machine Gun

MPO	Metropolitan Planning Organization
MRF	Modified Record Fire
MS4	municipal separate storm sewer system
MSA	Mutual Support Agreement
MSDS	Material Safety Data Sheet
MSGP	Multi-Sector General Permit
MSL	mean sea level
MSWLF	Municipal Solid Waste Landfill
MTR	Military Training Route
MVA	megavolt ampere
MW	megawatt
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAS	National Airspace System
NCO	Noncommissioned Officer
NEAP	Natural Events Action Plan
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
nm	nautical mile
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NMSU	New Mexico State University
NO_2	nitrogen dioxide
NOI	Notice of Intent
NOTAM	Notice to Airmen
NO_x	nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRAO	National Radio Astronomy Observatory
NRHP	National Register of Historic Places
NSPS	New Source Performance Standards
O_3	ozone
ODC	Ozone Depleting Chemicals
OSHA	Occupational Health and Safety Administration or Act
P2	pollution prevention
P3	Power Projection Platform
PA	Programmatic Agreement
Pb	lead

PBR	permit by rule
PCB	polychlorinated biphenyls
pcphpl	passenger cars per hour per lane
PEIS	Programmatic Environmental Impact Statement
phv	peak hour volume
PK	peak noise level
PL	Public Law
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
POL	petroleum, oil, and lubricants
PPA	Pollution Prevention Act
ppm	parts per million
PPOA	pollution prevention opportunity assessment
PSD	Prevention of Significant Deterioration
psi	pounds per square inch
PX	Post Exchange
QAM	Quarterly Arithmetic Mean
R&D	Research and Development
RCI	Residential Communities Initiative
RCMP	Range Complex Master Plan
RCRA	Resource Conservation and Recovery Act
REC	Record of Environmental Consideration
REMI	Regional Economic Models, Inc
RFMSS	Range Facility Management Support System
RMP	Resource Management Plan
RMPA	Resource Management Plan Amendment
ROD	Record of Decision
ROI	Region of Influence
ROW	right of way
RPMP	Real Property Master Plan
RTLA	Range and Training Land Assessment
RTV	Rational Threshold Value
SARA	Superfund Amendments Reauthorization Act
SDSFIE	Spatial Data Standards for Facilities, Infrastructure, and Environment
SDZ	Surface Danger Zone
SEIS	Supplemental Environmental Impact Statement
SEL	Sound Exposure Level
SF	square foot/feet
SHORAD	Short Range Air Defense System

SHPO	State Historic Preservation Officer
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOP	standard operating procedure
SO_x	sulfur oxide
SPCCP	Spill Prevention, Control, and Countermeasures Plan
SPL	Sound Pressure Level
SRC	Short-Range Component
SUA	Special Use Airspace
SWMP	Storm Water Management Plan
SWMU	solid waste management unit
TA	Training Area
TAC	Texas Administrative Code
TADC	Training Area Development Concept
TC	Training Circular
TCC	Telecommunications Center
TCEQ	Texas Commission on Environmental Quality
TCP	Traditional Cultural Property
TDY	temporary duty
TEXCOM	Test and Experimentation Command
THAAD	Terminal High-Altitude Area Air Defense
TNRCC	Texas Natural Resource Conservation Commission
TOX	total organic halogen
tpd	tons per day
TRADOC	Training and Doctrine Command
TRI	Toxic Release Inventory
TSCA	Toxic Substance Control Act
TSDF	Treatment, Storage, Disposal Facility
TXDOT	Texas Department of Transportation
U.S.	United States
UAC	Urban Assault Course
UH	Utility Helicopter
USAADACENFB	U.S. Army Air Defense Artillery Center and Fort Bliss
USACAS	U.S. Army Combined Arms Support Battalion
USACE	U.S. Army Corps of Engineers
USAG	U.S. Army Garrison
USASMA	U.S. Army Sergeants Major Academy
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency

USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
UTEP	University of Texas at El Paso
UXO	unexploded ordnance
V/C	volume-to-capacity ratio
VFR	Visual Flight Rules
VHF	very high frequency
VLA	very large array
VLBA	very long baseline array
vmt	vehicle miles traveled
VOC	volatile organic compound
vph	vehicles per hour
VR	Visual Route
VRM	Visual Resource Management
WAN	Worldwide Area Network
WAP	Waste Accumulation Point
WBAMC	William Beaumont Army Medical Center
WBGHHD	William Beaumont General Hospital Historic District
WQS	Water Quality Standard
WRPA	Waste Reduction Policy Act
WSA	Wilderness Study Area
WSMR	White Sands Missile Range

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Fort Bliss

Texas and New Mexico

Mission and Master Plan

FINAL

SUPPLEMENTAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

VOLUME II: APPENDICES A THROUGH D

March 2007

Fort Bliss, Texas and New Mexico
Mission and Master Plan

FINAL SUPPLEMENTAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT

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APPENDIX A

NATIONAL ENVIRONMENTAL POLICY ACT TERM DEFINITIONS, CONTRIBUTING FACTORS, AND METHODOLOGY FOR EVALUATING MISSION ACTIVITIES, PROJECTS, AND ENVIRONMENTAL MANAGEMENT ACTIONS

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A.0 NATIONAL ENVIRONMENTAL POLICY ACT (NEPA) TERM DEFINITIONS, CONTRIBUTING FACTORS, AND METHODOLOGY FOR EVALUATING MISSION ACTIVITIES, PROJECTS, AND ENVIRONMENTAL MANAGEMENT ACTIONS

This updated appendix from the *Fort Bliss Mission and Master Plan Programmatic Environmental Impact Statement (*PEIS) is included in its entirety because it will continue to guide compliance with NEPA at Fort Bliss. It is designed to be used in combination with the PEIS and this Supplemental Environmental Impact Statement (SEIS).

A.1 DEFINITION OF KEY TERMS

Activity. The terms "activity" and "activities" may refer to a mission activity such as a training exercise, a Master Plan project, or natural or cultural resource management practice. These terms are used throughout the PEIS, the SEIS, and this appendix.

Adverse Impact. A negative effect caused directly or indirectly by an action and may be long-term or short-term.

Beneficial Impact. A positive effect caused directly or indirectly by an action and may be long-term or short-term.

Categorical Exclusion (CX). Actions which do not individually or cumulatively have a significant effect/impact on the human environment and for which, therefore, neither an Environmental Assessment (EA) nor an Environmental Impact Statement (EIS) is required. Typically, excluded activities are small, routine undertakings with no potential significant environmental effect. For a list of CXs from Army 32 Code of Federal Regulations (CFR) Part 651, Environmental Analysis of Army Actions, see **Attachment 1** to this appendix. **Attachment 2** contains the form used to document a CX.

Cumulative Impact. The effect 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 nonfederal, private industry, or individual) undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

Description of Proposed Action and Alternatives (DOPAA). A document prepared by the proponent of an action describing the purpose and need for the proposed action, components of the action that have the potential for affecting the environment (e.g., facilities construction, field training exercise), and identifying reasonable alternatives for accomplishing the purpose and need for the action. The DOPAA is reviewed by the Fort Bliss Directorate of Environment (DOE) to determine the NEPA analysis and/or other environmental analysis required. **Attachment 3** describes the Range Facility Management Support System (RFMSS) process used to request review of range and maneuver training area use.

Direct Impact. Direct effects which are caused by the action and occur at the same time and place.

Draft Environmental Impact Statement (DEIS). A public document describing the proposed action, alternatives, and environmental effects of the alternatives. The DEIS is prepared after the scoping process has been completed, in accordance with the scope decided upon in the scoping process, and is then circulated to the affected public for comment.

Environmental Assessment. A concise public document prepared by the installation to evaluate a proposed action and its potential effects on the environment when the significance of its impacts is uncertain. The EA includes brief discussions of the need for the proposal and alternatives and of the

environmental effects of the proposal and alternatives. Also included, is a listing of the agencies and persons consulted during document preparation.

Environmental Impact Statement (EIS). A public document that describes a proposed action, alternatives, and their environmental effects. An EIS is prepared for major federal actions with significant or potentially significant environmental impacts.

Final Environmental Impact Statement (FEIS). The result of the analysis of comments concerning the DEIS. Comments received from designated federal, tribal governments, state, and local agencies, any agency that has requested copies of impact statements, and the public, including interested or affected persons and organizations, are included in the FEIS, along with responses, and the analysis in the DEIS is updated as appropriate based on the comments.

Finding of No Significant Impact (FONSI). When the environmental analyses in an EA demonstrate that an action, not otherwise excluded, does not require an environmental impact statement, a FONSI is prepared. The FONSI includes a summary of the conclusions of the EA and notes any environmental documents related to it. If the EA is attached to the FONSI, the FONSI need not repeat any EA discussion, but may incorporate it by reference. The FONSI is signed by the decision-maker.

Impact. The terms "impacts" and "effects" are synonymous as used in NEPA. Impacts may be beneficial or adverse, and may apply to the natural, aesthetic, historic, cultural, and socioeconomic resources of the installation and the surrounding communities. Where applicable, impacts may be classified as direct or indirect. The terms "impact" and "effect" are defined in 40 CFR 1508.8 and reproduced in 32 CFR 651.

Indirect Impact. An impact that is caused by a proposed activity but is later in time or farther removed in distance, but still reasonably foreseeable. Indirect impacts may include land use changes or population density changes and the related effects these changes will have on air, water, and other natural or social systems. For example, clearing trees may have an indirect impact on area streams by increasing soil erosion. The term "indirect" is defined in 40 CFR 1508.8 and reproduced in 32 CFR 651.

Long-term Impact. The effect of an action that is not temporary and generally endures beyond the time frame of the action itself. Long-term impacts may occur either during the construction or operational phases of an activity. For example, the construction of a new building may create long-term impacts during both the construction and operational phases. Draining of a wetland for the construction of a new building will create long-term and permanent impacts on biological resources. Likewise, once operational, the new building may create additional long-term impacts such as increased population density, waste generation, etc.

Mitigation. The term "mitigation" is defined in 40 CFR 1508.20 and reproduced in 32 CFR 651. Mitigation generally includes:

- Avoiding the impact altogether by stopping or modifying the proposed action;
- Minimizing impacts by limiting the degree or magnitude of the action and its implementation;
- Rectifying the impact by repairing, rehabilitating, or restoring the affected environment;
- Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action; and
- Compensating for the impact by replacing or providing substitute resources or environments.

No Impact. "No impact" implies that a particular activity creates neither a direct nor indirect impact, does not have long- or short-term implications, and is neither beneficial nor negative.

Notice of Intent (NOI). When a decision has been made to prepare an EIS, a NOI is written. It contains a description of the proposed action and possible alternatives, the proposed scoping process and schedule, and the name and address of the point-of-contact who can provide more information.

Programmatic Environmental Impact Statement. A legal document prepared in accordance with the requirements of Section 102(2)(C) of NEPA, which evaluates the environmental impacts of proposed federal actions that involve multiple decisions potentially affecting the environment at one or more sites.

Record of Decision (ROD). A document produced no less than 30 days after completion of an FEIS. Generally, the purpose of the ROD is to state the decision for the proposal. In doing so, it identifies all alternatives considered and specifies which alternative was environmentally preferable. It states if all practicable means have been taken to avoid or minimize environmental harm from the selected alternative, and if not, why not. It identifies the monitoring and mitigation program adopted (if needed) and may discuss preferences among alternatives based on nonenvironmental factors (i.e., economic and technological). The ROD is not exclusively an environmental document, since the decision-maker considers these other nonenvironmental factors in addition to environmental factors.

Record of Environmental Consideration (REC). A REC describes the proposed action and anticipated time frame, identifies the proponent, and explains why further environmental analysis and documentation is not required. It is a signed statement to be submitted with project documentation. It is used when the proposed action is exempt from the requirements of NEPA or has been adequately assessed in existing documents and determined not to be environmentally significant. For a REC format adopted by Fort Bliss, see **Attachment 4**.

Scoping. The scoping process occurs when planning for an Army project action indicates a need for the preparation of an EIS. Scoping determines the range of issues to be addressed in the EIS and identifies the significant issues related to the proposed action. The parties involved identify the range of actions, alternatives, and impacts to consider in the EIS.

Short-term Impact. An impact that is temporary or of short duration. Short-term impacts usually occur during the construction phase of the activity. For example, dust generated during construction would be considered a short-term impact if the site is subsequently covered or revegetated.

Significance. The term "significance" is defined in 40 CFR 1508.27 and reproduced in 32 CFR 651. Significance requires consideration of the context and intensity of the impact or effect. Significance can vary in relation to the context of the proposed action. The significance of a proposed action may include consideration of the effects on a national, regional, and local basis. Both short- and long-term effects may be relevant. Impacts may also be evaluated in terms of their intensity or severity. Factors contributing to the intensity of a project include:

- The degree to which the action affects public health or safety;
- The proximity of the action to resources that are legally protected by regulations and statutes, such as wetland provisions of the *Clean Water Act*, regulatory floodplains, properties included in or eligible for inclusion in the National Register of Historic Places (NRHP) (36 CFR 60.4), and federally listed threatened or endangered species;
- The degree to which the effects of the action on the quality of the human environment are likely to be highly uncertain or controversial;

- Whether the action is related to other actions with individually insignificant but cumulatively significant impacts; and
- Whether the action threatens to violate federal, state, or local law imposed for the protection of the environment.

Significant Impact. A negative effect that is caused directly or indirectly by an action and meets the criteria for significance.

A.2 THE NEPA EVALUATION METHODOLOGY AND CONTRIBUTING FACTORS

The purpose of this document is to provide guidance and procedures for obtaining environmental clearance(s) and for allowing the time necessary for review of documentation of environmental impacts for proposed projects and actions. This process is required by NEPA; 32 CFR 651; applicable federal, state, and local environmental regulations; and other laws for which the Fort Bliss DOE on Fort Bliss has management responsibility. NEPA requires federal agencies to incorporate into their planning and decision making an analysis of the effects, if any, certain proposed actions would have on the environment and the possibilities for mitigating, or avoiding completely, any adverse environmental effects.

The evaluation methodology described in this section indicates the steps to be taken by a project proponent, or reviewer, to determine the potential environmental impacts of a proposed action. The result of this screening methodology can also be used by the proponent to identify potential mitigation measures and additional environmental documentation that may be required to implement the proposed action. The evaluation methodology is depicted in **Figure A-1** and described in the steps detailed below.

Contributing factors associated with each environmental resource area provided can be used as guidelines in determining the potential for significant adverse impact, adverse impact, no impact, or beneficial impact. The contributing factors can also be used as (1) a cursory screening tool for qualitative assessment of whether a project's potential impacts warrant more detailed evaluation, or (2) rigorous decision criteria for quantitative impact assessment.

Step 1. Develop the DOPAA. Commanders of units proposing to conduct field training exercises (FTXs) shall consult with DOE as early as possible to determine if their proposed training will require either an EA or EIS. DOE has streamlined the NEPA review process for actions occurring on the ranges by incorporating pre-NEPA review into the Fort Bliss RFMSS process (Attachment 3).

RFMSS does not bring all actions requiring NEPA to the attention of DOE, and not all range environmental requirements are NEPA issues, but they may require another form of environmental regulatory review. For example, New Mexico requires a permit for the release of 2,000 gallons or more of gray water (shower or kitchen) at any location. Thus, a unit using the Doña Ana Range–North Training Areas and planning to release this amount of gray water must obtain a permit from the State of New Mexico. To ensure compliance with NEPA or other environmental regulatory requirements, proponents should ensure DOE is aware of the proposed action.

Examples of actions that take place within the Main Cantonment Area that require a DOE NEPA review include construction work orders, U-Do-It projects, pest control actions, and landscaping in historic districts. Descriptions of each of these actions should be submitted through the Directorate of Public Works (DPW) to DOE. After a work order is submitted to DPW, it will be released to DOE for review for compliance with NEPA, hazardous materials, historic resources, and other environmental laws and regulations.

Proponents of actions such as large or unusual training exercises, large or unique testing activities, or projects involving major construction must consult early in the planning process with the DOE NEPA Coordinator to determine if NEPA documentation is required.

If the DOE review determines NEPA action is required, the proponent of an action to occur on Fort Bliss must prepare a statement of the purpose and need for the proposed action and a detailed DOPAA of the action for use during the screening process. The DOPAA must specify details such as what, where, when, and how. For example: (what) a new proposal for military training ranges and training areas; (where) South Training Areas, Doña Ana Range–North Training Areas, specifically the multi-purpose range areas 5 through 7; (when) once per quarter for 4 days; and (how) involving 30 personnel, 4-wheeled vehicles with trailers, and generators; the training will involve command and control exercises, field operations, and live firing of X rounds of munitions or missiles. In the case of a project that requires construction, demolition, or other ground-disturbing activities, answers to these four questions are equally required. In addition, the proponent must provide reasonable alternatives to the proposed action.

Step 2. Determine if the Proposed Action is Eligible for a CX. The Department of the Army has determined that actions covered by CXs (e.g., routine maintenance activities, construction that does not significantly alter land use, classroom training, routine movement of personnel) do not have an individual or cumulative impact on the environment and, therefore, do not require an EA or EIS. If a proposed action is covered by a CX, the proponent will consult with Fort Bliss DOE to confirm that NEPA coverage by a CX is appropriate and determine if a REC is required. Attachment 1 of this appendix contains the list of actions that can be categorically excluded as defined by 32 CFR 651. Although the CX is intended to reduce paperwork and to eliminate or reduce extensive documentation, limitations do apply. A CX cannot cover all circumstances and each CX must be considered individually to meet certain criteria. To use a CX, the proponent must satisfy the following screening conditions presented in 32 CFR 651:

(a) The action has not been segmented. Segmentation can occur when an action is broken down into small parts making the effects appear less significant. The scope of a proposed action must include consideration of connected, cumulative, and similar actions.

(b) No exceptional circumstances exist. Extraordinary circumstances that preclude the use of a CX are:

(1) Reasonable likelihood of significant effects on public health, safety, or the environment.

(2) Reasonable likelihood of significant environmental effects (direct, indirect, and cumulative).

(3) Imposition of uncertain or unique environmental risks.

(4) Greater scope or size than is normal for this category of action.

(5) Reportable releases of hazardous or toxic substances.

(6) Release of petroleum, oils, and lubricants except from a properly functioning engine or vehicle, application of pesticides and herbicides, or where the proposed action results in the requirement to develop or amend a Spill Prevention, Control, and Countermeasures Plan.

(7) Air emissions exceed *de minimis* levels or a formal Clean Air Act conformity determination is required.

(8) Reasonable likelihood of violating any federal, state, or local law or requirements imposed for the protection of the environment.

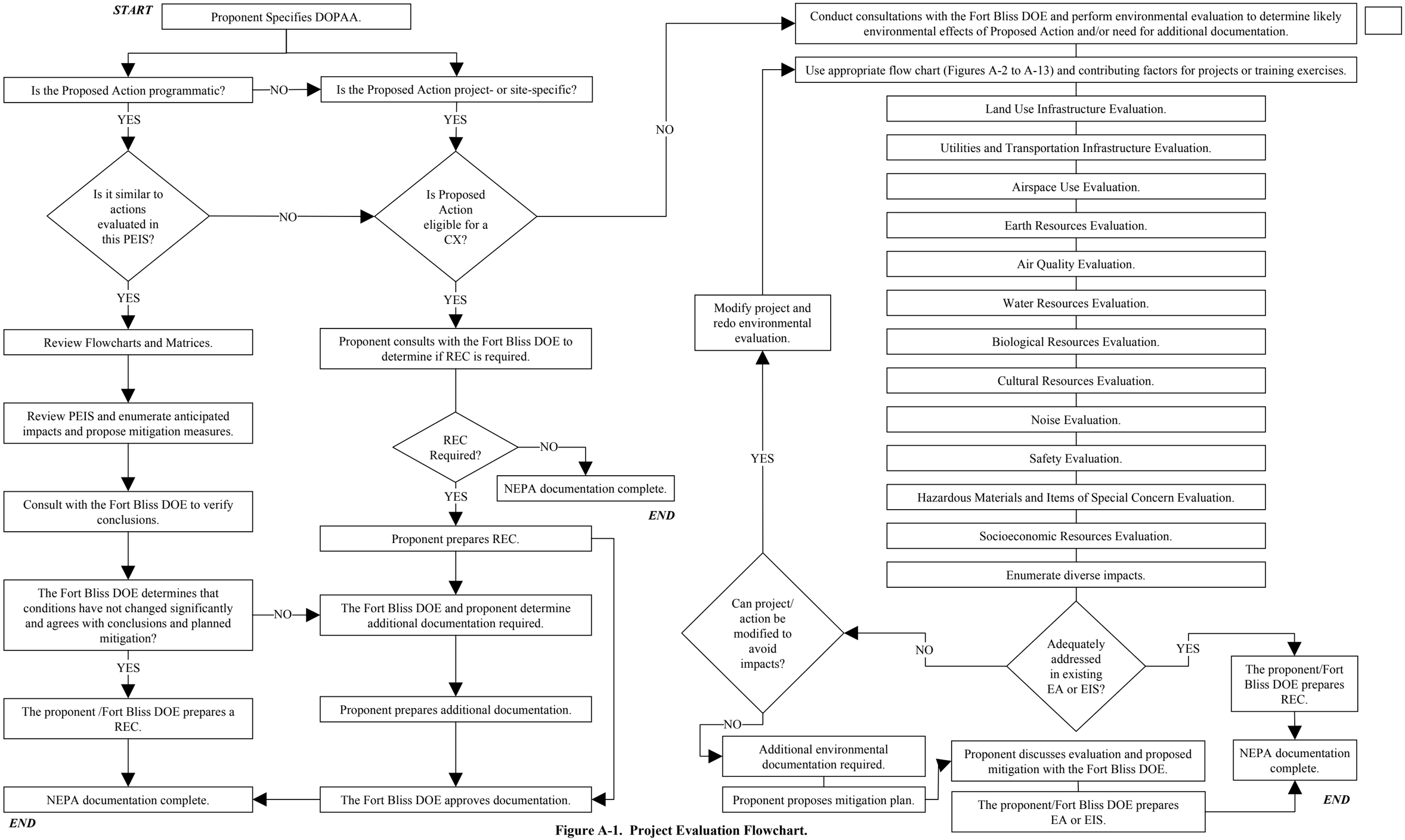

Figure A-1. Project Evaluation Flowchart.

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(9) Unresolved effect on environmentally sensitive resources, including

(i) Proposed federally listed, threatened, or endangered species or their designated critical habitats;

(ii) Properties listed or eligible for listing on the National Register of Historic Places;

(iii) Areas having special designation or recognition such as prime or unique agricultural lands, coastal zones, designated wilderness or wilderness study areas, wild and scenic rivers, National Historic Landmarks designated by the Secretary of the Interior, 100-year floodplains, wetlands, sole source aquifers, National Wildlife Refuges, National Parks, areas of critical environmental concern, or other areas of high environmental sensitivity;

(iv) Cultural Resources as defined in AR 200-4.

(10) Involving effects on the quality of the environment that are likely to be highly controversial.

(11) Involving effects on the environment that are highly uncertain, involve unique or unknown risks, or are scientifically controversial.

(12) Establishes a precedent for future or subsequent actions that are reasonably likely to have a future significant effect.

(13) Potential for degradation of already existing poor environmental conditions. Also, initiation of a degrading influence, activity, or effect in areas not already significantly modified from their natural condition.

(14) Introduction/employment of unproven technology.

(c) One or more CXs listed in Appendix B of 32 CFR 651 encompass the proposed action.

The Army and Fort Bliss DOE have developed a system that must be used to document this screening process. If, based on the foregoing screening criteria, the proposed action qualifies, the proponent must prepare the CX using Attachment 2.

In accordance with Appendix B to 32 CFR 651, some categories of actions will also require a REC (see Attachment 4), which will be prepared and used in conjunction with the CX. The REC describes the proposed action and anticipated timeframe, identifies the proponent, and explains why further environmental analysis and documentation is not required. It is signed by the Fort Bliss Director of Environment and the proponent of the action and submitted with project documentation. It is used when required by 32 CFR 651 or when the proposed action has been adequately assessed in existing documents and determined not to be environmentally significant.

When real estate transactions with parties outside the Army are proposed, and if the proposal or project involves potential release of hazardous substances (see Section A2.3.12 and Figure A-12) into the environment or structures, an Environmental Baseline Survey (EBS) will also be prepared (**Attachment 5**). EBSs are prepared to determine the environmental conditions of properties being considered for acquisition, outgrants, and disposals. The EBS is used to identify the potential environmental contamination liabilities associated with real property transactions. The EBS serves as the basis for preparation of a Finding of Suitability to Lease, Environmental Condition of Property, or Finding of Suitability for Transfer as required for the transaction to proceed. Most property disposals divesting title are handled through the General Services Administration (GSA). Such disposal actions usually require an EBS accompanied by a REC. The GSA will complete the NEPA requirement in many of these cases. Where the Army completes the disposal or transfer action, the installation may be required to complete an EA or EIS. Easements, licenses, permits, reassignments with Department of Army, disposal of buildings and improvements without the underlying land, and privatization of utilities via easement do not require

an EBS. These actions require documentation of an environmental screening in a REC to show compliance with the criteria for CXs as provided for in 32 CFR 651. Although the EBS is not specifically a NEPA-related document, it can be used to support decisions regarding NEPA requirements. Samples of Form 161 (CX), Range Facility Management Support System (RFMSS) review procedures, a REC, and an EBS are included as Attachments 2, 3, 4, and 5, respectively, to this appendix. All CXs and supporting documentation must be approved by Fort Bliss DOE prior to commencement of any project.

Step 3. Consult with Fort Bliss DOE to Determine if the Proposed Action Has Been Programmatically Evaluated. Chapters 2 and 3 of the PEIS and SEIS identify and describe a variety of known requirements for mission activities, master plan projects, resources management actions, and mobilization activities either underway or planned for Fort Bliss. Programs specifically analyzed in the PEIS and SEIS are shown in **Table A-1**. When considering potential impacts of a proposed action, the proponent should review the environmental consequences of the programmatic actions listed in Table A-1 and described in Chapter 5 of the PEIS and/or SEIS *(*Environmental Consequences*)*. This review should focus on determining if the proposed action's potential impacts have already been programmatically evaluated. Some projects that are consistent with land use designations and infrastructure improvements described in Chapters 3 of the PEIS and SEIS may require additional NEPA documentation (CX, EA, EIS). Fort Bliss DOE will confirm that the existing conditions and potential impacts have not changed, and that conclusions regarding the appropriate program or plan evaluated in the PEIS and SEIS are valid in regard to the action being proposed.

Step 4. Review Flowcharts and Impact Evaluation Matrices. If the proposed action is not specifically evaluated in the PEIS or SEIS and it is not subject to a CX, the proponent (in coordination with Fort Bliss DOE) will evaluate the potential environmental impacts associated with the action. Because the mission activities and Master Plan programs described in the PEIS and SEIS are considered to broadly represent future proposed actions, it is anticipated that many of the environmental impacts on various resource categories (such as air quality, biology, and cultural resources) described in the PEIS and SEIS will be similar to those expected for upcoming programs. Thus, the proponent will carefully review the activities described in the PEIS and SEIS and determine if the proposed action is similar to any of the programs evaluated in those documents (i.e., is a proposed program of a similar type or scale as those described in the PEIS/SEIS) or if the proposed project or activity is site-specific and requires additional NEPA documentation. Identification of project similarities may reduce the level of assessment required for evaluating potential environmental impacts. Prior to conducting a detailed evaluation, the proponent will consult with Fort Bliss DOE. The impact assessment guidance provided in the PEIS and SEIS is based on the use of the appropriate evaluation chart (i.e., for mission activities and projects) and evaluation criteria. The proponent will identify and determine the type of impacts the proposed action will have on individual resource categories and group attributes.

Step 5. Enumerate Impacts and Propose Mitigation Measures. Following completion of the impact evaluation matrices, the proponent, in coordination with Fort Bliss DOE, will enumerate the categories and specific actions that are judged to result in potentially significant adverse impacts. At this point, the proponent consults with Fort Bliss DOE to evaluate possible mitigation actions that may be proposed to address potential impacts. If project modifications are proposed, the proponent will re-evaluate the impact of the project beginning at Step 4.

Step 6. Develop Additional Environmental Documentation. After enumerating the impacts, the proponent will consult with Fort Bliss DOE regarding the results of the environmental evaluation and proposed mitigation measures. DOE will then review the environmental evaluation and proposed mitigation measures and make a determination as to whether any additional environmental documentation is required.

The type of environmental documentation required may depend on the findings resulting from the impact analysis. The primary guidance for determining the type of documentation required is AR 200-1, Environmental Protection and Enhancement, and 32 CFR Part 651. Actions that are similar in nature to those described in the PEIS and SEIS will probably require limited documentation in the form of a REC. More extensive environmental documentation takes the form of a separate EA and a related FONSI, or an EIS and a related ROD. If an EA or EIS is required, the Fort Bliss DOE will be able to assist the proponent in identifying appropriate information sources and procedures.

360 **Table A-1. Summary of Actions Evaluated in the Fort Bliss Mission and Master Plan PEIS and SEIS**

PEIS and SEIS No Action Alternative			
Mission Activities	***Facility Construction and Demolition***	***Environmental Resource Management***	***Real Estate Actions***
• Mission and mission support activities described in the PEIS. • Land use and training uses described in the Training Area Development Concept (TADC). • Mobilization. • Air-to-ground bombing at Centennial Range. • Implementation of Real Property Master Plan adopted in the Record of Decision for the PEIS. • Mission support activities associated with the stationing of one Heavy Brigade Combat Team (BCT) at Fort Bliss. • Development of mission support facilities in TA 1B in the South Training Areas. • Development of mission support facilities in TA 16 on McGregor Range.	• Demolition, construction, facility renovation/ rehabilitation, and related infrastructure improvements described in the PEIS. • Projects approved with NEPA documents tiered from the PEIS. • Projects approved with other NEPA documents prepared since the PEIS. • Development of facilities at Biggs AAF for one Heavy BCT. • Projects listed in Table 3.3-1 of the SEIS. • Development of a National Guard and Reserve Joint Training Center in the South Training Areas. • Upgrades to existing live-fire and qualification ranges and new ranges on existing range footprints and/or consistent with designated land use categories.	• Implementation of the Integrated Cultural Resources Management Program (ICRMP) and Programmatic Agreements. • Implementation of the Integrated Natural Resources Management Plan (INRMP). • Implementation of the Army's Integrated Training Area Management (ITAM) program. • Implementation of the plans and programs described in Chapter 2 of the SEIS.	• On-going actions utilizing existing procedures for issuing leases, licenses, permits, and easements as authorized in AR 405-80. • Demolition of 1,215 substandard housing units and construction or renovation and operation of up to 3,611 family housing units through the Residential Communities Initiative (RCI). • Enhanced Use Leasing (EUL) at William Beaumont Army Medical Center.

SEIS Alternative 1			
Mission Activities	***Facility Construction and Demolition***	***Environmental Resource Management***	***Real Estate Actions***
Same as described for PEIS and SEIS No Action Alternative and: • Mission activities associated with the stationing of the units identified in Section 1.3.2 of the SEIS and personnel, equipment, and training described in Section 1.3.3, 1.3.4., and 1.3.5 of the SEIS. • Addition of Off-Road Vehicle Maneuver, Mission Support Facility, Weapons Firing, and SDZ/Safety Footprint training categories in Training Areas (TAs) 9, 25, 30, 31, 32, and portions of 11 and 29 south of Highway 506 on McGregor Range. • Expansion of the Main Cantonment Area to the north and east and change to mixed-use land use designation.	Same as described for PEIS and SEIS No Action Alternative and: • Projects listed in Tables 3.4-1, 3.4-3, and 3.4-4 of the SEIS. • Construction of approximately 1,750 additional family housing units. • Construction of additional support facilities and infrastructure at Doña Ana, Oro Grande, and McGregor Range Camps. • Upgrades to range roads, facilities, instrumentation, and other infrastructure.	Same as described for PEIS and SEIS No Action Alternative and: • Any updates to master plans and environmental plans, programs, and procedures to reflect the land use changes and mission activities encompassed in the selected SEIS alternative. • Development of a Range Complex Master Plan (RCMP) to replace the TADC.	Same as described for PEIS and SEIS No Action Alternative and: • Leasing of land for construction and operation of approximately 1,750 additional family housing units under RCI.
SEIS Alternative 2			
Mission Activities	***Facility Construction and Demolition***	***Environmental Resource Management***	***Real Estate Actions***
Same as described for Alternative 1 and: • Additional Off-Road Vehicle Maneuver, Mission Support Facility, Weapons Firing, and SDZ/Safety Footprint training categories in TA 10, portions of TAs 11 and 29 north of Highway 506, and western half of TA 12 on McGregor Range.	Same as described for Alternative 1 and: • Facilities and infrastructure on Biggs AAF for a second Combat Aviation Brigade.	Same as described for Alternative 1.	Same as described for Alternative 1.

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SEIS Alternative 3			
Mission Activities	***Facility Construction and Demolition***	***Environmental Resource Management***	***Real Estate Actions***
Same as described for Alternative 1 and: • Addition of Off-Road Vehicle Maneuver training category in TAs 24, 26, and 27 on McGregor Range. • Addition of Mission Support Facility, Weapons Firing, and SDZ/Safety Footprint training categories in all TAs approved for Off-Road Vehicle Maneuver.	Same as described for Alternatives 1 and 2.	Same as described for Alternative 1.	Same as described for Alternative 1.
SEIS Alternative 4 – Proposed Action			
Mission Activities	***Facility Construction and Demolition***	***Environmental Resource Management***	***Real Estate Actions***
Same as described for Alternative 1 and: • Addition of Off-Road Vehicle Maneuver training category in all of TAs 10, 11, 24, 26, 27, and 29 and western half of TA 12 on McGregor Range. • Addition of Mission Support Facility, Weapons Firing, and SDZ/Safety Footprint training categories in all TAs approved for Off-Road Vehicle Maneuver.	Same as described for Alternatives 1 and 2 and. • Facilities and infrastructure to support two additional BCTs.	Same as described for Alternative 1.	Same as described for Alternative 1.

A.2.1 Resource Groups and Attributes

Fourteen resource groups and individual group attributes were established to provide a framework for the identification of baseline conditions and to facilitate identification of potential impacts. These resource groups are based on the similarity of attributes, a review of installation resources, related resource protection laws and regulations, and previous NEPA compliance documents. The resource groups and attributes are as follows:

A.2.1.1 Land Use

- On-Post Land Use
- Off-Post Land Use
- Visual Resources

A.2.1.2 Main Cantonment Area Infrastructure

- Ground Transportation
- Utilities
- Energy
- Communications

A.2.1.3 Training Area Infrastructure

- Ground Transportation
- Utilities
- Energy
- Communications

A.2.1.4 Airspace Management and Use

- Airport Operations
- Restricted Airspace
- Military Training Routes (MTRs)

A.2.1.5 Earth Resources

- Geology
- Soils

A.2.1.6 Air Quality

A.2.1.7 Water Resources

- Surface Water
- Groundwater

A.2.1.8 Biological Resources

- Vegetation
- Habitat
- Wildlife
- Threatened, Endangered, and Sensitive Species

A.2.1.9 Cultural Resources

A.2.1.10 Noise

A.2.1.11 Safety

A.2.1.12 Hazardous Materials and Items of Special Concern

- Hazardous Materials
- Hazardous Waste
- Items of Special Concern

A.2.1.13 Socioeconomics

- Population
- Economic Development
- Housing
- Community Services

A.2.1.14 Environmental Justice

- Minority Populations
- Low-Income Populations

A.2.2 Project Impact Evaluation Parameters

This section serves as guidance for performing Step 4 of the NEPA Evaluation Methodology described above and outlines how the Proposed Action in the SEIS was analyzed for potential impacts. The flow charts and contributing factors were used as a framework to qualitatively evaluate the potential impacts of the Proposed Action on the resource groups and attributes, and to determine whether more extensive documentation, in the form of an EIS, was necessary. The flow charts guided the process of characterizing the baseline status and the impact potential for each resource group and related attributes. The contributing factors were used to screen project activities and assess the level of environmental impact. This process can also be followed by proponents of future actions. These matrices provide a ranking of potential impact for each resource group attribute (1) during siting, construction, and operation of projects and (2) during training activities.

In addition to the programmatic guidance described above, the Fort Bliss NEPA Coordinator will use various "local" environmental resource categories based on typical installation projects to evaluate impacts. The following is a general classification of this local evaluation framework. The lists are not exhaustive, but they contain example projects likely to be proposed on Fort Bliss. Initially, proponents will consult this list to determine how their project would be evaluated under the programmatic framework.

A.2.2.1 Air Quality, Noise, Hazardous Materials, and Items of Special Concern

- Sandblasting;
- Spray painting (outdoors);
- Structural painting (outdoors);
- Road repair/reconstruction;
- Construction;
- Asphalt operations;
- Projects involving demolition, renovation, removal or repair of building materials (wall coverings, floor tile, base cover, roofing materials, building sidings, ceilings, paint) in any man-made structure;
- New source/increase in emissions (vehicles, paint booths, boilers, incinerators);
- Facility demolition;
- Ordnance demolition;
- Training activities or projects with potential for emitting hazardous air pollutants, volatile organic compounds, or ozone-depleting chemicals;

- Projects with potential to generate significant noise, such as new industrial operations, changes in firing points, flight paths, or new flight paths;
- Off-road vehicle maneuvers in the Fort Bliss Training Complex.

A.2.2.2 Water Resources, Storage Tanks, and Environmental Restoration

- Oil/water separators;
- Replacement of exterior water lines;
- Projects impacting/installing wells;
- Projects near groundwater monitoring wells;
- Removal, repair or maintenance of underground storage tanks (USTs) or above ground storage tanks (ASTs);
- Moving ASTs;
- Projects involving installation of plumbing systems, upgrades, especially drinking water or sewage connections;
- Projects near any known solid waste management unit (SWMU).

A.2.2.3 Biological Resources

- Projects that take place in or near reservoirs, creeks, drainages, Waters of the U.S., or other bodies of water;
- Areas that may contain migratory bird nests;
- Downrange projects in previously undisturbed areas;
- Projects in or near prairie dog towns;
- Changes in aircraft/airspace use;
- Projects that involve potential effects on sensitive species or their habitats;
- Projects that involve disturbance or removal of natural vegetation;
- Projects that involve removal or control of animals or birds by any means (chemical, physical);
- Projects that disturb or impact wetlands or drainages or areas where protected plants are found;
- Arroyo-riparian crossings;
- Threatened and endangered species;
- Ground-disturbing activities on ranges and undisturbed areas on post;
- Renewals and grants of leases and rights-of-way (ROWs) for ranges and undisturbed areas on post.

A.2.2.4 Cultural Resources (Prehistoric and Historic Archaeological Resources, Architectural and Landscape Resources)

- Ground-altering activities;
- Main Cantonment Area construction in areas with potential historic archaeological sites;
- New leases or land transfers;
- Undertakings that will directly or indirectly affect facilities and landscapes (including rural ranges, and training areas) that are eligible for, or included in, the NRHP (historic properties);
- All exterior work that can be seen from historic facilities or from which historic facilities can be seen;
- Landscapes, roads, walkways, etc., within historic districts or that can be seen from historic facilities;
- Cold War facilities and landscapes (including ranges and training areas) which retain integrity, including military missions or Research and Development (R&D) functions;
- Demolition or relocation of properties eligible for inclusion in the NRHP, unevaluated properties that are more than 45 years old, and Cold War properties which retain integrity that included military mission or R&D functions.

A.2.2.5 Hazardous Materials and Items of Special Concern

- Projects involving disposal of possibly hazardous wastes;
- Projects in motor pools, especially involving hazardous waste, or petroleum, oils, and lubricants (POLs) disposal or storage;
- Insect or plant control under the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA);
- Any project involving a requirement for a spill plan by a contractor or use of hazardous materials;
- Standard Operating Procedures (SOPs) for hazardous wastes;
- Management of pesticides, polychlorinated biphenyls (PCBs), asbestos, and radon;
- Use of the open detonation pit;
- Projects built on or near closed landfills or other installation restoration projects;
- Projects involving the use or storage of hazardous materials;
- Projects with the potential to generate hazardous waste or hazardous materials;
- Landfill projects dealing with fill material, reclamation, and erosion;
- Contracting projects with the potential to generate solid waste or involve items of special concern;
- Projects near active landfills.

A.2.2.6 Training Area Management

- Project management and control: training requirements identification, monitoring, data collection;
- Development and program use of GIS data layers and remote imagery: land use management, map production;
- Land maintenance: soil stabilization/protection, maneuver damage repair, erosion control, range and training facility repair, maneuver corridor development, low water crossings, field work;
- Awareness training: video, pamphlets/field cards, classroom instruction.

A.2.3 Contributing Factors for Projects or Training Exercises

The following sections contain a summary of key issues related to potential impacts for each resource group described in Section A.2.1. In addition, a detailed description of some examples of contributing factors that can be used to rank impacts is provided. These factors are ranked on a scale ranging from "potentially significant impact," "impact," through "no impact" to "beneficial impact," depending on the intensity of impact. The significance of the impact will vary with the context and intensity of the proposed action. Context means the action must be analyzed within the region of influence (ROI), affected interests, and site-specifically. The intensity of the impact refers to the severity of its environmental effect. Proposals with potentially significant impacts generally require preparation of an EA and may require preparation of an EIS.

A.2.3.1 Land Use

The land use resource group includes on-post and off-post land use and visual resources (**Figure A-2**). Land use plans address the integration of the built and natural environments and the human activities occurring in a community. In general, a community land use plan is implemented to protect the health, safety, and welfare of the population. In recent years, land use plans have been used to address protection of environmental resources and aesthetics.

On-Post Land Use. When evaluating the project, it is important to consider whether the project is consistent with the designated land use and compatible with neighboring land uses. If the project is not appropriate for and compatible with the designated land use, then changes in the project or changes in zoning may be necessary. The contributing factors for ranking impacts associated with on-post land are presented below.

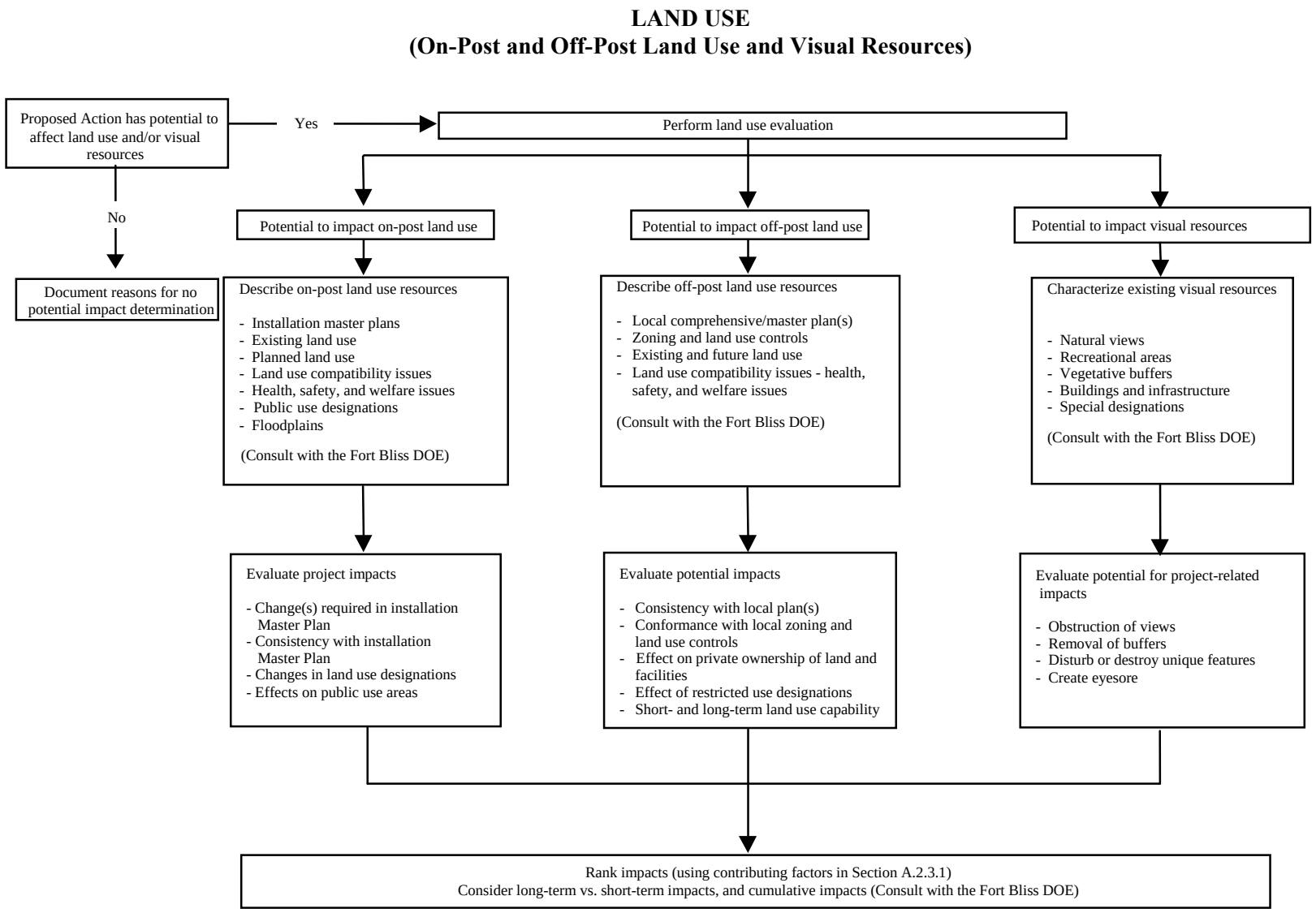


Figure A-2. Land Use Evaluation Flowchart

Rank	Contributing Factors
Potentially Significant Impact	• The activity is inconsistent with the installation Real Property Master Plan and has the potential to adversely affect the health, safety, and welfare of the population or the quality of the environment. • The activity creates a direct conflict among neighboring land use activities, for example, family housing areas and range/training areas. • The activity will permanently alter the existing land use designation, for example, convert open space to commercial facilities.
Impact	• The activity is inconsistent with the Real Property Master Plan but does not have the potential to adversely affect the health, safety, and welfare of the population or the quality of the environment. • The activity requires a change in a local land use plan. • The activity requires a change in local military zoning.
No Impact	• The activity is consistent with the installation Real Property Master Plan and does not affect local land use planning or military zoning.
Beneficial Impact	• The activity is consistent with all planning guidelines and has the potential to have positive effects on public welfare and environmental quality.

Off-Post Land Use. When evaluating the activity for land use compatibility, it is also important to consider off-post land use plans. Contributing factors for ranking impacts associated with off-post land use are presented as follows.

Rank	Contributing Factors
Potentially Significant Impact	• The activity is inconsistent with off-post land use plans or incompatible with existing land uses and may adversely affect the health, safety, and welfare of the population or the quality of the environment.
Impact	• The activity is inconsistent with off-post land use plans or incompatible with existing off-post land uses, but will not adversely affect the health, safety, and welfare of the population or the quality of the environment.
No Impact	• The activity is consistent with land use plans and compatible with existing land uses.
Beneficial Impact	• The activity is consistent with all land use plans and existing uses and may positively affect public welfare and environmental quality.

Visual Resources. Aesthetics, in a broad sense, involve the visual, audio, and tactile environment and their emotional or psychological effect on people. Visual resources refer to the structures, landscapes, and spaces of an area that provide information for an individual to develop perceptions of the area. When considering a project or activity for development, it is important to determine if it will adversely affect the visual setting perceived by residents of the surrounding area. Contributing factors for ranking impacts on visual resources are provided below.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will degrade the visual scene of the surrounding area, including interfering with natural views, destroying natural vegetative buffers, contributing smoke, causing odors and noise, or discoloring water bodies. • The activity will destroy, damage, or obscure scarce or unique geological features, landscapes, or other objects of particular aesthetic value. • The activity will deny accessibility to aesthetic resources, including recreational access.
Impact	• The activity will cause temporary disruption of the visual scene of the surrounding area, but will not disturb natural vegetative buffers.

Rank (Continued)	Contributing Factors
	• The activity will degrade the visual scene of the surrounding area, but architectural and landscaping techniques are employed to minimize the impact. • The activity will limit accessibility to aesthetic resources, including restricted recreational access.
No Impact	• The activity will not alter the visual or aesthetic character of the area.
Beneficial Impact	• The activity will improve or enhance natural landscape views and/or vegetative buffers and will improve the aesthetic character of the area.

A.2.3.2 Main Cantonment Area Infrastructure

The Main Cantonment Area infrastructure resource group includes ground transportation, utilities, energy, and communications (**Figure A-3**).

Ground Transportation. Transportation networks include road systems and railroads. Transportation services facilitate the movement of people and goods. Transportation networks can have high social costs such as noise, safety hazards, and air pollution. The travel ways can cause aesthetic problems and create physical barriers to groundwater movement and human and wildlife passage. When evaluating potential impacts associated with transportation, it is important to consider (1) the extent to which the project's transportation improvements are consistent with applicable local and regional transportation plans and (2) the level of service (LOS) resulting from the assignment of project-induced travel demand to the existing transportation network. Contributing factors for ranking impacts associated with transportation issues are presented as follows.

Rank	Contributing Factors
Potentially Significant Impact	• The activity requires transportation services and/or infrastructure that are nonexistent and will need to be constructed before construction of the project. • The activity is likely to result in increased use of a public road such that the LOS would decrease to an unacceptable level, as defined in county or local comprehensive plans. • The activity is likely to result in increased use of railways beyond existing or projected capacity. • The activity requires the acceleration of planned capacity improvements by more than 5 years. • The activity requires development of new or significantly expanded transportation services, which will cause cumulative impacts on air quality, water quality, and biological resources.
Impact	• The activity is likely to result in increased utilization of a public road which may cause a decrease in the LOS, but the LOS will not degrade from acceptable to unacceptable levels. • The activity is likely to result in increased utilization of railways but is not projected to exceed existing or projected capacity. • The activity is likely to limit expanded transportation services, which are not projected to increase impacts on air quality, water quality, and biological resources. • The activity requires the acceleration of planned capacity improvements by 1 to 5 years.

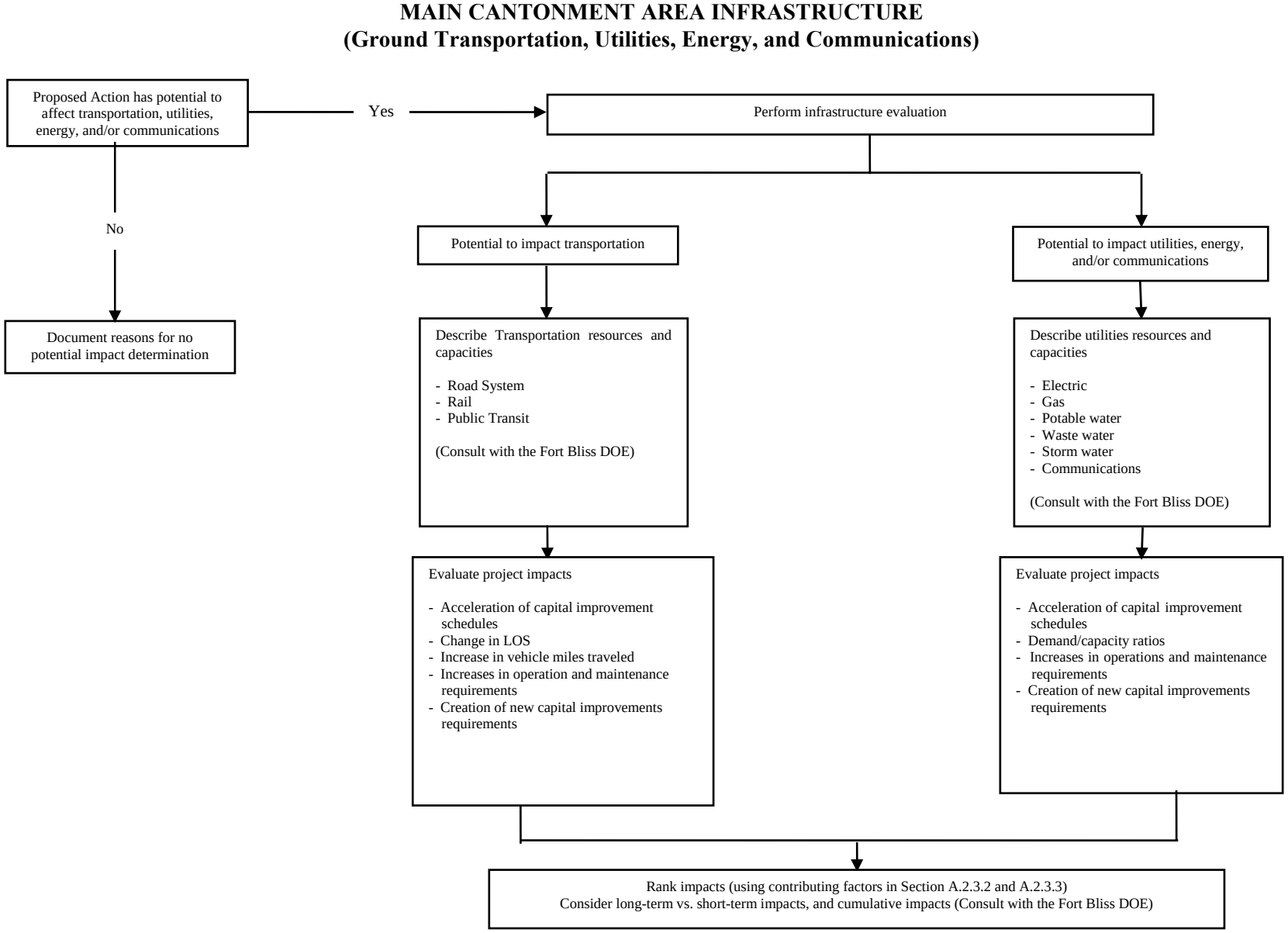


Figure A-3. Main Cantonment Area Infrastructure Evaluation Flowchart

Rank (Continued)	Contributing Factors
No Impact	• The activity will not increase utilization of transportation services. • The activity requires related increases in transportation services that are not anticipated to decrease the LOS projected in county or local comprehensive plans. • The activity requires the acceleration of planned capacity improvements by less than 1 year.
Beneficial Impact	• The activity will enhance existing services and/or infrastructure.

Utilities. Utilities refer to the public services such as water and sanitation that are located in the areas that serve and are used by residents and installation activities. Utility services provided at Fort Bliss include: potable water, sewage collection and treatment, storm water collection, and trash collection and disposal. A key consideration in evaluating the impacts associated with a project is to compare the increased or decreased demand for utility services with the unused capacity of the provider. Contributing factors for ranking impacts associated with utility issues regarding water, sewage, and storm water collection are provided below, followed by factors for ranking impacts associated with solid waste and landfills.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will require utility services that are nonexistent. • The immediate and/or long-term utility needs of the activity have the potential to exceed the actual or projected capacity of the utility to provide service, without a major system modification such as additional generation capacity. • The activity requires the acceleration of planned capacity improvements by more than 5 years.
Impact	• The activity is likely to increase immediate and or long-term demand for service of one or more utilities beyond current or projected capacity, without minor system modifications such as increasing capacity to existing distribution systems or the extension of distribution systems. • The activity requires the acceleration of planned capacity improvements by 1 to 5 years.
No Impact	• The activity does not affect demand for any utilities. • The immediate and/or long-term increases in demand for service are not expected to warrant any system modification. • The activity requires the acceleration of planned capacity improvements by less than 1 year.
Beneficial Impact	• The activity will result in improved efficiencies or conservation.

Solid Waste and Landfills. When considering the impact of a project on the generation of solid waste, it is important to determine the volume and rate of waste generation and the capacity of solid waste landfills and waste management practices, including recycling.

Rank	Contributing Factors
Potentially Significant Impact	• Recyclable solid wastes generated by the activity will not be recycled because the volume generated will exceed the capacity of recycling operations. • Accommodating the increased solid waste generated will cause a substantial increase in consumer cost of waste management. • Storage and handling of wastes increases the potential for spills or leaks and that may potentially contaminate soil, groundwater, or surface water.

Rank (Continued)	Contributing Factors
Impact	• Solid waste volumes generated will reduce the life of existing waste management and disposal operations. • Accommodating the increased waste generated will cause a nominal increase in consumer cost of waste management.
No Impact	• The activity will not increase the waste stream.
Beneficial Impact	• The activity will reduce the economics and environmental costs and/or effects of solid waste management.

Energy. Energy refers to public services such as electricity and natural gas. A key consideration in evaluating the impacts associated with a project is to compare the increased or decreased demand for energy services with the unused capacity of the provider. Contributing factors for ranking impacts associated with energy issues are presented below.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will require energy services that are nonexistent. • The immediate and/or long-term energy needs of the activity have the potential to exceed the actual or projected capacity of the energy supplier to provide service, without a major system modification such as additional generation capacity. • The activity requires the acceleration of planned capacity improvements by more than 5 years.
Impact	• The activity is likely to increase immediate and/or long-term demand for service of one or more energy utilities beyond current or projected capacity without minor system modifications such as increasing capacity to existing distribution systems. • The activity requires the acceleration of planned capacity improvements by 1 to 5 years.
No Impact	• The activity does not affect demand for any energy utilities. • The immediate and/or long-term increases in demand for service are not expected to warrant any system modification. • The activity requires the acceleration of planned capacity improvements by less than 1 year.
Beneficial Impact	• The activity will improve economic and/or environmental efficiencies associated with energy services.

Communications. This refers to public communication services that are located in the areas that serve and are used by residents and installation activities. A key consideration in evaluating the impacts associated with a project is to compare the increased or decreased demand for public communication services with the unused capacity of the provider. In addition, radio frequency interference from radar, instrumentation, and communication transmitters can affect communications within the region. Contributing factors for ranking impacts that are associated with communication issues are provided below.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will require communication services that are nonexistent. • The action will stop activity of other regional users. • The immediate and/or long-term communication needs of the activity have the potential to exceed the actual or projected capacity of the system to provide service, without a major system modification such as additional capacity. • The activity requires the acceleration of planned capacity improvements by more than 5 years.

Rank (Continued)	Contributing Factors
Impact	• The activity is likely to increase immediate and/or long-term demand for service beyond current or projected capacity, without minor system modifications such as increasing capacity to existing distribution systems or the extension of distribution systems. • The activity results in regional radio frequency interference that requires adaptation by other regional frequency users. • The activity requires the acceleration of planned capacity improvements by 1 to 5 years.
No Impact	• The activity does not affect demand for or quality of regional communications. • The immediate and/or long-term increases in demanded for service are not expected to warrant any system modification. • The activity requires the acceleration of planned capacity improvements by less than 1 year.
Beneficial Impact	• The activity will enhance the immediate and/or long-term communication needs or quality of the activity.

A.2.3.3 Training Area Infrastructure

The Training Area infrastructure resource group includes ground transportation, utilities, energy, and communications (see Figure A-3). The criteria for ranking these resources are the same for the training area as for the Main Cantonment Area described in A.2.3.2.

A.2.3.4 Airspace Management and Use

Airspace must be managed and used in a manner that best serves the competing needs of commercial, general, and military aviation (**Figure A-4**). The Federal Aviation Administration (FAA) is responsible for the overall management of airspace and has established different airspace designations that are designed to protect aircraft during flights to or from an airport, transiting between airports, flying in the enroute airspace system, or operating within "special use" areas identified for defense-related purposes.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will restrict, limit, or otherwise delay other air traffic in the region. • The activity will require major modifications to airspace or air traffic control systems and/or facilities. • The activity will encroach on airspace designated for special use in the area.
Impact	• The activity will require airspace realignment or air traffic control procedural changes which do not disrupt the general flow of air traffic in an area. • The activity will require temporary changes to air traffic operations that do not significantly delay or restrict aircraft movements.
No Impact	• The activity will not restrict enroute or airport air traffic operations, require airspace Air Traffic Control (ATC) or navigational modifications, encroach upon adjacent airspace, or affect airport capacity.
Beneficial Impact	• The activity will improve/enhance ATC systems/facilities, or improve flow of air traffic.

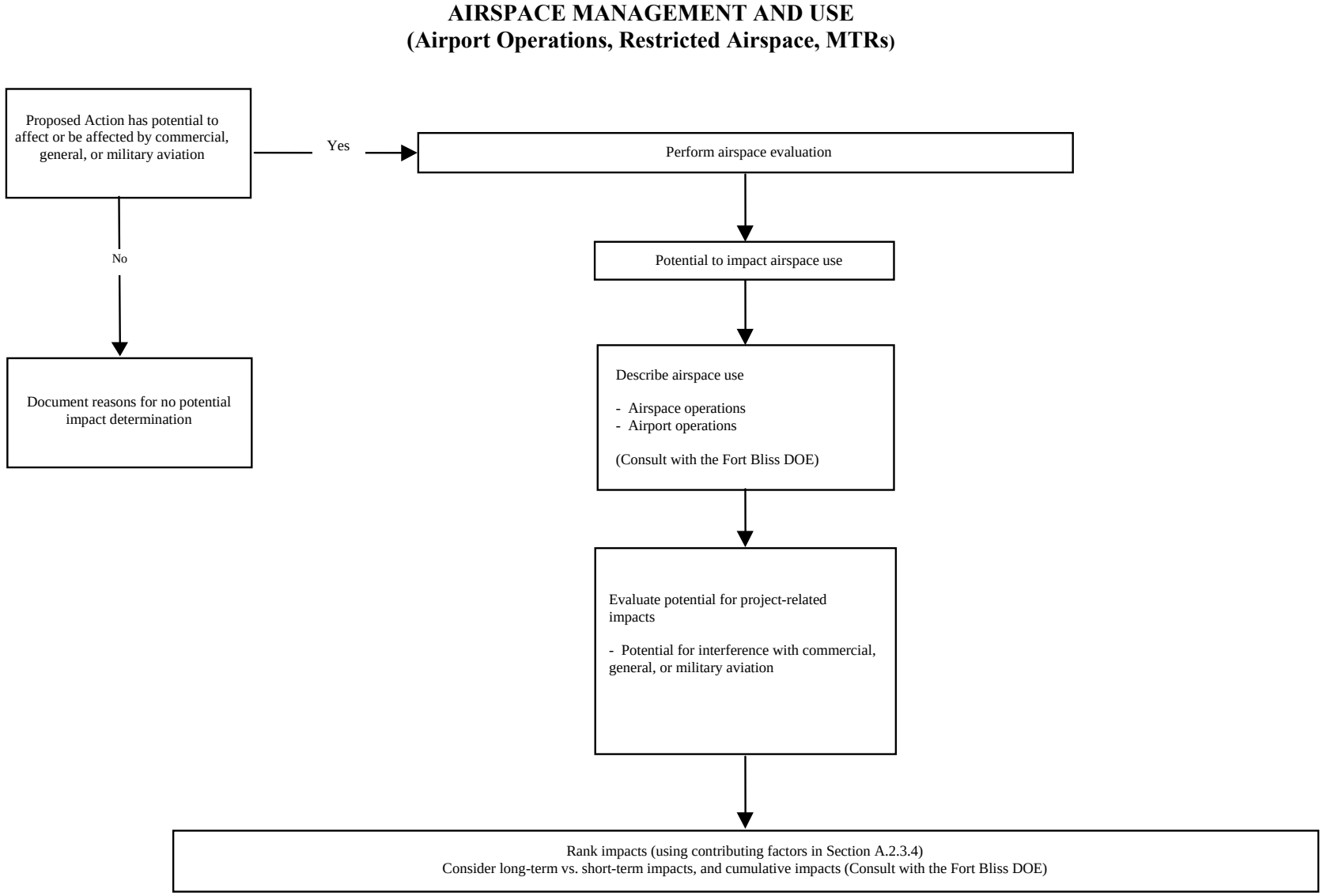


Figure A-4. Airspace Management and Use Evaluation Flowchart

A.2.3.5 Earth Resources

Earth resources include geologic features and resources and soils (**Figure A-5**).

Geology. The geologic features (topography, stratigraphy, etc.) of an area can both impact and be impacted by Fort Bliss activities. Geologic features include surface and subsurface formations like mineral reserves and fault lines. Additional examples include unique surface formations with aesthetic value or fossils with paleontological value. A project can be impacted by changes in geologic features such as seismic activity along fault lines or structural failure due to slope instability. In addition, a project can have an impact on geologic resources by destroying features of aesthetic or scientific value or by precluding access to mineral resources of economic value. A listing of contributing factors used to evaluate potential impacts and their relative significance to geological resources is presented below.

Rank	Contributing Factors
Potentially Significant Impact	• The activity results in irretrievable loss of important mineral or paleontological resources. • The activity will locate structures within a seismic impact zone, and the structures are not designed to withstand maximum recorded horizontal acceleration. • The activity is subject to or is likely to contribute to subsidence and subsidence is likely to cause loss of life or property. • The activity will locate structures in areas subject to slope instability and slope failure is likely to result in loss of life or property, or have an adverse impact on water or biological resources.
Impact	• The activity is located within a seismic impact zone, but structures are designed to withstand the maximum recorded horizontal acceleration. • The activity is located in areas subject to slope instability, but the project has been designed to minimize the likelihood and/or impacts of slope failure. • The activity will reduce the extent of geological features of scientific, educational, and aesthetic interest. • The activity will create localized and temporary construction-related impacts.
No Impact	• The activity does not include construction of structures in seismic impact zones, on or near unstable slopes, or in areas subject to subsidence. • The activity will not occur in areas with surface formations, mineral resources, or paleontological resources. • The activity does not involve extraction of subsurface resources.
Beneficial Impact	• The activity improves/enhances geologic or paleontological values or access to mineral resources.

Soils. Soils are the thin layer of unconsolidated material on the land surface. Their properties result from the interaction of underlying geology, topography, local climate, microbial action, and vegetation. Soils can be altered by natural processes of weathering, water movement, and biological activity; and by human activities such as tilling, grazing, construction, compaction, and removal of vegetation. Key soil properties to consider include permeability, leachability, thickness, fertility, and erodibility. Construction and other activities on unsuitable soils can cause a variety of problems from groundwater contamination, erosion, sedimentation, landslides, and irretrievable loss of agricultural or rangeland. A listing of contributing factors used to evaluate potential soil impacts is presented below.

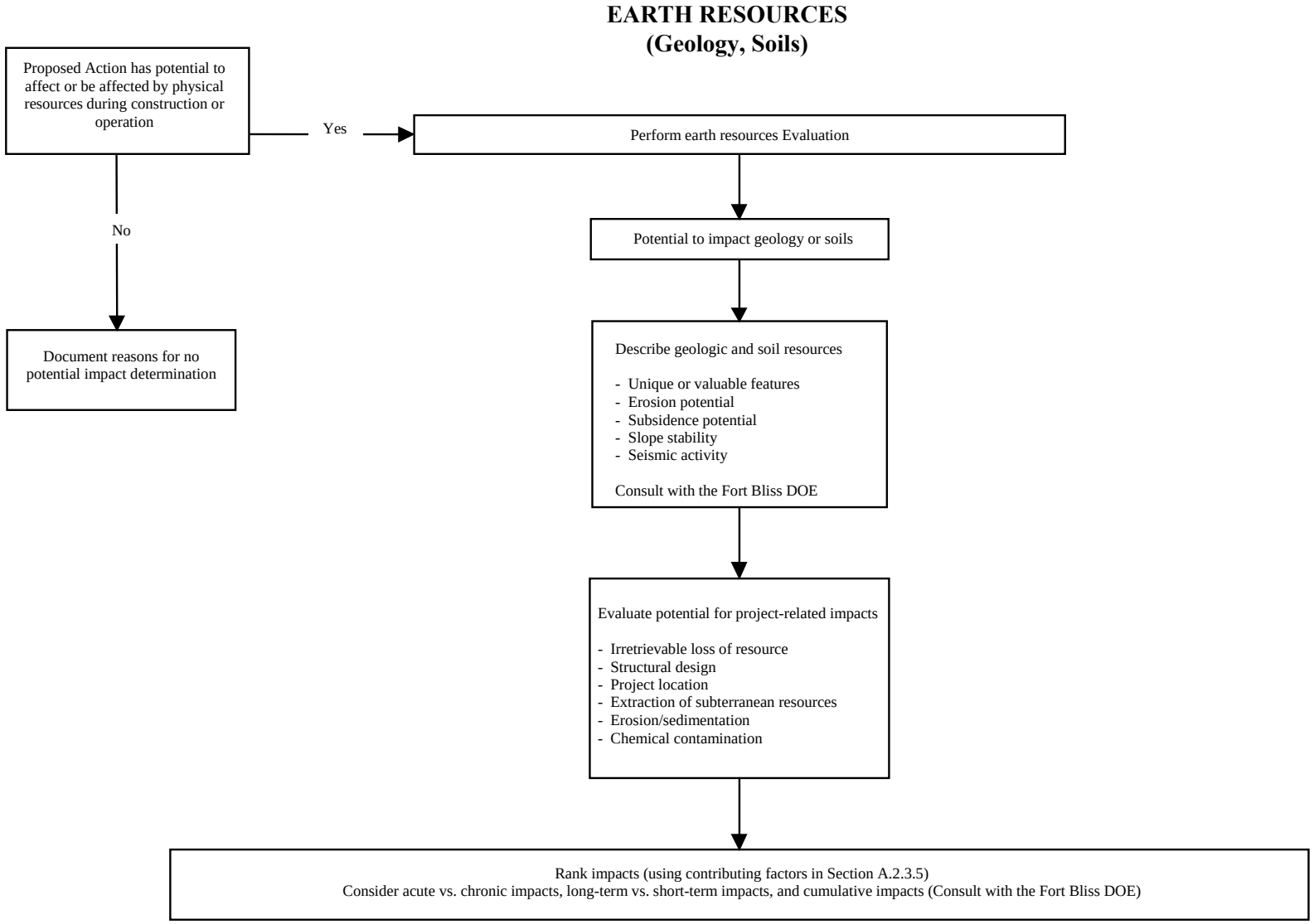


Figure A-5. Earth Resources Evaluation Flowchart

Rank	Contributing Factors
Potentially Significant Impact	• The activity will locate structures in areas subject to slope instability, and slope failure is likely to result in loss of life or property or have an adverse impact on water or biological resources. • The activity will result in erosion, which will likely cause loss of sensitive species, loss of sensitive habitat, loss of cultural resources, infrastructure or facilities, or human life. • The activity will result in sediment loading to stream courses, which will result in exceedances of state or federal standards. • Chemical contamination of soil resources is likely to cause contamination of groundwater or surface water resources. • The activity will result in irretrievable loss of soils sustaining valuable grazing or forest lands.
Impact	• The activity will result in erosion, which will increase sediment loading to stream courses but is not likely to result in exceedances of state or federal water quality standards or alteration of aquatic habitat. • The activity is likely to cause short-term erosion but will not cause the loss of sensitive species, sensitive habitat, cultural resources, infrastructure, or human life. • The activity is located in areas subject to slope instability, but the project has been designed to minimize the likelihood and/or impacts of slope failure.
No Impact	• The activity will result in no erosion or in short-term, localized erosion that does not result in increased loadings to stream courses. • The activity does not have the potential to release chemicals onto soils.
Beneficial Impact	• The activity will reduce problems from groundwater contamination, erosion, sedimentation, landslides, or loss of grazing or forest lands.

A.2.3.6 Air Quality

Air resources are impacted by releases of gases and particulates from stationary and mobile sources and are influenced by meteorological conditions such as prevailing wind, sunlight, and temperature inversions (**Figure A-6**). A proposed mission, project, or environmental-management activity can act as a source and/or receptor of air pollutants. Contributing factors used to evaluate potential impacts to air resources are presented below.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will introduce pollutants to the air that will cause ambient air quality to exceed levels established by the National Ambient Air Quality Standards (NAAQS) for carbon monoxide (CO), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), lead, ozone, or particulates. • The activity will release air pollutants in levels that exceed the National Emission Standards for Hazardous Air Pollutants (NESHAP); for example, beryllium, mercury, arsenic, asbestos, benzene, radionuclides, and vinyl chloride. • The activity will introduce NAAQS pollutants to an area designated as a nonattainment area. • The activity will introduce pollutants to the air that, in combination with other sources, will contribute to exceedance of NAAQS. • The activity will introduce pollutants that exceed Occupational Safety and Health Act (OSHA) (29 CFR 1910.95) exposure limits into indoor air.

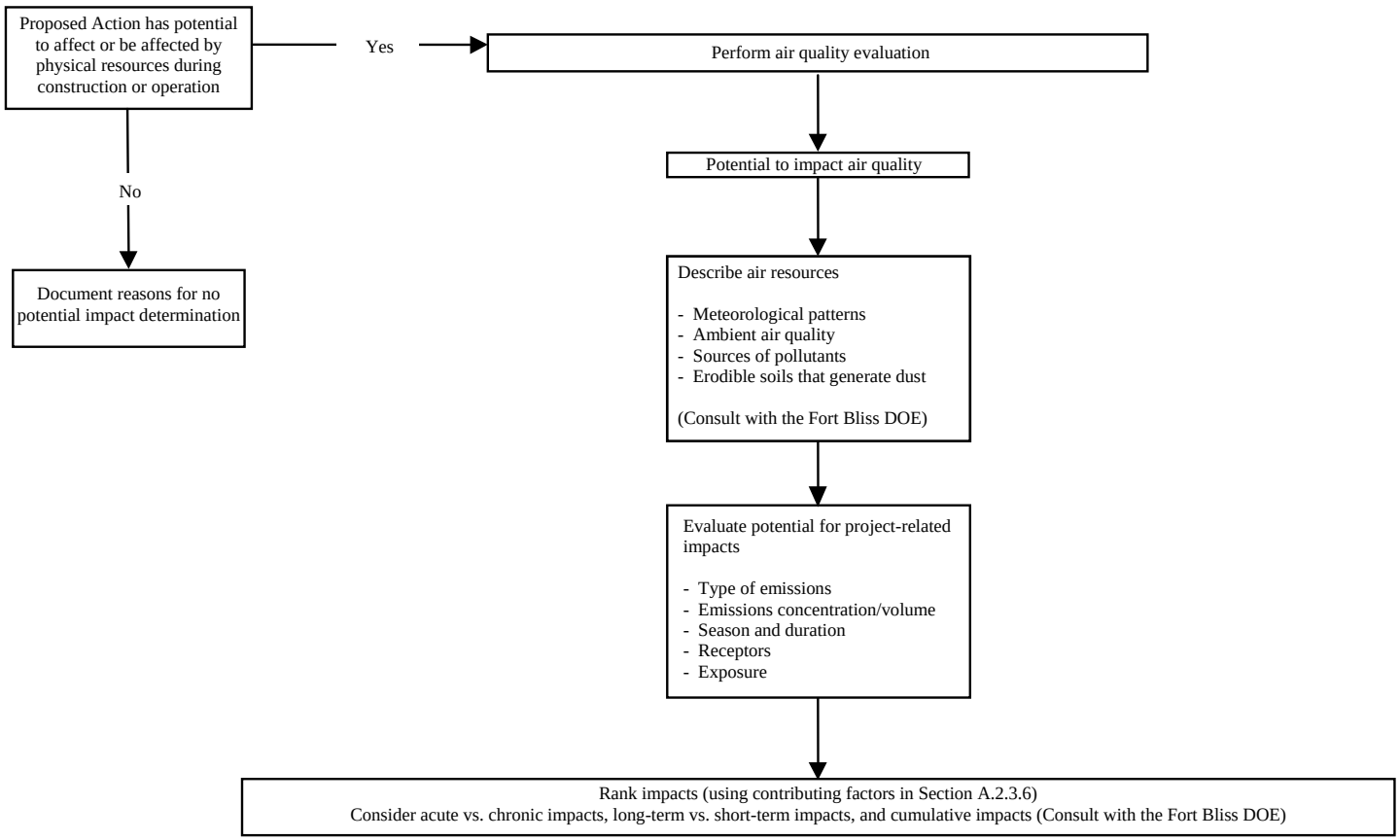


Figure A-6. Air Quality Evaluation Flowchart

Rank (Continued)	Contributing Factors
	• The activity is subject to New Source Performance Standards (NSPS) and is not expected to comply with NSPS upon commencement of operation. • Deposition of atmospheric pollutants (either directly to surface water or to land) is likely to contribute to ambient water quality problems (e.g., nutrient enrichment, acidification, toxic accumulation).
Impact	• The activity will introduce pollutants that do not exceed OSHA exposure limits into indoor air. • The activity will introduce NAAQS or NESHAP pollutants but will not exceed limits either alone or in conjunction with other sources. • The activity will result in a temporary increase in ambient concentrations of pollutants, but will not violate NAAQS. • The activity will cause ground disturbance that generates dust.
No Impact	• The activity will not release pollutants into the air.
Beneficial Impact	• The activity will improve overall air quality and reduce pollutants.

A.2.3.7 Water Resources

Watershed resources that may be impacted by mission activities and master planning projects include, surface water and groundwater (**Figure A-7**). Evaluating water resources includes an analysis of impacts to the physical, chemical, and biological properties of the water body. An evaluation of an activity's impact on water resources should consider short-term, long-term, and cumulative impacts. Following, are general descriptions of water resources and factors to consider when evaluating the potential impacts of project activities to water resources.

Surface Water. Surface water includes streams, rivers, ponds, lakes, wetlands, and Waters of the U.S. When evaluating project activities, it is important to consider physical and chemical impacts. Inputs that deteriorate water quality and impact aquatic life include nutrients, heat, changes in pH, sediments, and oxygen-consuming substances, in addition to toxic compounds such as petroleum, PCBs, chlorinated pesticides, and heavy metals. Sources of contamination to surface water include point source discharges, non-point source runoff, marine vessels, and groundwater. Changes in the volume or velocity of water in a water body can erode stream banks, increase siltation/sedimentation, change salinity regimes, and ultimately modify or destroy habitat.

Withdrawals from surface water bodies can reduce in-stream flows below critical levels that are necessary to maintain riparian and in-stream communities. Contributing factors for ranking potential impacts to surface water are presented below.

Rank	Contributing Factors
Potentially Significant Impact .	• The activity will result in introduction of pollutants (through contaminated discharge, contaminated runoff, or dredging of contaminated sediments) to surface water and is likely to cause exceedance of state ambient Water Quality Standards (WQS), including chemical-specific standards and physical characteristics like turbidity, pH, dissolved oxygen. • The activity will result in discharge that exceeds National Pollutant Discharge Elimination System (NPDES) permit limitations. • The activity will result in modification to flow volume or velocity such that scouring occurs in the water body and is likely to result in modification of stream channel, bottom substrate, and/or bank stability.

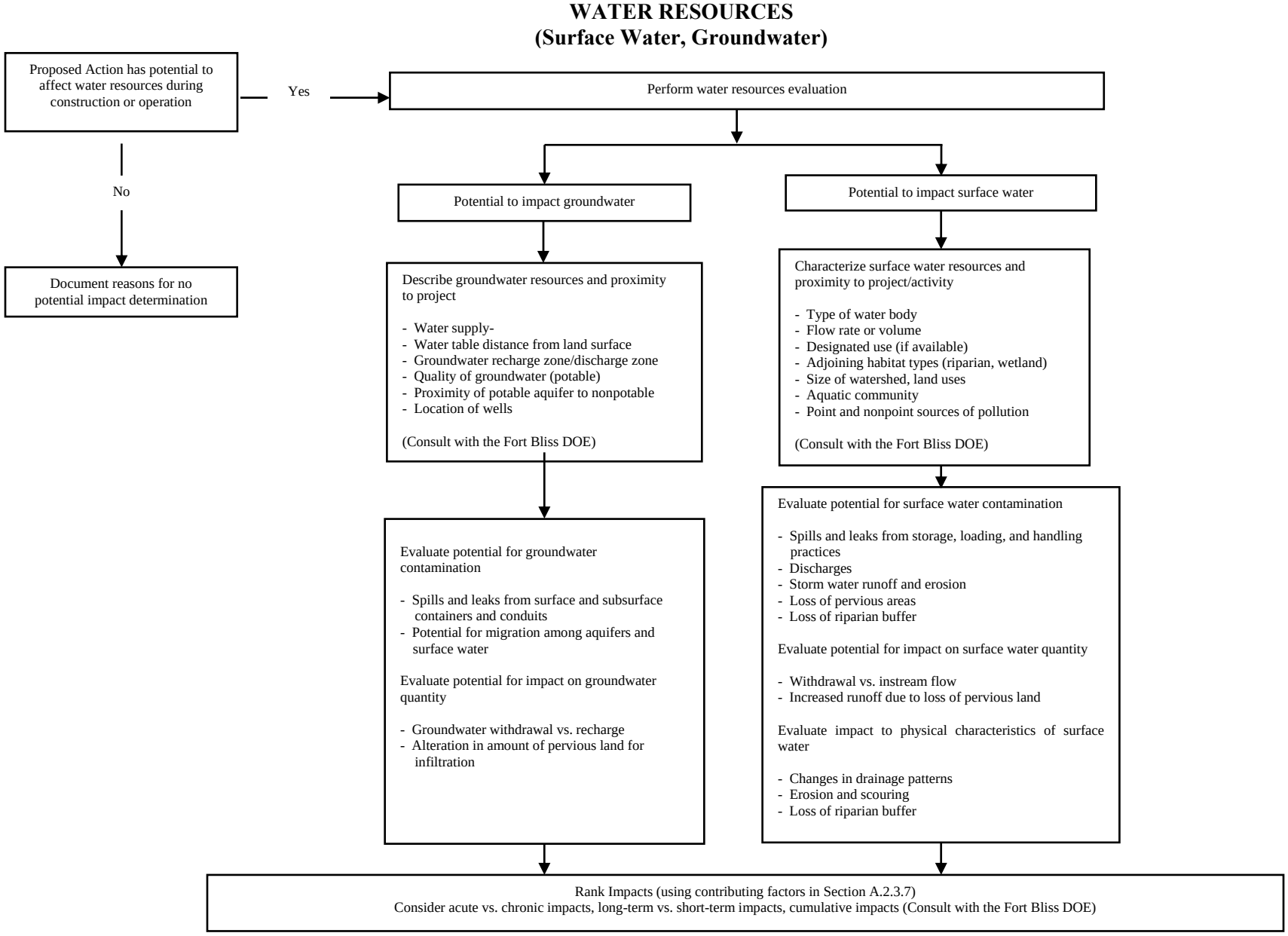


Figure A-7. Water Resources Evaluation Flowchart

Rank (Continued)	Contributing Factors
	• The activity is likely to impede natural drainage patterns or the direction of flow of surface water body. • The activity will result in point or nonpoint source discharge of sediments, nutrients, chemicals or other parameters that result in modification or destruction of critical habitat of threatened or endangered species. • Withdrawal of surface water or groundwater that supplies surface water will result in disruption of riparian vegetation. • Introduction of pollutants, including sediment, will contribute to exceedance of ambient WQS in combination with other sources. • Introduction of nutrients into a water body will result in the occurrence of algal blooms more frequently, for extended time periods, or during critical intervals. • Withdrawal of surface water will result in reduction of sufficient flow to support sensitive habitats, threatened or endangered species, or their habitats. • The activities will change local drainage patterns.
Impact	• The activity will result in introduction of pollutants (through contaminated discharge, contaminated runoff, or dredging of contaminated sediments) to surface water, but introduction is not likely to cause exceedance of ambient WQS, including chemical-specific standards and physical characteristics like turbidity, pH, and dissolved oxygen. • Pollutant discharges will not exceed NPDES permit limitations. • The activity will result in point or nonpoint source discharge of sediments, nutrients, chemicals, or other parameters that result in modification or destruction of habitat of indigenous species. • An influx of nutrients will result in periodic algal blooms. • Withdrawal of surface water will result in reduction of flow but is not likely to impact riparian vegetation, aquatic life, sensitive habitats, or threatened or endangered species.
No Impact	• The activity will not result in introduction of pollutants or withdrawal of surface water.
Beneficial Impact	• The activity will improve overall surface water quality/quantity and/or reduces pollutants.

Groundwater. Groundwater is water contained in a saturated zone at some depth below the ground surface. When evaluating the project activity, it is important to determine if either the quantity or quality of groundwater supplies will be impacted. Pollutants can be introduced to groundwater by seepage through soils and by injection through wells. It is also important to consider the interaction between surface water and groundwater to identify the potential for cross contamination. Contributing factors for ranking potential impacts to groundwater resources are presented below.

Rank	Contributing Factors
Potentially Significant Impact	The activity will result in introduction of pollutants to potable groundwater and is likely to cause groundwater to exceed maximum contaminant level (MCL). • Introduction of pollutants to potable groundwater will not exceed MCL, but will continue over life of project. • Introduction of pollutants to potable or nonpotable groundwater will contribute to exceedances of MCL and/or WQS in combination with other sources. • Withdrawal of groundwater that supplies surface water will result in disruption of riparian vegetation. • Introduction of pollutants, including sediment, will contribute to exceedance of ambient WQS in combination with other sources. • The activity will result in withdrawal of groundwater, reduction of infiltration, or change in groundwater flow direction such that it diminishes seepage or spring-water inflow into an ecologically significant habitat, such as wetlands, or that results in modification of threatened or endangered species habitat. • Withdrawal of groundwater is likely to result in salt water intrusion to potable aquifer.
Impact	• Introduction of pollutants to potable groundwater is not likely to cause groundwater to exceed MCL. • Introduction of pollutants to groundwater source that discharges to surface water is not likely to cause surface water to exceed ambient WQS. • The activity will result in withdrawal of groundwater, reduction of infiltration, or change in groundwater flow direction that reduces or eliminates inflow to streams that are not ecologically significant habitat. • Withdrawal of groundwater or reduction in infiltration that will lower the depth of the groundwater table in unconfined aquifers but will not impact vegetation or stream flow or result in salt water intrusion. • Withdrawal of groundwater will result in a reduction of the potentiometric surface (water-level elevations in wells tapping a confined aquifer).
No Impact	• No introduction of pollutants to groundwater. • No withdrawal of groundwater.
Beneficial Impact	• Increase in the quality, quantity, and availability of groundwater and/or reduction of pollutants.

A.2.3.8 Biological Resources

Biological resources that may be impacted by military and nonmilitary activities include upland and riparian vegetation, wildlife and/or their habitat, and threatened and endangered species and/or their habitat (**Figure A-8**). Proper management of vegetation, habitat, wildlife, and threatened and endangered species contributes to the biodiversity and ecosystem integrity of Fort Bliss. Evaluating impacts to biological resources requires knowledge of the types of plant and animal species present and their distribution throughout the area, and an understanding of the relationships among species, populations, and habitat. The evaluation should consider short-term, long-term, and cumulative impacts. Following are examples of factors that contribute to an activity's impact to biological resources. In addition, if sensitive species are involved, biological consultation under Section 7 of the Endangered Species Act may be required. This involves communication with the U.S. Fish and Wildlife Service (USFWS) to obtain a listing of such species in the area. If the project or activity has the potential to affect a listed species, ongoing consultation may be necessary.

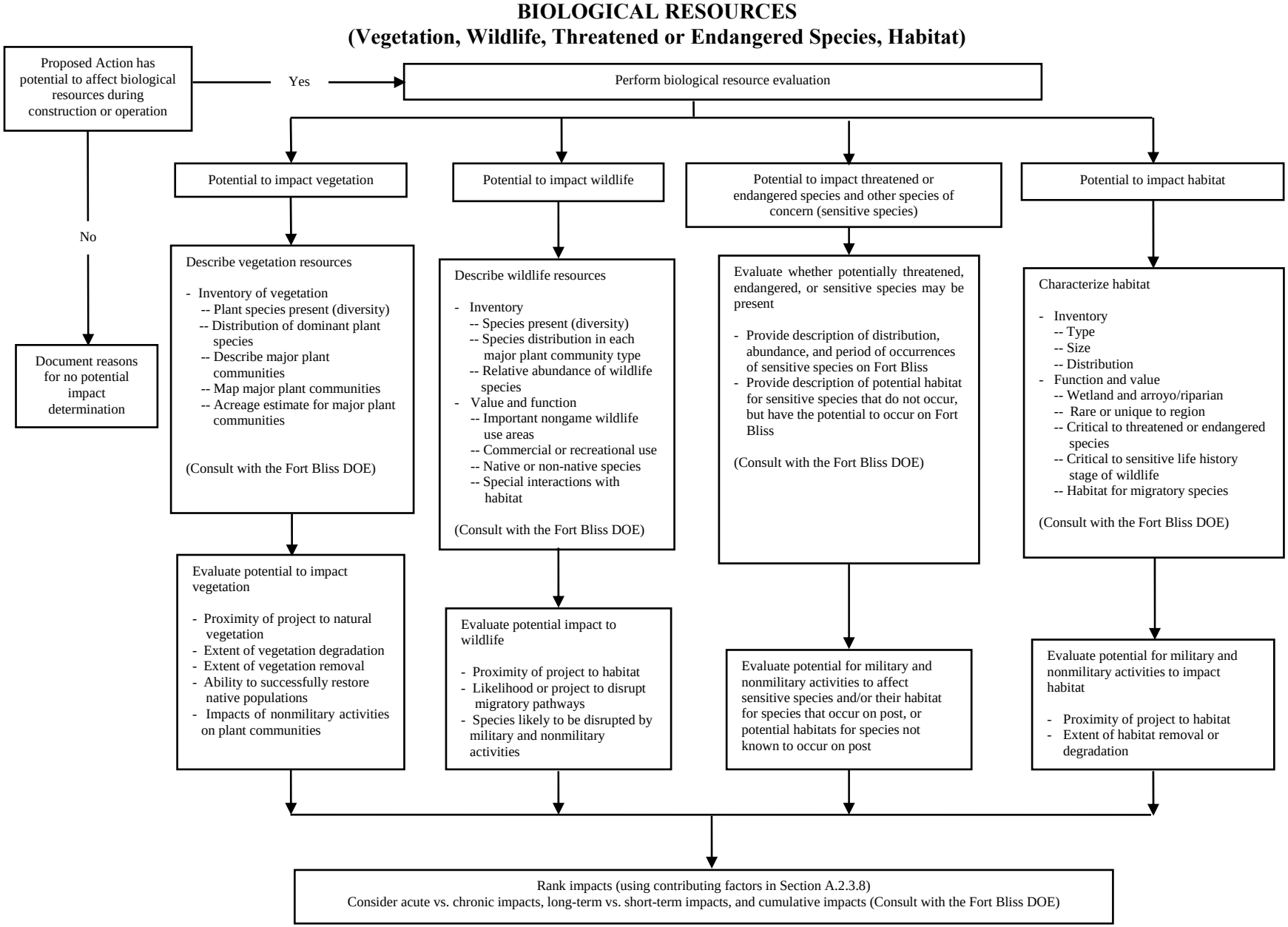


Figure A-8. Biological Resources Evaluation Flowchart

Vegetation. Vegetation provides food and shelter for animals. It also prevents erosion and protects water quality. Some plant species provide food or habitat during critical life history stages of invertebrate and vertebrate species. Impacts to vegetation result from clearing land, construction, disturbances associated with training activities, such as off-road vehicle maneuvers and fire, and from nonmilitary activities such as livestock land grazing. Aquatic vegetation can be impacted directly through water-based construction and indirectly through increased sedimentation or pollutant loading from land-based activities. When evaluating the impacts of a project on vegetation, it is important to consider the value of the vegetation in terms of ecosystem function and its abundance and distribution. A listing of contributing factors used for evaluating impacts to vegetation is presented below.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will result in long-tern (greater than 5 years) reduced diversity of terrestrial or aquatic vegetation. • The activity will permanently reduce or eliminates native species or their habitat. • The activity will create conditions conducive to proliferation of non-native, invasive species. • The activity will permanently replace native vegetation that served as food source or habitat with vegetation that does not provide food or habitat. • The activity is located in proximity to unique plant populations or communities or isolated plant populations of scientific interest. • The activity will result in the removal of vegetation, which will likely cause erosion and transport of sediment to waterways, resulting in large-scale degradation to water resources including arroyo/riparian areas.
Impact	• The activity will temporarily (1-5 years) replace native vegetation with non-native, but non-invasive, species. • The activity will temporarily replace native vegetation that served as food source or habitat with vegetation that provides food or habitat of lesser value. • The activity will require removal of vegetation, which will likely cause erosion and transport of sediment to waterways, resulting in the degradation of a limited amount of water resources including arroyo/riparian areas.
No Impact	• The activity will not remove vegetation, or the project activity is restricted to previously developed areas of the Main Cantonment Area and Fort Bliss Training Complex (e.g., firing ranges, impact areas, range camps) that have already been disturbed.
Beneficial Impact	• The activity will improve/enhance native vegetation communities or biodiversity in the ecosystem.

Habitat. Habitat includes the biological community and the abiotic components within an area. The biological community is comprised of microbes, fungi, plants, and animals. The abiotic components consist of the geological features, soil, hydrology, climate, and nutrient cycles. Habitat can be defined for an individual organism, a population, or an entire biological community. Maintenance of the habitat is essential to maintenance of the community, population, and individual. When evaluating the impact of a project on habitat, it is important to consider the type and size of the habitat, the abundance and distribution of similar habitat types in the local area, and the importance of the habitat to the components of the biological community, including resident and migratory species. A listing of contributing factors used to rank habitat impacts is presented below.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will destroy or damage rare or unique ecosystems (e.g., wetlands, arroyo/riparian habitat, conifer forests, pristine areas, important breeding or nesting grounds, or important habitat used during migration). • The activity, alone or in combination with other activities, will impact the integrity of an ecological system by removing or degrading a large percent of an ecological association. • The activity will disrupt the flow of resources (e.g., nutrients, water) to or from unique ecosystems. • The activity will cause or contribute to the introduction of nuisance, invasive, or pest flora or fauna that may displace native species and alter existing habitat.
Impact	• The activity, alone or in combination with other activities, will impact the integrity of an ecological system by removing or degrading a relatively small percent of an ecological association. • The activity will exert a localized and temporary impact on rare or unique ecosystems. • The activity involves introduction of pollutants, including sediments and nutrients, to water bodies that may in turn impact aquatic vegetation that serves as habitat for non-sensitive indigenous species.
No Impact	• The activity is located within the Main Cantonment Area or developed areas of the Fort Bliss Training Complex and will not modify or otherwise encroach on natural habitat. • There are no rare or unique ecosystems located at or near the proximity of activity.
Beneficial Impact	• The activity will improve/enhance the biological community and abiotic components within an area.

Wildlife. Wildlife includes the amphibians, reptiles, birds, and mammals that reside in the area. It also includes numerous bird species that migrate through and to the area. When evaluating the impact of a project on wildlife it is important to consider such factors as the species or species group distribution and abundance in the area of influence, the areas of use of important species or species groups, and potential effects of a project on wildlife diversity.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will reduce or destroy food or habitat of importance to terrestrial, riparian, or aquatic wildlife. • The activity will eliminate or degrade important wildlife breeding areas and migratory routes. • The activity will eliminate a native population. • The activity will result in a long- and/or short-term reduction in populations of wildlife over a relative large area. • The activity will result in the alteration of habitat structure resulting in a shift and/or reduction in wildlife species diversity. • The activity will create favorable conditions for nuisance, exotic, or pest species. • The activity will result in a short- and/or long-term reduction in populations of wildlife in a localized area.

Rank (Continued)	Contributing Factors
Impact	• The activity will reduce the areal extent of wildlife breeding areas in a localized area but does not eliminate them. • The activity will result in temporary alteration of wildlife habitat, but not during critical stages of the species' life cycle. • The activity is located outside of the Main Cantonment Area or developed areas of the Fort Bliss Training Complex within a migratory pathway, but will not occur during migrations.
No Impact	• The activity is located within the Main Cantonment Area and will not disturb the habitat, food source, or migratory pathways of wildlife.
Beneficial Impact	• The activity will improve or enhance the continued existence of wildlife and/or its habitat.

Threatened, Endangered, and Sensitive Species. Sensitive species can either be plants or animals and can be listed by the federal and/or state governments. A list of federal threatened and endangered species is published in 50 CFR 17 (the states of New Mexico and Texas maintain their own lists). To ensure the project will not impact federally listed threatened or endangered species or their habitat, consultation with the USFWS will take place. The results of this consultation process will be published in a separate document called a Biological Assessment. Contributing factors used to rank impacts to sensitive species follow.

Rank	Contributing Factors
Potentially Significant Impact	• The activity is located in an area where sensitive species are present and the activity is known to have an adverse affect on those species. • The activity will destroy or degrade important habitat of sensitive species. • The activity will fragment or encroach over time on important habitat of sensitive species. • The activity, alone or in combination with other activities, is likely to inhibit a species' recovery or the recovery of its habitat. • The activity involves introduction of pollutants, including sediments and nutrients, to water bodies that may in turn impact sensitive species habitat.
Impact	• The activity is likely to have a short-term direct or indirect affect on a small percent of a sensitive species or its habitat but not have a long-term effect. • The activity will result in temporary disturbance of the habitat of sensitive species.
No Impact	• The activity is located in an area where sensitive species are present but they are not sensitive to the actions associated with the activity. • There are no sensitive species or sensitive species habitat (including potential habitat) in the proximity of the activity.
Beneficial Impact	• The activity will improve/enhance the continued existence of a sensitive species or its habitat.

A.2.3.9 Cultural Resources

Cultural resources address attributes that are considered important to the nation, state, and/or local populations' sense of history and well-being. Historic properties are historic or prehistoric archaeological sites, buildings, structures, landscapes, or properties of traditional cultural and religious importance that are determined eligible for inclusion in the National Register of Historic Places (**Figures A-9 and A-9A**). These resources are primarily affected by the siting and construction of new buildings and infrastructure. Sometimes they can be affected by changes in use of, or access to, resource areas. When evaluating the

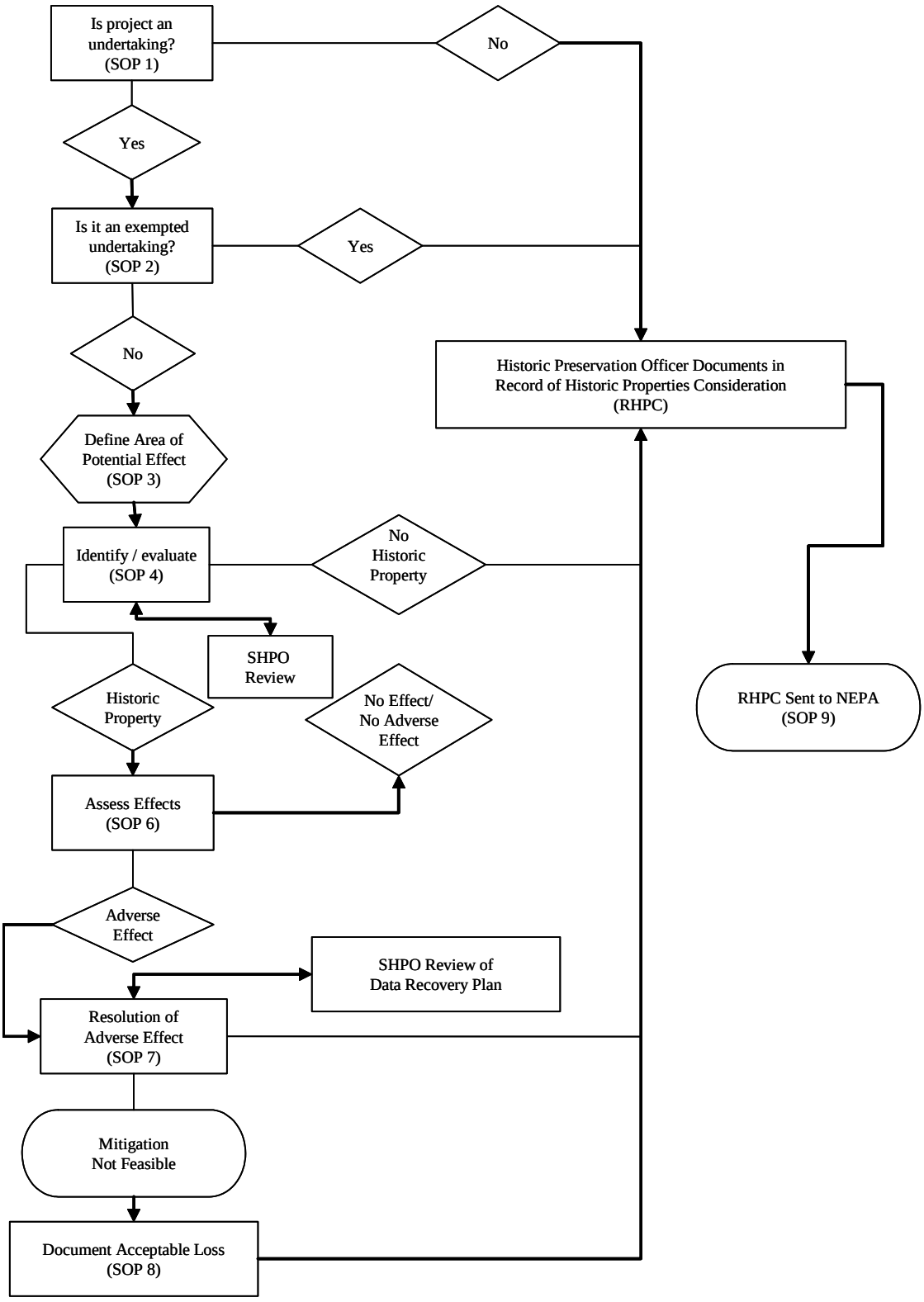
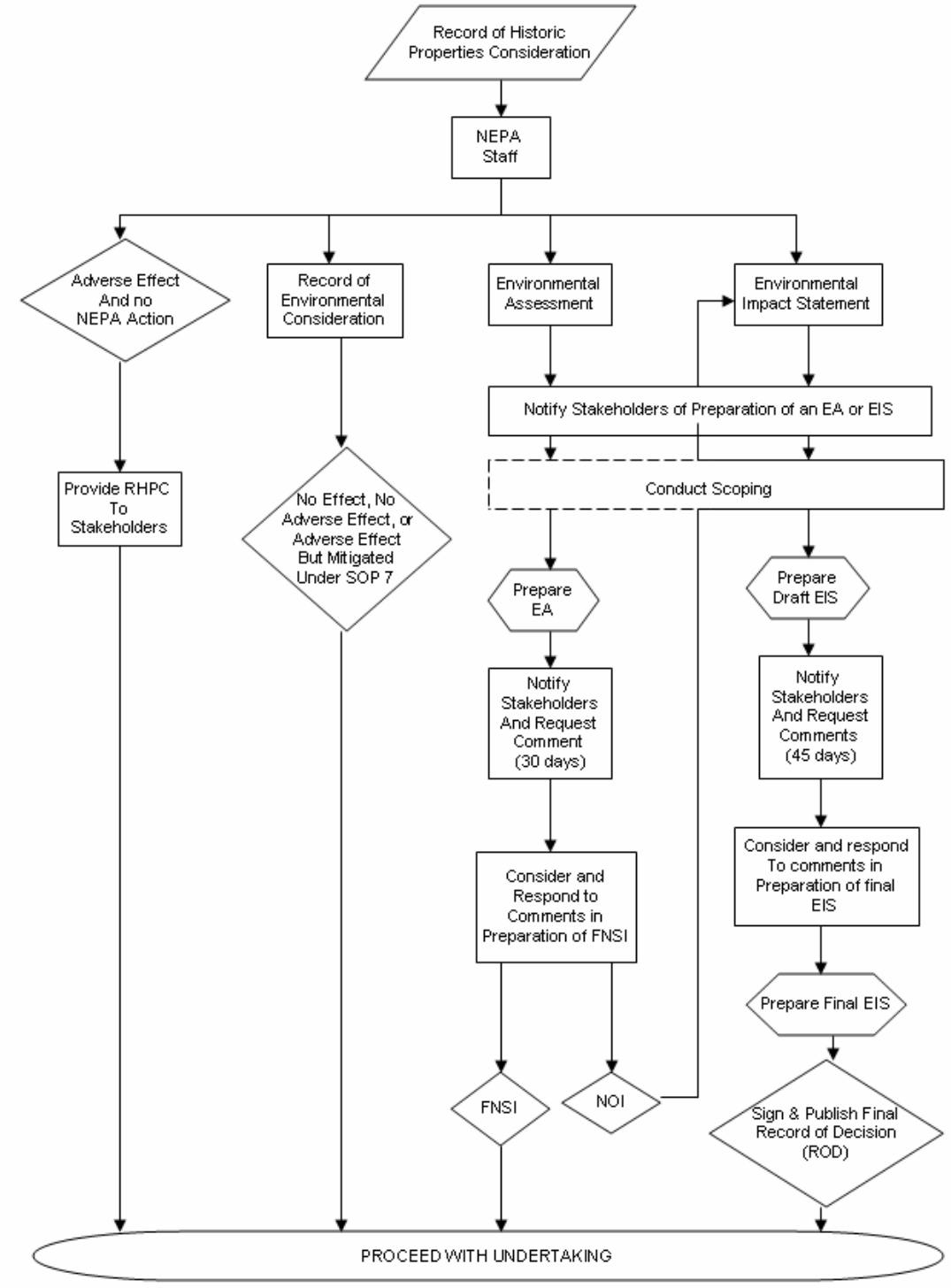


Figure A-9. Cultural Resources Evaluation Flowchart



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946 **Figure A-9A. Cultural Resources Evaluations Consultation Flowchart Under NEPA**

potential impact of a project on historic properties, it is important to consider the proximity of the project site and the potential to discover previously unanticipated or undocumented cultural resources. These considerations must take place in accordance with Section 106 of the National Historic Preservation Act of 1966 (as amended) and its implementing regulation 36 CFR Part 800 and specifically to the Programmatic Agreement (PA) among Fort Bliss, the Advisory Council on Historic Preservation, and the New Mexico and Texas SHPOs, and associated Standard Operating Procedures (SOPs) that guide Fort Bliss on meeting Section 106 requirements. Contributing factors for ranking impacts associated with cultural resources are provided below.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will destroy a historic property, and that cannot be mitigated under standard mitigation measures as provided by the PA. • The activity involves construction, repair, or maintenance affecting features that contribute to a historic property's significance, and the activity does not meet the Secretary of the Interior's Standards for the Treatment of Historic Properties and cannot be mitigated under standard mitigation measures as provided by the PA. • The activity will permanently introduce visual, audible, atmospheric elements or other indirect impacts that are out of character with the historic property, and that cannot be mitigated under standard mitigation measures as provided by the PA. • The activity will permanently restrict access, as appropriate to the property type, to a historic property, and that cannot be mitigated under standard mitigation measures as provided by the PA. • The activity will degrade the landscape (setting) around a historic property, and that cannot be mitigated under standard mitigation measures as provided by the PA. • The activity is located in an area with a high probability of containing historic properties, and no efforts are proposed for meeting PA requirements prior to the start of the project.
Impact	• The activity will temporarily restrict access to or change the historic integrity of a historic property, and that can be mitigated under the standard mitigation measures as provided by the PA. • The activity involves construction, repair, or maintenance affecting features that contribute to the historic property's significance but in a way that meets the Secretary of the Interiors Standards for the Treatment of Historic Properties or that can be mitigated under the standard mitigation measures as provided by the PA. • The activity will alter the setting of a historic property and can be mitigated under the standard mitigation measures as provided by the PA. • The activity is located in an area where there is a high probability of finding historic properties, and procedures as set forth in the PA are implemented prior to the start of the project.
No Impact	• The activity will not affect access, as appropriate to property type, to a historic property. • The activity does not involve construction, repair, or maintenance affecting features that contribute to defining a historic property. • The activity will have no impact on the visual or audio setting or other indirect affect on a historic property. • The activity is not located in the vicinity of a historic property.
Beneficial Impact	• The activity will benefit/enhance a historic property.

A.2.3.10 Noise

Aircraft and ground training activities are major sources of environmental noise. Besides the potential for damage to human hearing, noise also interferes with communication, interrupts sleep, causes stress, and generally impacts the quality of life. Noise can also have an adverse impact on domestic animals and wildlife. When considering a project, it is important to determine if the project will create unacceptable noise levels (**Figure A-10**). The review should evaluate both non-impulsive (e.g., overflights) and impulsive noise (sonic boom, explosion). Contributing factors for noise are provided below.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will expose populated areas to A-weighted Day Night Average Sound Level (ADNL) (non-impulsive) of 75 decibels (dB) or greater. • The activity will expose populated areas to C-weighted Day Night Average Sound Level (CDNL) (impulsive noise) of 70 dB and greater. • The activity (e.g., artillery, munitions, blasting) will expose populated areas to a single peak sound pressure level (dBP) greater or equal to 130 dBP. • The activity will cause speech interference because indoor sound levels are expected to exceed 82 dB. • The activity will result in substantial likelihood of hearing loss because indoor sound levels will be above 84 dB. • Noise levels associated with the activity are expected to cause domestic animals and wildlife injury, abandonment of habitat, or mortality.
Impact	• The activity will expose populated areas to ADNL between 60 and 75 dB. • The activity will expose populated areas to CDNL between 57 and 72 dB. • The activity (e.g., artillery, munitions, blasting) will expose populated areas to a single dBP between 115 and 130 dB. • The activity will cause speech interference because indoor sound levels will be between 60 and 82 dB. • The activity will create a slight to moderate likelihood of hearing loss when indoor sound levels are between 75 and 80 dB. • The activity will cause wildlife or domestic animals to display startle effects, including fleeing the area, alteration in productivity, reproduction, growth, or parenting behavior.
No Impact	• The activity will expose populated areas to ADNL of 60 dB or less. • The activity will expose populated areas to CDNL of 57 dB or less. • The activity (e.g., artillery, munitions, blasting) will expose populated areas to a single dBP lower than 115 dB.
Beneficial Impact	• The activity will eliminate or reduce a noise source.

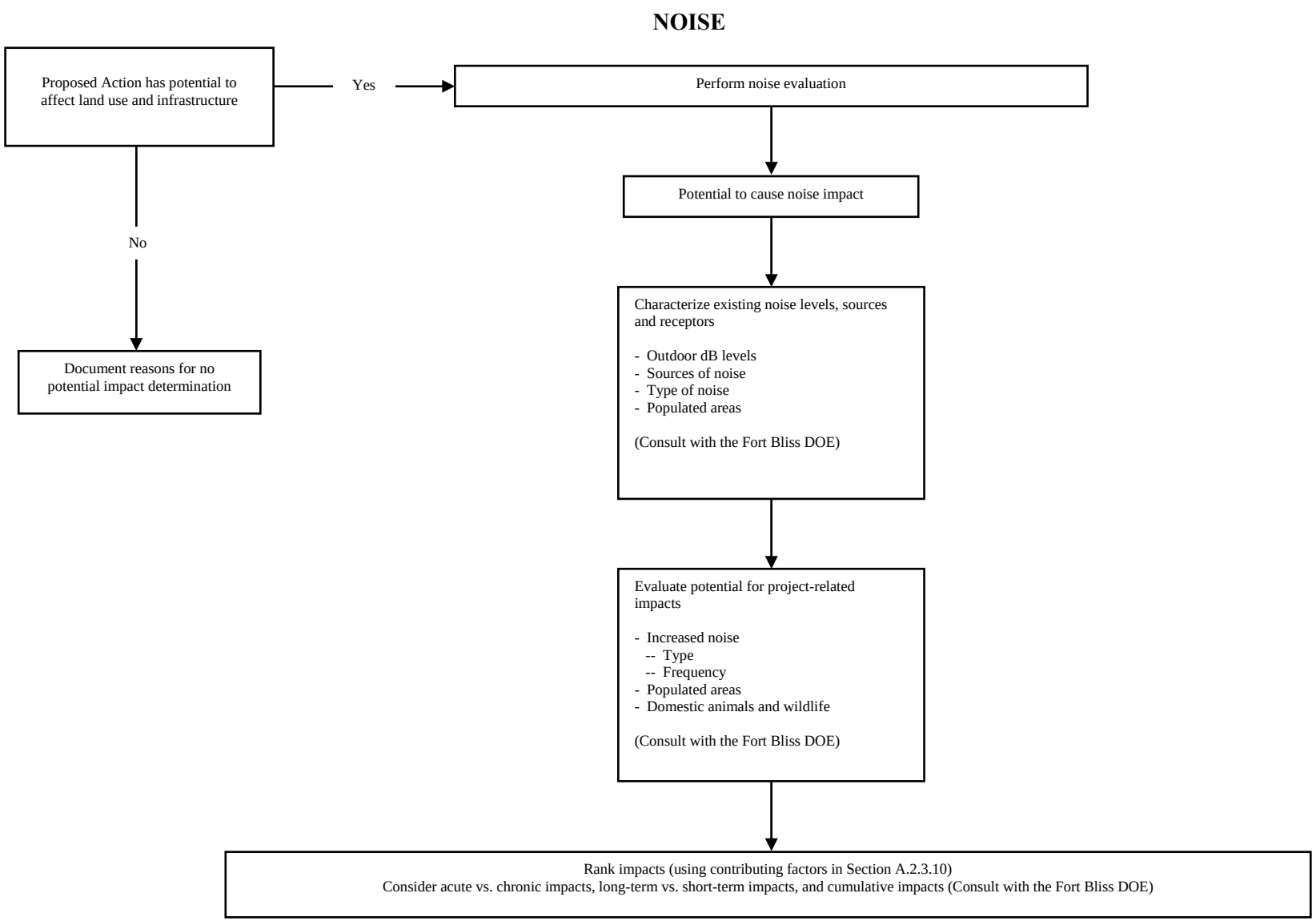


Figure A-10. Noise Evaluation Flowchart

A.2.3.11 Safety

The elements of the proposal that have the potential to affect safety are evaluated relative to the degree to which the activity increases or decreases safety risks to military personnel, the public, and property (**Figure A-11**). Ground and fire safety are assessed for the potential to increase risk and the unit's capability to manage that risk by limiting exposure, respond to emergencies, and suppress fires. In considering explosive safety, projected changed uses and handling requirements are compared to current issues and practices. If a unique situation is anticipated to develop as a result of a proposal, the capability to manage that situation is assessed. Analysis of aircraft flight risks correlates projected Class A mishap rates with current use of the airspace to consider the magnitude of change in risk associated with the proposal. Finally, when the changes in risk arising from the proposal are considered individually and collectively, assessments can be made about the adequacy of disaster response planning and the need for new or modified procedures and requirements. Contribution factors for ranking safety impacts are presented below.

Rank	**Contributing Factors**
Potentially Significant Impact	• Fire protection/fire response requirements will exceed existing infrastructure capability. • Explosive storage locations and capacities will exceed levels that are applicable or suitable for waivers. • Ordnance or missile use potentially exposes land areas beyond installation boundaries to projectile, overflight, or ground impact. • Flight risks around airfields are incompatible with adjacent land uses.
Impact	• The activity will create needs for waivers SDZ safety requirements. • The activity will increase aviation to the extent that airspace congestion results or projected Class A mishaps indicate a substantially increased risk to public safety.
No Impact	• All fire safety standards will be satisfied. • All explosive safety standards will be satisfied. • Adequate safety buffers (SDZs) exist for use of all ordnance and missiles. • Although levels of aviation may change, projected Class A mishaps associated with these changed levels do not reflect any significant increased risk.
Beneficial Impact	• The activity will decrease or eliminate a safety risk to military personnel, the public, and/or property.

Figure A-11. Safety Evaluation Flowchart

A.2.3.12 Hazardous Materials and Items of Special Concern

When considering the impact of an activity on the management of hazardous materials, hazardous waste, and items of special concern (**Figure A-12**), it is important to evaluate the usage and storage of hazardous materials in addition to the storage and disposal requirements for hazardous waste. Items of special concern include medical and biohazardous waste, low-level radioactive waste, radon, asbestos, lead-based paint, pesticides, PCBs, and petroleum storage tanks. Contributing factors for ranking impacts from hazardous materials and waste and items of special concern are:

Rank	Contributing Factors
Potentially Significant Impact	• Permanent or temporary storage tanks at the activity site are not equipped with leak detection mechanisms, secondary containment systems, spill and overfill protection, or other safety services. • Hazardous material or hazardous waste handling, storage, or disposal systems or practice will pose a threat of release to the environment and/or to public health.
Impact	• The activity involves exceptions to approved long-term generation, storage, and/or disposal of large quantities of hazardous waste. • The activity involves exceptions to approved long-term management of large quantities of hazardous materials. • The activity requires exceptions to approved removal and disposal of structural materials that contain hazardous elements (e.g., lead-based paint, asbestos). • The activity requires exceptions to the management approved handling, storage, and/or use of hazardous materials.
No Impact	• The activity will not generate hazardous waste. • The activity will not require hazardous materials management.
Beneficial Impact	• The activity will reduce or eliminate the use, generation, storage, or disposal of hazardous materials, hazardous waste, and/or items of special concern.

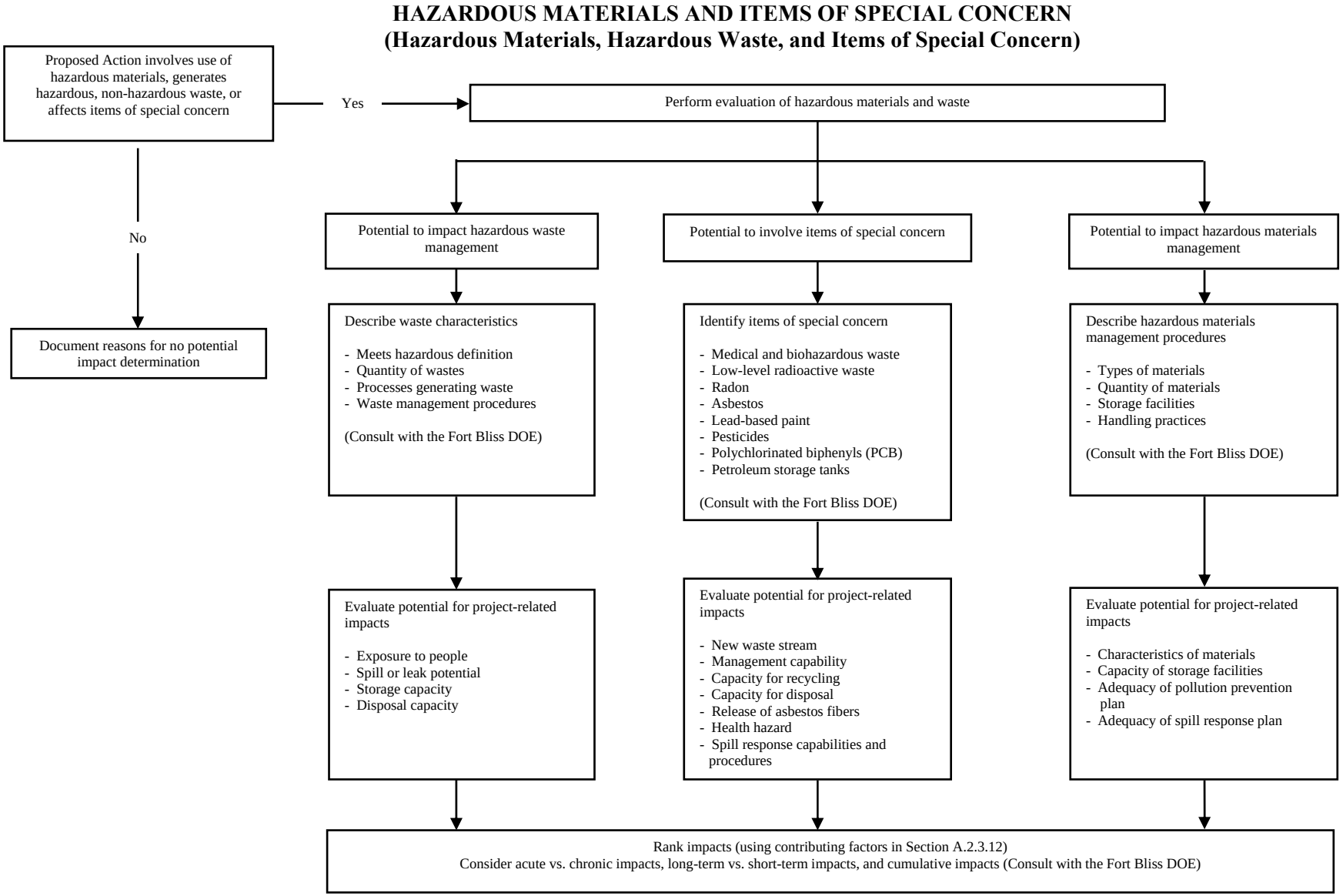


Figure A-12. Hazardous Materials and Items of Special Concern Evaluation Flowchart

A.2.3.13 Socioeconomics

This resource group includes population, economic development, housing, and community services and facilities (**Figure A-13**). Socioeconomic impacts that are not also accompanied by environmental impacts do not in and of themselves trigger a requirement for NEPA analysis. However, if an EIS is prepared, it must consider socioeconomic effects. Furthermore, socioeconomic changes often indirectly affect environmental resources through such consequences as construction of housing, increased traffic that emits air pollutants, increase in water consumption and waste generation, etc. Those indirect impacts do require consideration under NEPA.

Population. A socioeconomic analysis typically includes an evaluation of potential impacts of the project on population. This information contributes to the evaluation of the other elements of socioeconomic and environmental resources. Contributing factors for ranking impacts pertaining to population changes are presented as follows.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will create or contribute to an excursion above or below the existing forecasted population beyond a community's historic ability to accommodate change. • The activity will cause a change in the population that could potentially disrupt employment patterns or provision of services. • The activity will result in the dislocation of portions of the local population due to loss of jobs or increases in property values.
Impact	• The activity will create or contribute to an excursion above or below the existing forecasted population that is within a community's historic ability to accommodate change. • The activity will result in a short-term influx of workers.
No Impact	• The activity will create or contribute to an excursion above or below the existing forecasted population that is substantially less than a community's historic fluctuations in population. • The activity does not require additional people to be permanently or temporarily introduced to the area.
Beneficial Impact	• The activity will improve population stability and/or related factors.

Economic Development. The effects of a project on the economy depend on the size, in terms of project expenditure and employment, and the duration of the project. In evaluating the potential economic impacts of the project, it is important to quantify any direct impacts associated with the project and to evaluate the ability of the region of concern to accommodate such changes. In general, a more rigorous analysis of economic impacts is required for larger, more complex projects. Contributing factors for ranking impacts associated with economic issues are presented below.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will cause unemployment to increase beyond a community's historic ability to accommodate change. • The activity will cause household income to decrease beyond a community's historic ability to accommodate change. • The activity will reduce the bond rating of local municipalities.

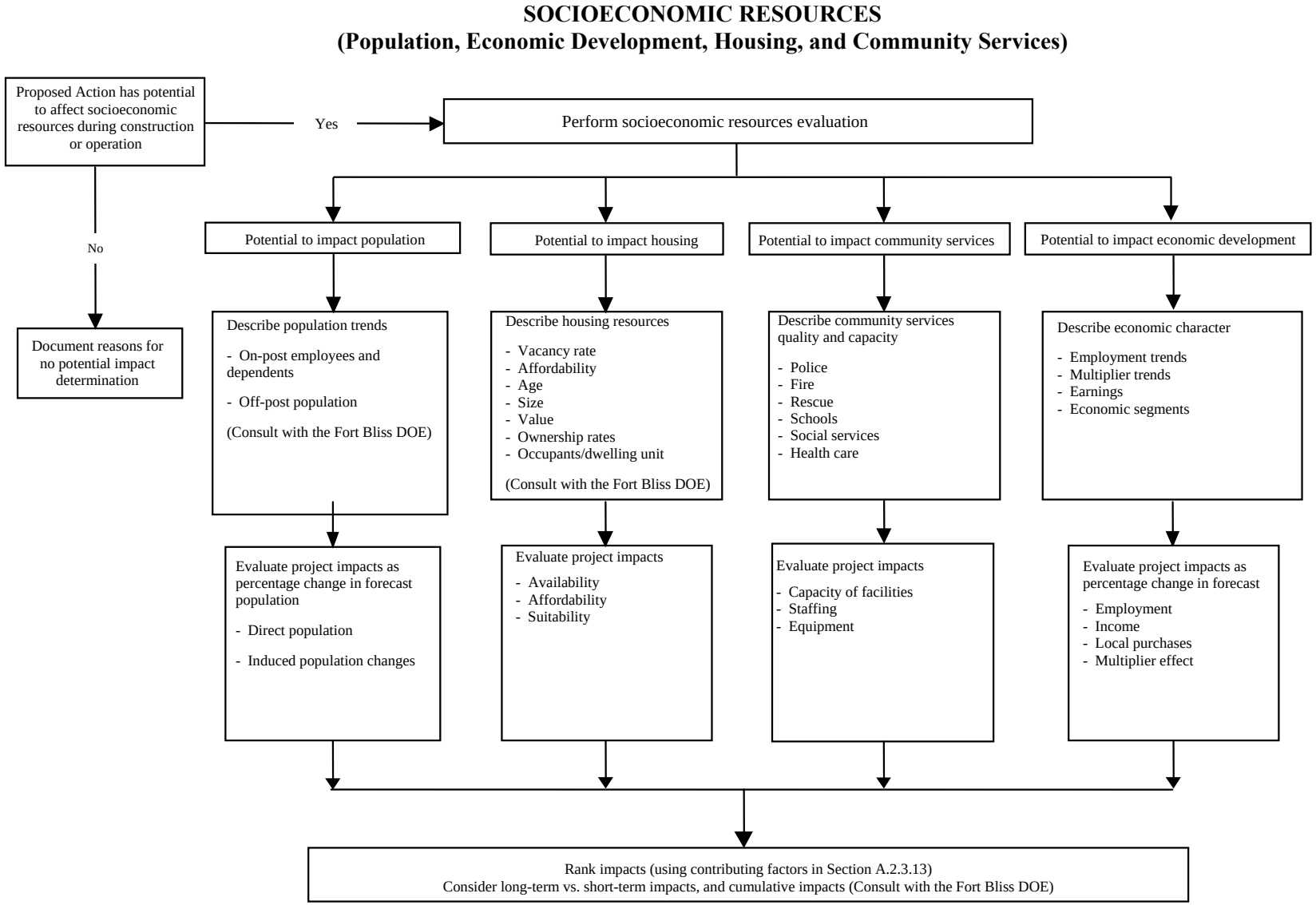


Figure A-13. Socioeconomic Resources Evaluation Flowchart

Rank (Continued)	Contributing Factors
	• The multiplier effect of direct unemployment associated with the activity will dampen economic activity. • Reduced economic activity associated with the unemployment caused by the activity will cause secondary unemployment. • The activity will cause a permanent reduction in military personnel which will significantly reduce expenditures in the local economy, causing reduced economic growth and secondary unemployment.
Impact	• The activity will cause unemployment to increase to a degree within a community's historic ability to accommodate change. • The activity will cause household income to decrease within a community's historic ability to accommodate change.
No Impact	• The activity does not result in changes to employment or income.
Beneficial Impact	• The activity will increase employment/income, economic growth, and secondary employment.

Housing. When evaluating the potential impact of the project on housing, it is important to consider the availability of housing and the cost of housing relative to demand and income. It is also important to identify whether existing housing meets Army regulation standards or if the project has the potential to impact the value of residential property. Contributing factors for ranking impacts associated with housing issues are presented below.

Rank	Contributing Factors
Potentially Significant Impact	• The activity will create a shortage of affordable housing or will substantially increase housing prices. • The activity will result in housing that does not meet Army standards. • The activity will cause property values to decline. • The activity will adversely affect the availability of mortgages or mortgage insurance. • The activity will cause forecasted vacancy rates to increase or decrease beyond a community's historic ability to accommodate change.
Impact No Impact	• The activity will cause forecasted vacancy rates to increase or decrease within a community's historic ability to accommodate change. • The activity will not impact property values. • The activity does not involve an influx of new inhabitants or relocation of existing ones, therefore the housing resource will not be impacted. • The activity will cause forecasted vacancy rates to increase, but remain below a community's historic fluctuations.
Beneficial Impact	• The activity will improve property values, increase availability of affordable housing, and/or improve the community's ability to accommodate growth/change.

Community Services. Community services refer to both public and private services on and off post that serve area residents. Community services include primary, secondary, and adult education; health care; social services; and police, fire, and rescue. When evaluating a project, it is important to consider existing and projected capacity to provide services, current and future changes in demand, and access to and cost of community services. Contributing factors for ranking impacts associated with community service issues are presented as follows.

Rank	Contributing Factors
Potentially Significant Impact	• Changes caused by the activity will result in a shortage of community services. • Changes caused by the activity will result in long-term unused capacity of community services. • The activity will provide redundant services and will result in long-term excess capacity of community services. • The activity will result in a change in the number of service positions for any category (e.g., teachers, fire, police) to increase beyond a community's historic ability to accommodate change.
Impact	• Changes caused by the activity will result in short-term changes in demand, either increased or decreased, for community services. • The activity will provide redundant services, but any unused capacity is expected to be temporary. • The activity will result in a change in the number of service positions for any category (e.g., teacher, fire, police) within a community's historic ability to accommodate change.
No Impact	• The activity will not impact demand for community services. • The activity will result in a change in the number of service positions for any category (e.g., teacher, fire, police) that is substantially below a community's historic fluctuations.
Beneficial Impact	• The activity will improve/enhance services such as education, health care, and/or police/fire protection.

A.2.3.14 Environmental Justice

Executive Order (EO) 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-income Populations, provides that federal agencies address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations. Methodologies for evaluating environmental justice are generally developed on a project-specific basis and reviewed by federal agencies as part of the NEPA documentation process.

Significance criteria are not utilized for Environmental Justice. However, factors to be considered in determining disproportionately high and adverse effects on minority or low-income populations include the following: whether potential health and environmental effects are significant or above generally accepted norms; whether the risk or rate of exposure or the impact to minority or low-income populations appreciably exceeds or is likely to appreciably exceed that of the general population; how ecological, cultural, human health, economic, or social impacts are related to impacts on the natural or physical environment; and whether the effects would occur in populations affected by cumulative or multiple adverse exposures from environmental hazards.

A.2.4 Impact Evaluation

The analysis of environmental impacts in the PEIS and the SEIS is based on the contributing factors defined for each of the resource groups described above. This section describes how implementation of planning, construction, and demolition programs and changes in mission activities are evaluated for potential impacts. **Table A-2** provides a tool for evaluating impacts from mission activities and other projects, using the contributing factors listed in Section A.2.3.

1177 **Table A-2. Project Evaluation Matrix**

Project Title:					
Environmental Resource Category		***Mission Activity***	***Facility Construction and Demolition***	***Environmental Resource Management***	***Real Estate Action***
Land Use and Visual Resources	Fort Bliss Land Use				
	• Main Cantonment Area				
	• Fort Bliss Training Complex				
	Off-Post Land Use				
	Visual Resources				
Infrastructure	Transportation				
	Utilities				
	Energy				
	Communications				
Airspace Use	Airspace Management and Use				
	• Airport Operations				
	• Controlled/Uncontrolled Airspace				
	• Restricted Airspace				
	• MTRs				
Earth Resources	Geology				
	Minerals and Energy Resources				
	Soils				
Air Quality	Criteria Pollutants				
	Fugitive Dust				
Water Resources	Surface Water				
	Groundwater				
Biological Resources	Vegetation				
	Habitat				
	Wildlife				
	Sensitive Species				
Cultural Resources	Archaeological Sites, Historic and Prehistoric Archaeological Resources				
	Architectural and Landscape Resources				
	Properties of Traditional Cultural and Religious Importance				
Noise	Aircraft				
	Weapons Firing/Explosives				
	Equipment Use				
Safety	Ground Safety				
	Flight Safety				
	Ordnance and Explosive Safety				
	Compatible Land Use				
Hazardous Materials and Items of Special Concern	Hazardous Materials				
	Hazardous Waste				
	Items of Special Concern				
Socioeconomic Resources	Population				
	Economic Development				
	Housing				
	Community Services and Facilities				

Project Title:					
Environmental Resource Category		***Mission Activity***	***Facility Construction and Demolition***	***Environmental Resource Management***	***Real Estate Action***
Environmental Justice	Minority Populations				
	Low-Income Population				
Operations	Ability to Meet Mission				
Totals					
	✓				
	✚				

LEGEND: = Potentially Significant Impact. = Impact. ✓ = No Impact (no effect on resource attribute, or attribute not present). ✚ = Beneficial Impact: S = Short-term, L = Long-term.

This table can be used to summarize the impacts of the projects being evaluated. The highest level of impact associated with any project component or resource determines the level of NEPA analysis required. For example, a project that has a potentially significant impact from operations and less impact during construction, receives an overall rank of potentially significant impact.

Mission Activities. Impacts from mission operations and training are assessed for the major military units' activities and training exercises that are conducted. It is important to note that not all group attributes are impacted by mission activities occurring at Fort Bliss. The criteria used to evaluate training and exercise activities are based on ranks and parameters described in Training Circular 5-400, Unit Leaders' Handbook for Environmental Stewardship.

Facility Construction and Demolition Projects. When evaluating facility construction and demolition projects, the potential impacts to each resource group and group attributes are evaluated for project siting, construction, and operation phases. The projects evaluated in the PEIS and SEIS represent the types of projects that would typically occur at Fort Bliss.

Environmental Resource Management. Impacts associated with changes in environmental management plans, policies, procedures, or projects are assessed for both beneficial effects and potential impacts on or conflicts with other resources. In some cases, environmental management policies can adversely affect a resource, for example a decision that leads to potential loss of isolated archaeological deposits.

A.2.5 Fort Bliss Environmental Management Programs

The Fort Bliss environmental management programs are directly applicable to all lands in the Main Cantonment Area, the South Training Areas, the Doña Ana Range–North Training Areas, and military activities on McGregor Range. The environmental management program on McGregor Range interfaces with the Bureau of Land Management's (BLM) *Final Resource Management Plan Amendment (RMPA) for McGregor Range* (May 2006). The responsibilities of Fort Bliss and BLM are specified in a 1990 Memorandum of Understanding (MOU) concerning policies, procedures, and responsibilities related to land use planning and resource management of McGregor Range. Agency responsibilities are summarized in **Table A-3**.

BLM recognizes Fort Bliss missions have priority use of McGregor Range and will secure Fort Bliss concurrence before authorizing any nonmilitary uses. BLM has managerial responsibilities for the public uses of the withdrawn land as enumerated in Public Law (PL) 106-65. However, non-military uses are subordinate to the military missions and uses of McGregor Range. Fort Bliss must concur with and/or provide stipulations or approval modifications to BLM managed actions prior to BLM approval of the action.

A cooperative agreement exists for management of the Area of Critical Environmental Concern (ACEC) between BLM, Fort Bliss, and New Mexico State University (NMSU), as referenced in the MOU. Similarly, BLM and Fort Bliss recognize the New Mexico Department of Game and Fish (NMDGF) as the agency responsible for wildlife (including game species) population management.

Table A-3. Agency Responsibilities for Environmental Resource Management on McGregor Range

	Withdrawn Lands	*Army Fee-Owned Lands*
Lands		
NEPA compliance lead agency		
• Non-military and third party activity	BLM	BLM
• Military activity	Fort Bliss	Fort Bliss
Non-military demand leases	BLM	Fort Bliss
Minerals		
Salable (sand, gravel, fill dirt, borrows, caliche, and building stone)	BLM	BLM
Leasable (oil and gas, geothermal)	BLM	BLM
Locatable (precious metals, etc.)	BLM	BLM
Vegetation Management		
ACEC	BLM/Fort Bliss/ NMSU	N/A
Rangeland Management		
Livestock grazing	BLM	N/A
Rangeland improvements	BLM	N/A
• Wildlife and livestock water	BLM/Fort Bliss	BLM/Fort Bliss
• Maintenance and construction of livestock control fences, water pipelines, tanks, tubs, wells, windmills, wildlife waters	BLM	N/A
Outside impact and military use areas	BLM	BLM
Inside impact and military use areas	Fort Bliss	Fort Bliss
• Fire breaks along McGregor Range boundary where appropriate	Fort Bliss	Fort Bliss
Wildlife		
Game species population management	NMDGF/BLM	NMDGF/BLM/ Fort Bliss
Habitat Management		
Wildlife habitat management activities	BLM	Fort Bliss
Wildlife and habitat monitoring	BLM	Fort Bliss/BLM
Special Status Species Management		
Compliance with federal and state laws affecting endangered, threatened, candidate, or sensitive plants and animals		
• Non-military actions	BLM	Fort Bliss
• Military actions	Fort Bliss	Fort Bliss
Recovery plans	BLM	Fort Bliss
Sikes Act Stamp Program	NMDGF/BLM/ Fort Bliss	NMDGF/BLM/ Fort Bliss
Animal damage control	BLM	BLM
Activities administered by BLM	BLM	BLM
Military activities	Fort Bliss	Fort Bliss
Recreation		
General	BLM	BLM/Fort Bliss
Hunting	NMDGF/BLM/ Fort Bliss	NMDGF/BLM/ Fort Bliss

	Withdrawn Lands	*Army Fee-Owned Lands*
Cultural Resources		
Compliance or third party undertakings	BLM	BLM/Fort Bliss
Military undertakings	Fort Bliss	Fort Bliss
Wilderness Study Area Management		
Management	BLM/Fort Bliss	N/A
Compliance	BLM/Fort Bliss	N/A
Watershed Management	BLM	Fort Bliss
Fire		
Non-military fire suppression	BLM	BLM
Military fire suppression	Fort Bliss	Fort Bliss
Prescribed burns	BLM	BLM/Fort Bliss
Law Enforcement		
Non-military activities/personnel	BLM	Fort Bliss/BLM
Military activities/personnel	Fort Bliss/BLM	Fort Bliss
Roads		
Maintenance	BLM/Fort Bliss	BLM/Fort Bliss
Planning	BLM/Fort Bliss	BLM/Fort Bliss

In a combined effort, the Fort Bliss ITAM team developed the SiteRep system as a means to identify and prioritize degraded training sites/areas for potential rehabilitation based on the requirements of the training mission, environmental influences, and resources available. This system is based upon two Army regulations:

- AR 200-3, Chap. 3, Natural Resources-Land, Forest and Wildlife Management, 20 June 2005
- AR 350-19, The Army Sustainable Range Program, 30 August 2005.

The following describes the Fort Bliss SiteRep process and the basic steps involved its implementation.

1. Upon observing degradation of a training area, an assessor completes the data survey sheet, SiteRep Form A (**Attachment 6**), and sends the form to the ITAM Coordinator.
2. After receiving SiteRep Form A, the ITAM team will investigate the site and complete SiteRep Form B (**Attachment 7**). The data will be entered into digital format using Microsoft Office - Access data forms. The permanent digital record of the observation, known as the SiteRep file, can be used later in other applications such as assessment of cumulative impacts. A high score for a given site is an indicator of a potential need for rehabilitation.
3. The ITAM team will use a GIS to evaluate the digital data. The GIS will analyze the SiteRep data for locational relationships with threatened, endangered, or sensitive species, Waters of the U.S., wetlands, riparian, soils, vegetation, precipitation, terrain, regulatory conflicts, and national historic register issues. The sensitivity of protected locational data will be respected.
4. After the GIS analysis is complete, the SiteRep data will be returned to the ITAM Coordinator for potential inclusion as a rehabilitation project. For those projects assigned high priority for action, the ITAM team, working with available expertise and resources, will develop a proposed rehabilitation prescription.
5. The DOE NEPA team will review all proposed rehabilitation prescriptions to determine concurrence or further requirements. Concurred rehabilitation prescriptions will be briefed to the Commander, U.S. Army Combined Arms Support Battalion (USACAS) for input/feedback and prioritized by the Director of Plans, Training, Mobilization, and Security (DPTMS) for potential implementation (resource dependent).

Attachment 1. Project Screening Criteria and List of Categorical Exclusions From 32 CFR 651

Project Screening Criteria

The action has not been segmented. Segmentation can occur when an action is broken down into small parts making the effects appear less significant. The scope of a proposed action must include consideration of connected, cumulative, and similar actions.

No exceptional circumstances exist. Extraordinary circumstances that preclude the use of a CX are:

1. Reasonable likelihood of significant effects on public health, safety, or the environment.
2. Reasonable likelihood of significant environmental effects (direct, indirect, and cumulative).
3. Imposition of uncertain or unique environmental risks.
4. Greater scope or size than is normal for this category of action.
5. Reportable releases of hazardous or toxic substances.
6. Release of petroleum, oils, and lubricants except from a properly functioning engine or vehicle, application of pesticides and herbicides, or where the proposed action results in the requirement to develop or amend a Spill Prevention, Control, and Countermeasures Plan.
7. Air emissions exceed de minimis levels or a formal Clean Air Act conformity determination is required.
8. Reasonable likelihood of violating any federal, state, or local law or requirements imposed for the protection of the environment.
9. Unresolved effect on environmentally sensitive resources.\, including
   (i) Proposed federally listed, threatened, or endangered species or their designated critical habitats;
   (ii) Properties listed or eligible for listing on the National Register of Historic Places;
   (iii) Areas having special designation or recognition such as prime or unique agricultural lands, coastal zones, designated wilderness or wilderness study areas, wild and scenic rivers, National Historic Landmarks designated by the Secretary of the Interior, 100-year floodplains, wetlands, sole source aquifers, National Wildlife Refuges, National Parks, areas of critical environmental concern, or other areas of high environmental sensitivity;
   (iv) Cultural Resources as defined in AR 200-4.
10. Involving effects on the quality of the environment that are likely to be highly controversial.
11. Involving effects on the environment that are highly uncertain, involve unique or unknown risks, or are scientifically controversial.
12. Establishes a precedent for future or subsequent actions that are reasonably likely to have a future significant effect.
13. Potential for degradation of already existing poor environmental conditions. Also, initiation of a degrading influence, activity, or effect in areas not already significantly modified from their natural condition.
14. Introduction/employment of unproven technology.

List of Categorical Exclusions

(a) For convenience only, the CXs are grouped under common types of activities (for example, administration/ operation, construction/demolition, and repair and maintenance). Certain CXs require a REC, which will be completed and signed by the proponent. Concurrence on the use of a CX is required from the appropriate environmental officer (EO), and that signature is required on the REC.

(b) Administration/operation activities:

(1) Routine law and order activities performed by military/military police and physical plant protection and security personnel, and civilian natural resources and environmental law officers.

(2) Emergency or disaster assistance provided to federal, state, or local entities (REC required).

(3) Preparation of regulations, procedures, manuals, and other guidance documents that implement, without substantive change, the applicable HQDA or other federal agency regulations, procedures, manuals, and other guidance documents that have been environmentally evaluated (subject to previous NEPA review).

(4) Proposed activities and operations to be conducted in an existing non-historic structure which are within the scope and compatibility of the present functional use of the building, will not result in a substantial increase in waste discharged to the environment, will not result in substantially different waste discharges from current or previous activities, and emissions will remain within established permit limits, if any (REC required).

(5) Normal personnel, fiscal, and administrative activities involving military and civilian personnel (recruiting, processing, paying, and records keeping).

(6) Routinely conducted recreation and welfare activities not involving off-road recreational vehicles.

(7) Deployment of military units on a temporary duty (TDY) or training basis where existing facilities are used for their intended purposes consistent with the scope and size of existing mission.

(8) Preparation of administrative or personnel-related studies, reports, or investigations.

(9) Approval of asbestos or lead-based paint management plans drafted in accordance with applicable laws and regulations (REC required).

(10) Non-construction activities in support of other agencies/organizations involving community participation projects and law enforcement activities.

(11) Ceremonies, funerals, and concerts. This includes events such as state funerals, to include flyovers.

(12) Reductions and realignments of civilian and/or military personnel that: fall below the thresholds for reportable actions as prescribed by statute (10 U.S.C. 2687) and do not involve related activities such as construction, renovation, or demolition activities that would otherwise require an EA or an EIS to implement (REC required). This includes reorganizations and reassignments with no changes in force structure, unit redesignations, and routine administrative reorganizations and consolidations (REC required).

(13) Actions affecting Army property that fall under another federal agency's list of categorical exclusions when the other federal agency is the lead agency (decision maker), or joint actions on another federal agency's property that fall under that agency's list of categorical exclusions (REC required).

(14) Relocation of personnel into existing federally-owned (or state-owned in the case of ARNG) or commercially-leased space, which does not involve a substantial change in the supporting infrastructure (for example, an increase in vehicular traffic beyond the capacity of the supporting road network to accommodate such an increase is an example of substantial change) (REC required).

(c) Construction and demolition:

(1) Construction of an addition to an existing structure or new construction on a previously undisturbed site if the area to be disturbed has no more than 5.0 cumulative acres of new surface disturbance. This does not include construction of facilities for the transportation, distribution, use, storage, treatment, and disposal of solid waste, medical waste, and hazardous waste (REC required).

(2) Demolition of non-historic buildings, structures, or other improvements and disposal of debris there from, or removal of a part thereof for disposal, in accordance with applicable regulations, including those regulations applying to removal of asbestos, polychlorinated biphenyls (PCBs), lead-based paint, and other special hazard items (REC required).

(3) Road or trail construction and repair on existing rights-of-ways or on previously disturbed areas.

(d) Cultural and natural resource management activities:

(1) Land regeneration activities using only native trees and vegetation, including site preparation. This does not include forestry operations (REC required).

(2) Routine maintenance of streams and ditches or other rainwater conveyance structures (in accordance with USACE permit authority under Section 404 of the Clean Water Act and applicable state and local permits), and erosion control and storm water control structures (REC required).

(3) Implementation of hunting and fishing policies or regulations that are consistent with state and local regulations.

(4) Studies, data collection, monitoring and information gathering that do not involve major surface disturbance. Examples include topographic surveys, bird counts, wetland mapping, and other resources inventories (REC required).

(5) Maintenance of archaeological, historical, and endangered/threatened species avoidance markers, fencing, and signs.

(e) Procurement and contract activities:

(1) Routine procurement of goods and services (complying with applicable procedures for sustainable or ``green'' procurement) to support operations and infrastructure, including routine utility services and contracts.

(2) Acquisition, installation, and operation of utility and communication systems, mobile antennas, data processing cable and similar electronic equipment that use existing right-of-way, easement, distribution systems, and/or facilities (REC required).

(3) Conversion of commercial activities under the provisions of AR 5-20. This includes only those actions that do not change the actions or the missions of the organization or alter the existing land-use patterns.

(4) Modification, product improvement, or configuration engineering design change to materiel, structure, or item that does not change the original impact of the materiel, structure, or item on the environment (REC required).

(5) Procurement, testing, use, and/or conversion of a commercially available product (for example, forklift, generator, chain saw, etc.) which does not meet the definition of a weapon system (Title 10, U.S.C., Section 2403. ``Major weapon systems: Contractor guarantees''), and does not result in any unusual disposal requirements.

(6) Acquisition or contracting for spares and spare parts, consistent with the approved Technical Data Package (TDP).

(7) Modification and adaptation of commercially available items and products for military application (for example, sportsman's products and wear such as holsters, shotguns, sidearms, protective shields, etc.), as long as modifications do not alter the normal impact to the environment (REC required).

(8) Adaptation of non-lethal munitions and restraints from law enforcement suppliers and industry (such as rubber bullets, stun grenades, smoke bombs, etc.) for military police and crowd control activities where there is no change from the original product design and there are no unusual disposal requirements. The development and use by the military of non-lethal munitions and restraints which are similar to those used by local police forces and in which there are no unusual disposal requirements (REC required).

(f) Real estate activities:

(1) Grants or acquisitions of leases, licenses, easements, and permits for use of real property or facilities in which there is no significant change in land or facility use. Examples include, but are not limited to, Army controlled property and Army leases of civilian property to include leases of training, administrative, general use, special purpose, or warehouse space (REC required).

(2) Disposal of excess easement areas to the underlying fee owner (REC required).

(3) Transfer of real property administrative control within the Army, to another military department, or to other federal agency, including the return of public domain lands to the Department of Interior, and reporting of property as excess and surplus to the GSA for disposal (REC required).

(4) Transfer of active installation utilities to a commercial or governmental utility provider, except for those systems on property that has been declared excess and proposed for disposal (REC required).

(5) Acquisition of real property (including facilities) where the land use will not change substantially or where the land acquired will not exceed 40 acres and the use will be similar to current or ongoing Army activities on adjacent land (REC required).

(6) Disposal of real property (including facilities) by the Army where the reasonably foreseeable use will not change significantly (REC required).

(g) Repair and maintenance activities:

(1) Routine repair and maintenance of buildings, airfields, grounds, equipment, and other facilities. Examples include, but are not limited to: Removal and disposal of asbestos-containing material (for example, roof material and floor tile) or lead-based paint in accordance with applicable regulations; removal of dead, diseased, or damaged trees; and repair of roofs, doors, windows, or fixtures (REC required for removal and disposal of asbestos-containing material and lead-based paint or work on historic structures).

(2) Routine repairs and maintenance of roads, trails, and firebreaks. Examples include, but are not limited to: grading and clearing the roadside of brush with or without the use of herbicides; resurfacing a road to its original conditions; pruning vegetation, removal of dead, diseased, or damaged trees and cleaning culverts; and minor soil stabilization activities.

(3) Routine repair and maintenance of equipment and vehicles (for example, autos, tractors, lawn equipment, military vehicles, etc.) which is substantially the same as that routinely performed by private sector owners and operators of similar equipment and vehicles. This does not include depot maintenance of unique military equipment.

(h) Hazardous materials/hazardous waste management and operations:

(1) Use of gauging devices, analytical instruments, and other devices containing sealed radiological sources; use of industrial radiography; use of radioactive material in medical and veterinary practices; possession of radioactive material incident to performing services such as installation, maintenance, leak tests, and calibration; use of uranium as shielding material in containers or devices; and radioactive tracers (REC required).

(2) Immediate responses in accordance with emergency response plans (for example, Spill Prevention Control and Countermeasure Plan (SPCCP)/Installation Spill Contingency Plan (ISCP), and Chemical Accident and Incident Response Plan) for release or discharge of oil or hazardous materials/substances; or emergency actions taken by Explosive Ordnance Demolition (EOD) detachment or Technical Escort Unit.

(3) Sampling, surveying, well drilling and installation, analytical testing, site preparation, and intrusive testing to determine if hazardous wastes, contaminants, pollutants, or special hazards (for example, asbestos, PCBs, lead-based paint, or unexploded ordnance) are present (REC required).

(4) Routine management, to include transportation, distribution, use, storage, treatment, and disposal of solid waste, medical waste, radiological and special hazards (for example, asbestos, PCBs, lead-based paint, or unexploded ordnance), and/or hazardous waste that complies with EPA, Army, or other regulatory agency requirements. This CX is not applicable to new construction of facilities for such management purposes.

(5) Research, testing, and operations conducted at existing enclosed facilities consistent with previously established safety levels and in compliance with applicable federal, state, and local standards. For facilities without existing NEPA analysis, including contractor-operated facilities, if the operation will substantially increase the extent of potential environmental impacts or is controversial, an EA (and possibly an EIS) is required.

(6) Reutilization, marketing, distribution, donation, and resale of items, equipment, or materiel; normal transfer of items to the Defense Logistics Agency. Items, equipment, or materiel that have been contaminated with hazardous materials or wastes will be adequately cleaned and will conform to the applicable regulatory agency's requirements.

(i) Training and testing:

(1) Simulated war games (classroom setting) and on-post tactical and logistical exercises involving units of battalion size or smaller, and where tracked vehicles will not be used (REC required to demonstrate coordination with installation range control and environmental office).

(2) Training entirely of an administrative or classroom nature.

(3) Intermittent on-post training activities (or off-post training covered by an ARNG land use agreement) that involve no live fire or vehicles off established roads or trails. Uses include, but are not limited to, land navigation, physical training, Federal Aviation Administration (FAA) approved aerial overflights, and small unit level training.

(j) Aircraft and airfield activities:

(1) Infrequent, temporary (less than 30 days) increases in air operations up to 50 percent of the typical installation aircraft operation rate (REC required).

(2) Flying activities in compliance with Federal Aviation Administration Regulations and in accordance with normal flight patterns and elevations for that facility, where the flight patterns/elevations have been addressed in an installation master plan or other planning document that has been subject to NEPA public review.

(3) Installation, repair, or upgrade of airfield equipment (for example, runway visual range equipment, visual approach slope indicators).

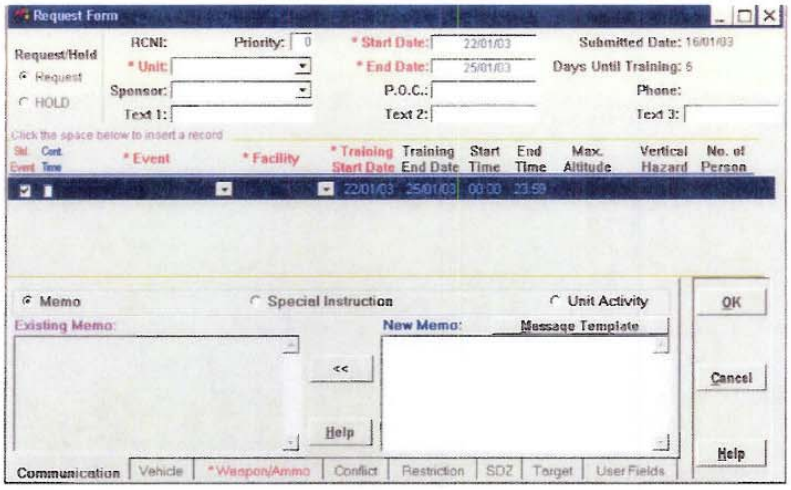
(4) Army participation in established air shows sponsored or conducted by non-Army entities on other than Army property.

Attachment 2. TRADOC Form 161 (Categorical Exclusion)

CATEGORICAL EXCLUSION (CX) (40CFR1500-1508)		
TO: (Environmental Office)	FROM: (Proponent Action Officer & Phone Number)	
I. IDENTIFICATION		
Project Number	Project Title	
Brief Description (A copy of DD Form 1391. Military Construction Project Data, or another description prepared to meet another requirement may be attached as appropriate.)		
Applicable Categorical Exclusion(s) (CX)		
Reasons for Categorically Excluding Proposal		
Name and Signature of the Proponent of Action	Phone Number	Date
II. CONCURRENCE/NONCONCURRENCE		
Concur	Nonconcur	
Reasons for Nonconcurrence		
Name and Signature of Environmental Coordinator	Phone Number	Date

TRADOC FORM Apr 80 **161-R** Replaces TRADOC Form 161-R, Jan 77, which is obsolete.

1467 **Attachment 3. RFMSS Review Process**



3.1 Submitting a Request or Hold

To submit a request or hold through the RFMSS 2002 system, the above form must be completed. At the top left corner of the form is the Request and Hold radial buttons. The form opens to the default of Request. If the user desires to place a hold on a facility they must click on the HOLD radial. All other entries on this form are identical for both the Request and HOLD functions. Note that all *mandatory* entries on the form are preceded with an asterisk and are colored red. The system will not allow the user to advance to the next window or submit the form until all mandatory fields have been completed.

3.1.1 Completing the upper portion of the Request form - The upper portion of the Request Form window contains information that applies to the entire request. RFMSS uniquely identifies a single Request by assigning the Request Control Number Identifier (RCNI) automatically when the OK button is clicked. The assigned RCNI is not modifiable.

A. *Unit and Priority- A *Unit must be identified on each Request. Click the down arrow at the right of the Unit data field in order to select from a list of unit names. If the user has signed into the system with a Range Scheduler User ID and Password the drop down menu will display all units in the database. If the user has signed into the system with a unit ID and Password the drop down will list only display the unit that signed on and all subordinate units. Subordinate units are established in the Set Up Table. The set up table is accessible from the Main Menu by selecting Administration, Reference Table, and Unit. Should changes to this table be required contact the local FA. The selected unit's Priority automatically displays if assigned in the Set Up Table. Otherwise, a default priority of "0" is entered.

B. Sponsor - The Sponsor (or parent unit), if established in the Set Up Table, will auto populate. If none has been established in the Set Up Tables then it may be manually entered from the drop down listing.

C. The *Start Date and *End Date default entries are tomorrow's date when initiating a request using the New Request option on the Schedule menu. If accessed from the Two Week Calendar then the start and end dates will be the date selected in the Two Week Calendar window. Users can change these dates as necessary. When multiple facilities

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and/or events are requested using a single Request Form this Start Date will reflect the earliest date of the requests and the End Date will reflect the latest date of the requests thus capturing the entire time frame for all training being scheduled.

D. If a point of contact is established in the Set Up table, then it will automatically display in the POC data field when a unit is selected. If none has been established then it may be manually entered.

E. Submitted Date – This will reflect the date the Request or HOLD was submitted into the system.

F. Days Until Training – This will tell the user the number of days from tomorrows date before the training is to start.

G. Phone – This is the POC phone and can only be populated via the Set Up Tables. If there is no entry in the Set Up Tables then this will remain blank. It cannot be manually entered.

Note - In the above sample of the Request Form the Text 1, Text 2, and Text 3 data entry areas are blank. The titles Text 1-3 are place holders on the request form. These are *user defined fields* that are set up be the FA and can only be changed by the FA. These allow the local Range management to establish other installation-specific data that the specific range complex desires to utilize. Each installation FA may remove these fields completely or redefine the required data to be input in these fields by the customers. If these fields are not clearly defined contact the Range Control Scheduler or the local FA for explanation of what data should be provided in these fields.

3.1.2 Completing the middle portion of the Request form – The middle portion of the request form allows the user to define the facilities, the events, and other specifics about the training to be conducted. Clicking the cursor in the middle portion of the window, or using the Schedule menu at the top of the window, Edit, Add New Facility Event Selection, will open a blank line in the window. A single Request can cover multiple facilities and multiple events, each with different time periods.

A. **Std Event** block – When the system is set up, Range Management has the option to establish 'Standard Events' for each facility. Normally a 'Standard Event' is defined as an event, or events, that may be conducted on a given facility without modifications or additional resources being applied to that facility. The "Standard Event" may be further defined as what weapons and ammunitions may be utilized for training on a specific facility. The application will default to standard events thus place a check in the block. The application may be set up by the FA to allow ONLY those select event(s) to be scheduled by the users.

   All other training events that have not been established in the set up table by the FA are considered by the application to be non-standard events. Non-Standard events may be blocked in the set up tables by the FA. If this is the case the customers desiring to conduct non-standard training will be forced to contact Range Control and have them input the request. Should a specific facility be desired for a 'Non-Standard' event, and the application has been configured to accept non-standard events (by the FA), the user may click on the check mark, removing the check and leaving the block blank, and fill out the request form for submission.

Note that the Event and Facility fields are linked together through the Set Up Table when the Std. Event block is checked.

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B. Cont. Time – This block is used to allow the user to establish with Range Control that they will be training continuously for more that a 24hr period. Note that on the line opened, to the right there is a Start Time and a Stop Time. If a facility has been scheduled for three consecutive days with a start time of 0800hrs and a with a stop time of 1800 hrs, the Range Cadre will assume that the facility will be occupied each day at 0800 and cleared by 1800 hrs at the end of each day. If the Cont. Time block is checked it signifies that the unit will occupy the facility at 0800 the first day and will stay at the facility continuously until 1800 on the last day of training.

C. Enter the *Event information – Clicking on the down arrow on the **Event** field first will display all events that are available to be scheduled on the installation. By selecting a specific event (provided the Std. Event block is checked) only facilities that will accommodate that event will be displayed.

D. Enter the *Facility information - Clicking on the down arrow on the **Facility** field first will display all facilities that are available to be scheduled at the range complex. By selecting a specific facility (provided the Std. Event block is checked) only events that may be scheduled on that facility will be displayed.

Note that if the Std. Event block is not checked there is no system internal check and balance system to alert Range Cadre should a unit attempt to schedule an event on a facility that is not compatible.

E. *Training Start Date and *Training End Date – When the data line is opened the Start Date and End Date will default to the dates set in the upper portion of the request form. If there are multiple entries on the request form, dates may be manually input on these lines. Note that when there are multiple scheduling inputs on the form the upper portion of the form should reflect the first date and last date of all training. Each line will break out the specifics of each date, times, event, and facility as required.

F. Start and End Time – Input the start and end times that the facility is being requested. If the facility is to be occupied for more than 24hr, Check the **Cont. Time** block and indicate the start time for the first day of training and the End time for the last day when the unit is scheduled to depart the facility. If a facility has been requested for multiple days and the **Cont. Time** block has not been checked, the start and end times will be the start and end time for EACH DAY. The unit will be expected to occupy and depart the facility EACH DAY.

G. Max. Altitude – Maximum altitude is associated with a particular facility and will display whatever altitude is established in the set up table. This is the maximum altitude that is not to be exceeded by any firing on that facility.

H. Vertical Hazard – This is the maximum height distance of a possible ricochet from an ammunition or the explosion radius of an ammunition.

I. No. of Persons – This block is for the number of Persons projected to be trained.

Should there be a requirement to remove a data line from the request (see below), highlight the data line by clicking on that line. Next place the curser on the Edit located in the top left corner of the screen and click. Then select the Delete Facility/Event Selection and click. The data line highlighted will be removed from the Request Form.

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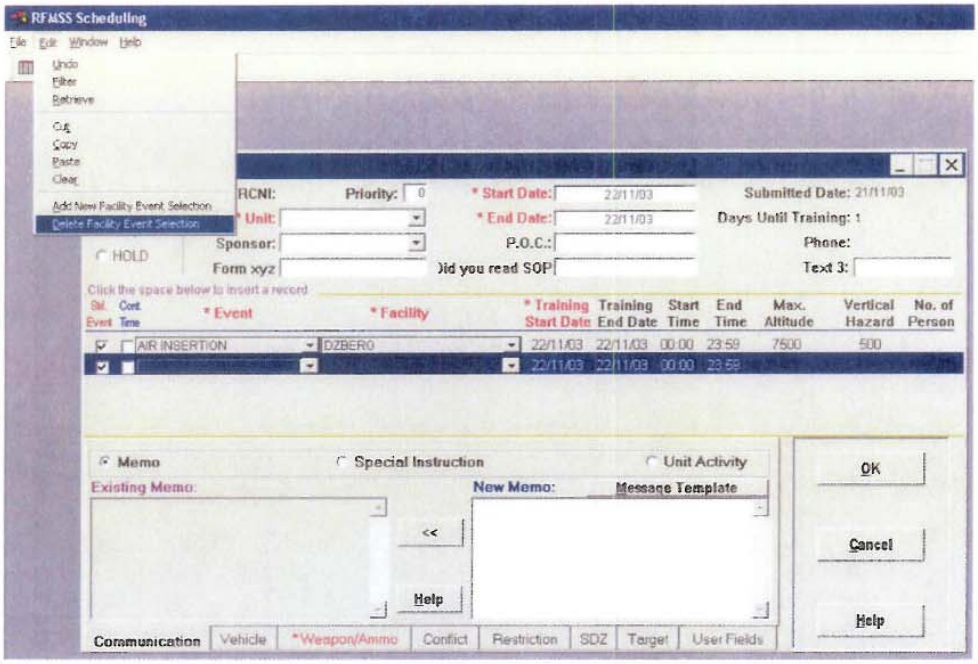

3.1.3 Completing the tabs portion of the Request form – There are 8 tabs across the bottom of the Request Form. These tabs are as follows and are individually discussed below:

- Communication
- Vehicle
- *Weapons/Ammo (Mandatory field)
- Conflict
- Restriction
- SDZ
- Target
- User Fields

NOTE: The Communications tab relates to the entire request as the top 1/3rd of the request form.

3.1.3.1 Communication tab – There are three radials buttons on the Communication tab which provides means of general communication associated with the request. They are the Memo, Special Instructions, and Unit Activity radials. By clicking on the radial the specific communication can be read.

The **Memo** field is used for general communication about the Request by the customer to communicate information to the Range Control.

The **Special Instruction** field is used by Range Control to communicate to the unit and its chain-of-command.

The **Unit Activity** field is used by the unit to describe any unusual needs associated with the **Request**.

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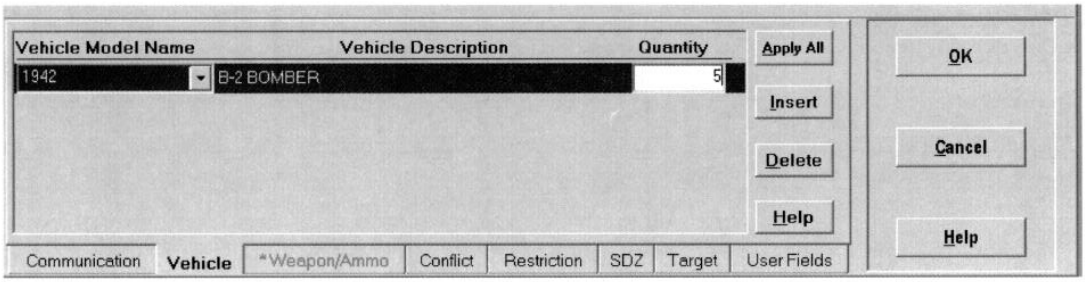
NOTE: All other tabs, excluding the Communications tab, relates to the specific line (event and facility line) highlighted while the tabs are paged through and data input. This allows the user to specify Vehicles, Weapons/Ammo, and Targets to be used for that training event as well as take note of any Conflicts, and/or Restrictions pertaining to that specific facility and/or event.

3.1.3.2 Vehicle Tab – Clicking the **Vehicle** tab of the **Request Form** displays a blank tab. An event and facility *must* be selected before choosing a vehicle type. Clicking in the blank field OR clicking on the **Insert** button will display the vehicle data entry line. Clicking on the drop down under the Vehicle Model Name data field will display the vehicles available for training. Anytime this field is clicked upon the entire list in the database will display as available. Clicking on the vehicle of choice will popular the data field and auto populate the Vehicle Description field. (This data will be used for Maneuver Impact Miles (MIMS) calculations and utilization data in the future.) The estimated quantity of each type of vehicle is to be entered. Note that when multiple Events/Facilities are being input on a single request form the vehicle data being input will apply to the highlighted Event/Facility *only* unless the **Apply All** button is clicked. Only vehicles that are going beyond the hardstand parking area and actually into the training areas/ranges are to be considered in the MIMS calculations and therefore entered into the Request Form.



NOTE: The Apply All, Insert, Delete, and Help buttons will appear on the Vehicle, *Weapons/Ammo, and Target tabs and function EXACTLY THE SAME for each tab.

A. **Apply All button** – When multiple Events/Facilities are being input on a single Request Form and the same Vehicle(s)/Weapons/Ammo/Targets are being used for all scheduled Events/Facilities, highlight an Event/Facility data line, input the vehicle(s), and click the **Apply All** button. This will attach the vehicles highlighted to each Event/Facility on the Request.

B. **Insert button** – When additional Vehicle(s)/Weapons/Ammo/Targets need to be added to a specific Event/Facility, highlight the specific Event/Facility, click on the **Insert** button, and add the Vehicle(s)/Weapons/Ammo/Targets data as required.

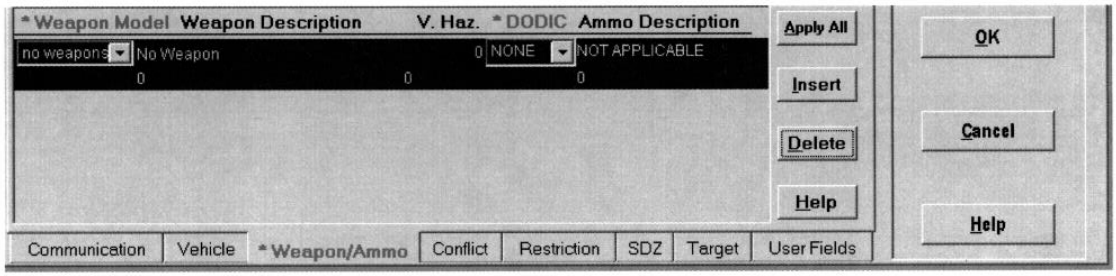
C. **Delete button** – When Vehicle(s)/Weapons/Ammo/Targets need to be deleted from a specific Event/Facility highlight the specific Event/Facility, highlight the specific Vehicle(s)/Weapons/Ammo/Targets that needs to be deleted, click on the **Delete** button, and the Vehicle(s)/Weapons/Ammo/Targets data will be removed from the display.

D. Help – This will display the portion of the Users Guide specifically addressing the Vehicle(s)/Weapons/Ammo/Targets tab.

3.1.3.3 *Weapon/Ammo Tab – The Weapon/Ammo Tab is mandatory and if there is no weapon or ammo to be used the default entry of 'None' is acceptable. The Weapon and Ammunition lists are standard listings of the Army inventory. Additions to this list may be made at the local level by the FA if required.

The Weapon Model and DODIC that appear in the drop down list are populated from the Facility-Weapon, Facility-Ammunition and Weapon-Ammunition tables. For each facility-event combination selected in the middle portion of the window, if the STD event check box is selected, then the Weapon Model pull down list is filtered to display only the weapons cross-referenced in the above mentioned tables. If the STD Event check box is selected and there are no weapons or ammo displayed for a facility-event combination then a message "There is no standard ammo/weapon setup for Facility xxxx" will be displayed. If STD EVENT is not selected, then all weapons and ammo in the system will be displayed in the Weapon Model and DODIC pull down list.

Vertical Hazards (**V. Haz.**) associated with a weapon are indicated if they have been entered in the Weapon setup table.



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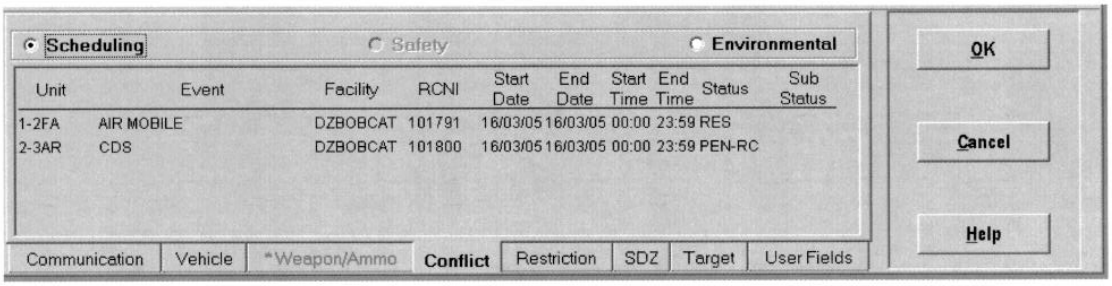
3.1.3.4 Conflict Tab - The Conflict tab of the Request Form window identifies the Scheduling, Safety, and Environmental conflicts associated with the request's selected event-facility. If there is a conflict, the label of the radio button is active. Otherwise, the radio button label is grayed out. Click on the desired radio button to view active conflicts.

The **Scheduling** conflict window lists any other requests that are scheduled on the facility for that day. (As displayed below)

The **Safety** conflict window lists all safety conflicts resulting from entries in the Facility-Facility Conflict, Facility-Event Conflict and Facility-Ammunition Event Conflict setup tables.

The **Environmental** conflict window lists all environmental conflicts resulting from entries in the **Facility-Environmental Conflict** setup table.



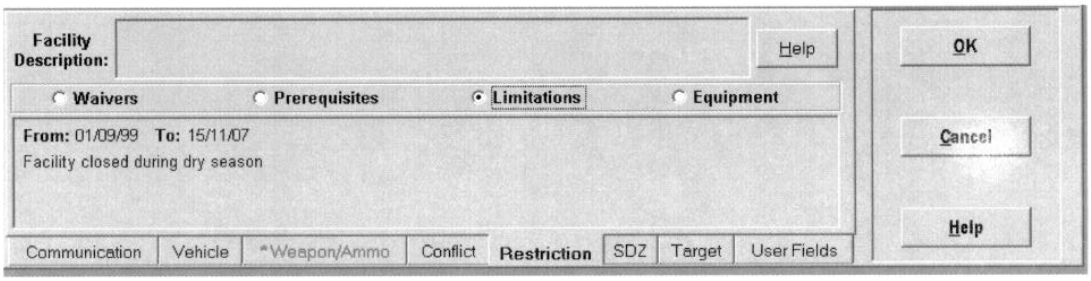
3.1.3.5 Restriction Tab - The **Restriction** tab of the **Request Form** window enables the user to view any **Waivers**, **Prerequisites**, **Limitations**, and available **Equipment** associated with the selected event and/or facility. ***The restrictions on the facilities can be established for specific time frames or long term in the set up table. Equipment is established in the set up table.***

View any information on each of these restriction types by clicking the applicable radio button: **Waivers**, **Prerequisites** and **Limitations**. The system will display specific data fields containing information affecting the request. The waivers, prerequisites, and limitations are derived from the **Facility, Restriction** setup table and are based on the facility and event.

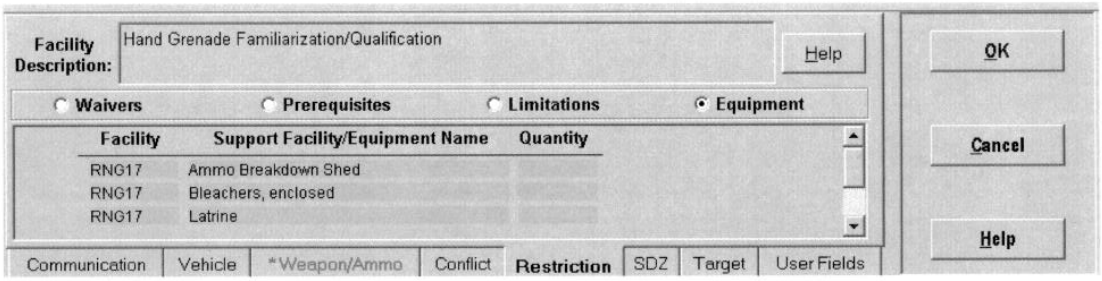
A **Limitation** would be any restriction that could keep the facility from being operated at full capacity (i.e. limited hours of operation due to noise abatement).

A **Prerequisite** would be a requirement for the user to take some action prior to facility usage (i.e. attend special briefing or specialized training courses).

A **Waiver** would be the requirement to obtain special permission to conduct specific types of training (i.e. fire fighting training during a dry season).

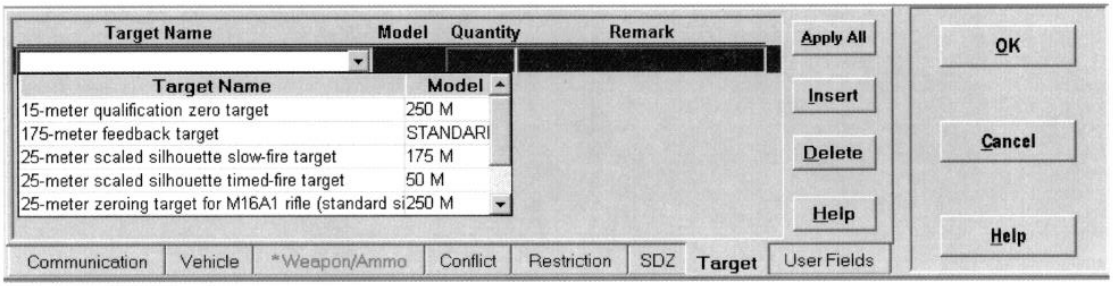


Selecting the Equipment radio button displays support facilities/equipment associated with the selected facility. The equipment data originates from the **Facility, Facility-Support Facility** setup table. The facility description field is derived from the **Facility** setup table.



3.1.3.6 SDZ Tab– The **Surface Danger Zone** (SDZ) function will be activated in a future release.

3.1.3.7 Target Tab - The **Target** tab of the **Request Form** window is a drop down menu that is built in the Set Up Tables. If additional targets are required on the drop down display contact the local FA. The **Target** tab enables the user to specify targeting needs to range control. Users can choose from the drop down list the type of targets needed, specify the quantity, and input any remarks or instructions required on the use of the targets requested. Enter target requirements, if any, for each facility-event on your request form. If more than one event/facility is on the request, highlight the event/facility and then input target data as required. If the target(s) are required for all events/facilities on the request, enter the targets required and click the **Apply All** button. To remove a target requirement from the list highlight the target to be removed and click the **Delete** button.



Attachment 4. Format for Record of Environmental Consideration
Modified for Fort Bliss

To: ***(Environmental Officer)***

From: ***(Proponent)***

Project Title:

Brief Description:

Anticipated date/or duration of proposed action: ***(month/year)***

Reason for using record of environmental consideration (*choose one*):

a. Adequately covered in an (EA, EIS) entitled *(name), (dated).* The EA/EIS may be reviewed at *(location).*

OR,

b. Is categorically excluded under the provisions of CX _____, 32 CFR 651, Appendix B, and no extraordinary circumstances exist as defined in paragraph 4-3, because:

_____
_____
_____
_____
_____
_____
_____

_____
(Date) ***Project Proponent - Commander or Decision Maker***

_____
(Date) ***Director of Environment or Formally Designated Representative***

*Variation from this format is acceptable provided basic information and approvals are included in any modified document

1522 **Attachment 5. Environmental Baseline Survey Format**

ENVIRONMENTAL BASELINE SURVEY

Project Location or Address
FORT BLISS, TEXAS

Date:

1. PURPOSE: The purpose of this Environmental Baseline Survey (EBS) is to document the environmental condition of the _____ property, Fort Bliss, Texas. This facility is currently used for_____.

2. FINDING: The subject facility identified below does /does not have a history of contamination by hazardous chemicals, spills of POL, or having been occupied by activities that use or generate hazardous substances.

3. PROPERTY DESCRIPTION: This property is located on the main post and therefore has been owned by the government for over a hundred years. It consists of approximately XX square feet of area. It is bounded by XX Road on the east, XX Road on the north, XX Road on the west, and XX Road on the south. Site Map is at Attachment 1. (Describe what is on property at this time There were/were no obvious hazards associated with this property during the on-site inspection of (date).

4. ENVIRONMENTAL CONDITION OF PROPERTY: The Environmental Condition of the Property code for this property is Category X. (Example: Category 1- No storage, release, or disposal of hazardous substances has occurred on this property.)

5. HAZARDOUS WASTE STORAGE AND ACCUMULATION: There is/is no evidence of hazardous waste or storage at this site.

6. HAZARDOUS MATERIALS STORAGE AND UTILIZATION: There is/is no evidence of hazardous materials storage or utilization at this site.

7. RADIOLOGICAL SUBSTANCE STORAGE: There is/is no evidence of radiological substances storage at this site.

8. GROUNDWATER: There is/is no evidence of groundwater contamination at this site.

9. AIR EMISSIONS: (No) air emissions are expected to result from the activities of the (current usage).

10. RADON TESTING: Not applicable?

11. STORAGE TANKS: There are no storage tanks above or below ground at this site/

12. HAZARDOUS SUBSTANCE SPILLS: There is/is no record of or physical evidence of any illegal

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dumping or spills at this site.

13. NATIONAL HISTORIC PRESERVATION ACT: (No) historic or cultural resources have been identified at the site.

14. OTHER AREAS OF CONCERN:

    a. Asbestos Containing Materials: (None).

    b. Polychlorinated Biphenyls (PCBs) and PCB Contaminated Transformers and Shop Equipment: There is/is no evidence of PCB or PCB containing equipment at the site.

    c. Lead based Paint: Lead paint is/is not suspected within the on-site structure. Building XXXXX was constructed in (year) and is a (brick, adobe, stucco, etc) structure. Potential lead-contaminated paint can be found at _____.

15. LIMITATIONS: Limitations of the EBS include no sampling or analysis of soils (both surface and subsurface). Other limitations include a lack of historic information on the property, the absence of long-time employees at Fort Bliss familiar with the history of the property, and the absence of neighboring entities that could provide historical information on the property. Since the property has been under long-term ownership of the Army, no EPA databases were consulted for this study.

16. CONCURRENCE: In my capacity as Chief, Multi-media Division of the Directorate of Environment, I have determined that the subject parcel of land identified above has undergone an Environmental Baseline Survey and I agree with the findings of the study subject to the limitations as outlined above.

_____ _____

ELZA CUSHING
Chief, Multimedia Division
Directorate of Environment

DATE

Attachments

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1526 **Attachment 6. Site Rehabilitation Prioritization Form A**
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SITE REHABILITATION PRIORITIZATION (SiteRep) FORM A			
OBSERVATION GRID (UTM):	MAP DATUM:		
TRAINING AREA:	DATE:		
OBSERVER:	PHONE #:		
CIRCLE APPROPRIATE RESPONSES.			
DO YOU WISH TO KNOW THE FINAL PROJECT ASSESSMENT?		YES	NO
MILITARY LAND TRAINING USE CATEGORY			
LOW WATER CROSSING	ROADS/ROAD SHOULDERS		
RS ADA SITE, BUVOUAC	MANEUVER TRAINING		
SMALL ARMS RANGE	MISSILE/ARTILLERY FIRING POINTS		
OBSERVER/COMMO/RADAR POINTS	IMPACT AREAS		
OTHER:			
ENVIRONMENTAL IMPACTS			
EXTENT OF DAMAGE:			
ESTIMATED (ACRES):			
RISK ASSESSMENT			
THE OBSERVED DEGRADATION WILL IMPACT TRAINING:		YES	NO
VISIBILITY/ACCESSIBILITY OF SITE:	HIGH	MODERATE	LOW
COMMENTS			
DESCRIPTION OF THE SITE LOCATION:			
DESCRIPTION OF THE DEGRADATION OR PROBLEM:			

Attachment 7. Site Rehabilitation Prioritization Form B

SITE REHABILITATION PRIORITIZATION (SiteRep) FORM B					
Observation Grid (UTM):			Map Datum:		
Training Area:			Date:		
Observer:			Phone #:		
CIRCLE APPROPRIATE RESPONSES.					
MILITARY LAND TRAINING USE CATEGORY					
Low Water Crossing (3)			Roads/Road Shoulders (3)		
Rs Ada Site, Buvouac (2)			Maneuver Training (2)		
Small Arms Range (2)			Missile/Artillery Firing Points (2)		
Observer/Commo/Radar Points (1)			Impact Areas (1)		
Other (1):					
ENVIRONMENTAL IMPACTS					
EXTENT OF DAMAGE	Estimated (Acres):		Or Gps File Name:		
SOIL TYPE			SITE IS LOCATED IN		
Silt (3)	Gravelly Silt (3)		Upland Slopes (2)		
Clay (2)	Gravelly Clay (2)		Basins (1)		
Sand (2)	Gravelly Sand (2)				
Exposed Rock (1)	Other				
SITE DRAINAGE PATTERN			EROSION TYPE		
Primary Drainage (4)			Sheet Erosion (1)		
Secondary Drainage (3)			Rill Erosion (2)		
Culvert/Rd Drainage (2)			Gully Erosion (3)		
Flat Vegetation Area (1)			Other:		
THREATENED ENDANGERED OR SENSITIVE SPECIES CONCERNS					
Yes:				No	Unknown
RISK ASSESSMENT					
The Observed Degradation Will Impact Training				Yes (2)	No (1)
Visibility/Accessibility Of Site		High (3)		Moderate (2)	LOW (1)
Potential For Rehabilitation Success		High (3)		Moderate (2)	LOW (1)
If Site Is A Road	Na (0)	Dirt (3)	GRADED (2)	GRAVEL (1)	PAVED (0)
COVER TYPE					
Plains Mesa Grassland (3)			Desert Grassland (3)		
Woodlands (3)			Montane Shrub (3)		
Barren (3)			Mixed Shrub (2)		
Mobile Dunes (2)			Mesquite Dunes (1)		
REHABILITATION REQUIRED					
Reseed	Culvert		Clean Fill	Dams	
Rock	Concrete		Synthetic Soil Retention	Contour	
Earth Moving	Other:				
Total Score From Values Of Answers Circled:					
Description Of Site Location:					
Description Of The Degradation Or Problem:					

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APPENDIX B

PROGRAMMATIC AGREEMENT FOR THE MANAGEMENT OF HISTORIC PROPERTIES ON FORT BLISS

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PROGRAMMATIC AGREEMENT AMONG THE FORT BLISS GARRISON COMMAND AND THE NEW MEXICO STATE HISTORIC PRESERVATION OFFICER AND THE TEXAS STATE HISTORIC PRESERVATION OFFICER AND THE ADVISORY COUNCIL ON HISTORIC PRESERVATION FOR THE MANAGEMENT OF HISTORIC PROPERTIES ON FORT BLISS, FORT BLISS, TEXAS, UNDER SECTIONS 106 AND 110 OF THE NATIONAL HISTORIC PRESERVATION ACT OF 1966 (AS AMENDED)

WHEREAS, the Fort Bliss Garrison Command (Fort Bliss), pursuant to the National Historic Preservation Act of 1966 (as amended) (NHPA) and Army Regulation 200-4: Cultural Resources Management has determined that day-to-day military activities on Fort Bliss have the potential to impact historic properties; and

WHEREAS, the Army Campaign Plan implements Army Transformation and proposed modifications to land use may impact historic properties; and

WHEREAS, military undertakings may affect existing buildings, structures, sites, landscapes, ranges, etc. on lands under Fort Bliss management; and

WHEREAS, Fort Bliss in consultation with the New Mexico and Texas State Historic Preservation Officers (SHPO) has selected to develop and implement this Programmatic Agreement (PA) to guide management of historic properties and meet NHPA Section 106 of the NHPA responsibilities on Fort Bliss; and

WHEREAS, the Advisory Council on Historic Preservation (ACHP) was notified (April 12, 2006) and responded (April 19, 2006) with intent to participate and was consulted with on the development of this PA; and

WHEREAS, the Mescalero Apache and the Ysleta Del Sur Pueblo (Tigua) were invited (April 13, 2006, May 8, 2006 and May 9, 2006) to consult on the development of this PA; and

WHEREAS, neither the Mescalero Apache or the Ysleta Del Sur Pueblo expressed an interest in participating in the development of this PA; and

WHEREAS, the El Paso Historic Landmark Commission, the El Paso Preservation Alliance, the Preservation Texas, City of Socorro CLG, and the El Paso County Historical Society, Inc. were invited (April 13, 2006) to consult on the development of this PA; and

WHEREAS, the City of Socorro (April 27, 2006) and the El Paso County Historical Society, Inc. (May 5, 2006) expressed interest in participating and were consulting in the development of this PA; and

WHEREAS, the El Paso Historic Landmark, the El Paso Preservation Alliance and the Preservation Texas did not express an interest in consulting on the development of this PA; and

NOW, THEREFORE, Fort Bliss, ACHP, New Mexico SHPO, and Texas SHPO agree that management of historic properties as required by NHPA Section 106 of the NHPA and 36 CFR Part 800 on Fort Bliss shall be implemented in accordance with the following:

STIPULATIONS

Fort Bliss will ensure that the following stipulations are implemented:

I. DETERMINING IF ACTION IS AN UNDERTAKING

Fort Bliss' Historic Preservation Officer (HPO) will determine whether proposed actions are undertakings as defined by 36 CFR Part 800 in accordance with Standard Operating Procedure #1, Attachment A of this PA. If the HPO determines action is not an undertaking the action will receive no further attention. If it is determined that the action is an undertaking, then the HPO will further evaluate the project under Stipulation II.

II. DETERMINING IF PROPOSED UNDERTAKING IS EXEMPT FROM FURTHER 106 REVIEW

Fort Bliss' HPO will evaluate proposed undertakings to determine whether they may be undertakings without the potential to affect historic properties (as defined in 36 CFR 800.3(a)) or exempted undertakings following Standard Operating Procedure #2 in Attachment A of this PA or is an activity that will be reviewed by Fort Bliss without SHPO or ACHP review (Attachment C of this PA). If the HPO determines that the undertaking qualifies as an exempted undertaking, no further consideration will be given to the undertaking. A list of undertakings exempt from SHPO review is provided in Attachment C of this PA. If the proposed undertaking does not qualify as an exempted undertaking, the HPO will further evaluate the undertaking under Stipulation III.

III. DEFINING OF AREA OF POTENTIAL EFFECT (APE)

Fort Bliss' HPO will define the Area of Potential Effect (APE) for each undertaking in accordance with Standard Operating Procedure #3 in Attachment A of this PA. APEs for all undertakings will be documented. Once the APE is defined, the undertaking will be further evaluated under Stipulation IV.

IV. IDENTIFYING AND EVALUATING HISTORIC PLACES

Fort Bliss' HPO will conduct necessary surveys to inventory APE to identify and evaluate historic properties that may exist in accordance with Standard Operating Procedure #4 in Attachment A of this PA. Findings of eligibilities will be submitted to the appropriate SHPO for a 30-day review. If a finding of eligibility affects Tribal interests, the finding will be submitted to the appropriate Tribal Historic Preservation Officer (THPO) and federally recognized Tribes (Tribes) for a 30-day review. The appropriate SHPO, THPO and Tribes will be provided a copy

of the Record of Historic Properties Consideration (see Attachment B) on determinations of eligibility for concurrence. If eligible historic properties are identified, the HPO will proceed to Stipulation VI.

V. SURVEY STRATEGY FOR CHANGING MISSION ON MCGREGOR RANGE AND THE CHANGE IN LAND USE ON TRAINING AREAS

The objective of this stipulation is to provide an appropriate program by which archeological survey and site evaluation will be conducted to accommodate the change in the military mission on Fort Bliss. Fort Bliss' HPO will implement a survey sampling strategy of 30 percent of all unsurveyed land on McGregor Range, excluding Otero Mesa. Fort Bliss will survey and evaluate historic properties in accordance with Standard Operating Procedure #5 in Attachment A of this PA. Individual project reports will be submitted to the New Mexico SHPO for 30-day review and comment on the HPO's finding of eligibility and will not be submitted as part of the Annual Report.

VI. ASSESSING EFFECTS

The HPO will assess effects that undertakings may have on historic properties under Stipulation VI. Assessment of project effects will fulfill 36 CFR Part 800.5 by following Standard Operating Procedure #6 in Attachment A of this PA. The HPO will document findings of No Historic Properties Affected or No Adverse Effect per Stipulation IX and no further action on that undertaking is required under this PA. If the HPO determines an undertaking will have a finding of an Adverse Effect, further evaluation of the undertaking will occur under Stipulation VII. Further opportunities for review will occur in the Annual Report (see Stipulation XIII and SOP #13 in Attachment A of this PA).

VII. RESOLUTION OF ADVERSE EFFECTS

It is Fort Bliss' policy to avoid adverse effects to historic properties under its management, to the extent possible while meeting mission needs. If adverse effects occur, Fort Bliss will apply best management practices to consider all options to avoid or limit impacts to historic properties. If, after applying best management practices, avoidance is not an option, the HPO will address mitigation of the effect as provided for under Standard Operating Procedure # 7 found in Attachment A of this PA to fulfill 36 CFR Part 800.5. If mitigation is not feasible, the HPO will document this under Stipulation VIII. The SHPO(s) ability to comment on findings of effects is through the NEPA process (see Stipulation IX and SOP #9 in Attachment A of this PA). Further opportunities for review will occur in the Annual Report (see Stipulation XIII and SOP #13 in Attachment A of this PA).

VIII. DOCUMENTING ACCEPTABLE LOSS

Fort Bliss decision-making process is conditioned by fulfillment of 36 CFR Part 800 and other Stipulations of this PA. Unless these have been met, documenting acceptable loss cannot be undertaken. Prior to implementing this Stipulation, the HPO must document why treatment of adverse effects cannot be achieved. Use of this Stipulation by Fort Bliss should be rare, as other mechanisms for compliance with Section 106 under this PA will reduce the need to make acceptable loss determinations. A cost

associated with mitigation is not justification for use of this Stipulation. If the HPO determines that this Stipulation must be used, Standard Operating Procedure #8 in Attachment A of this PA will be followed.

IX. REVIEWING AND MONITORING IN ACCORDANCE WITH NEPA

The New Mexico and Texas SHPOs, federally recognized tribes, and interested members of the public will continue to participate in the process of reviewing and commenting on Fort Bliss undertakings with the potential to affect historic properties in accordance with the NEPA process. Participation shall occur in accordance with NEPA procedures and where no NEPA documentation is prepared, through the availability of the RHPC (Attachment B). The HPO will redat the confidential locational information contained in the RHPC when provided to the public. The HPO will follow Standard Operating Procedure #9 in Attachment A of this PA to insure appropriate stakeholder consultation in the NEPA process.

X. ACCIDENTAL DISCOVERY OF HISTORIC PROPERTIES

The objectives of this Stipulation are to have procedures in place in the event of accidental discovery of archeological materials. This can apply to both previously recorded and new sites and to archeological sites in any part of Fort Bliss. If an archeological site or a property of traditional religious and cultural importance is accidentally discovered, the HPO will insure that Standard Operating Procedure #10 in Attachment A of this PA is followed. Additionally, the stipulations and guidelines outlined in the Fort Bliss NAGPRA policy will be followed.

XI. REPORTING DAMAGE TO HISTORIC PROPERTIES: BUILDINGS, SITES, LANDSCAPES, DISTRICTS, OBJECTS, ETC.

Routine military training activities at Fort Bliss and the operation and maintenance of Fort Bliss facilities pose a risk of unintentional damage to properties that are or may be eligible for inclusion in the National Register of Historic Places. If such damage occurs the HPO will follow Standard Operating Procedure #11 in Attachment A of this PA.

XII. PUBLIC INVOLVEMENT IN THE FORT BLISS CULTURAL RESOURCES MANAGEMENT PROGRAM

Various provisions of federal law, codified regulations and Army regulations require that interested members of the public have access to the decision-making processes and the results of historic preservation and environmental management undertaken at the public expense (see 36 CFR Part 800, AR 200-1, AR 200-2, AR 200-4). The HPO will ensure that Fort Bliss follows Standard Operating Procedure #12 in Attachment A of this PA.

XIII. ANNUAL REPORT

The HPO is required to provide an annual report to interested members of the public, the New Mexico and Texas SHPOs, and the ACHP. In addition to the annual report, Fort Bliss will provide all necessary documents and data for ARMS in New Mexico and TARL in Texas for all archaeological surveys, evaluations and mitigations conducted during the year. If this report is not prepared, Fort Bliss will be required to comply with the provisions of 36 CFR Part 800 of the National Historic Preservation Act

beginning 30 days after report due date unless otherwise arranged with signatories of this PA for each individual undertaking at Fort Bliss that has the potential to affect historic places. The HPO will follow Standard Operating Procedure #13 in Attachment A of this PA to meet this requirement.

XIV. DISPUTE RESOLUTION

It is Fort Bliss policy to address all disputes in a professional manner and with the objective of reaching mutual agreement on dispute resolutions through meaningful consultation with objecting parties. Consultation needs to begin in the planning and preparation and review of this PA to limit disputes after implementation. If a dispute occurs, the HPO will follow Standard Operating Procedure #14 in Attachment A of this PA to resolve the dispute.

XV. MILITARY ACTIVITIES IN ANTICIPATION OF IMMEDIATE DEPLOYMENT, MOBILIZATION OR ARMED CONFLICT

Fort Bliss will proceed with undertakings required to support mobilization and training required in anticipation of immediate deployment, mobilization, or armed conflict without prior review of these activities by the SHPOs or the ACHP. The Fort Bliss HPO or other appropriate Fort Bliss cultural resources professional with appropriate security clearance will conduct an internal review following Standard Operating Procedure #15 in Attachment A of this PA.

XVI. TRIBAL INTERESTS

If at anytime during the life of this PA the Mescalero Apache, the Ysleta Del Sur Pueblo or any other federally recognized Tribe expresses interest in participating in this PA, Ft Bliss will enter into consultation with them to address concerns. This PA may be amended per Stipulation XX to reflect these concerns with the Tribe as a signature. A SOP to address how government-to-government consultation will be conducted may be developed if a Tribe expresses interest in participating in this PA and requests such to be developed.

XVII. ARCHAEOLOGICAL SITE CONFIDENTIALITY

The confidentiality of the nature and location of archaeological resources is provided for in 32 CFR Part 229.18 and further provided for in 36 CFR Part 800.11 pursuant to Section 304 of the National Historic Preservation Act and Section 9(a) of the Archeological Resources Protection Act (ARPA). Information regarding the nature and location of any archaeological resource may not be made available without the permission of the HPO. The HPO may release information concerning the location of any archaeological site if:

A. It is determined that such disclosure would further the purposes of research or the "Archaeological and Historic Preservation Act of 1960" (16 U.S.C. § 469-469c) and not create a risk of harm to such resources or to the site at which such resources are located, or

B. The Governor of New Mexico or Texas has submitted to Fort Bliss HPO a written request for information concerning the archaeological resources within the requesting Governor's State. The request must include the purpose for which the information is

sought, and provide a written commitment to adequately protect the confidentiality of the information, or

C. Those in decision making positions on Fort Bliss that may require the information for planning purposes that have a written policy in place to provide confidentiality of the information as provided for in 32 CFR Part 229.18 and approved by the HPO.

XVIII. STAFF QUALIFICATIONS

All survey, evaluation, treatment and excavation work required to meet Stipulations of this PA will be carried out under the supervision of a person who meets the minimum standards as identified in the *Secretary of the Interior's Professional Qualification Standards* (48 FR 44716) as appropriate for the historic properties being addressed. The Fort Bliss HPO is the responsible person on behalf of the Garrison Commander for meeting the stipulations of this PA. Responsibilities may be delegated to appropriately qualified staff to address the cultural resource under consideration. If the HPO does not meet the qualifications as defined by the Secretary of the Interior's Professional Qualifications Standards, then qualified staff members will fulfill the responsibilities.

The HPO will include a list of Fort Bliss professionals who participated in implementation of this PA during the previous and current fiscal years in each PA annual report. The list will include a description of each professional's current responsibilities.

XIX. FISCAL REQUIREMENTS AND SOURCES

The stipulations of this PA are subject to the provisions of the Anti-Deficiency Act (31 USC, Section 1341) and availability of funds. If compliance with the Anti-Deficiency Act alters or impairs the ability of Fort Bliss to implement the stipulations of this PA, Fort Bliss will consult pursuant to sections XX and XXI below. The responsibility of Fort Bliss to carry out all other obligations under this PA that are not the subject of the deficiency will remain unchanged.

XX. AMENDMENT

Any party of this PA may propose to the other parties that it be amended, whereupon all parties will consult to consider such an amendment.

XXI. TERMINATION

Any party to this PA may terminate it by providing thirty (30) days notice to the other parties, provided that the parties will consult during the period prior to termination to seek agreement on amendments or other actions that will avoid termination. In the event of termination, Fort Bliss will consult with the ACHP and the New Mexico and Texas SHPOs to determine how to carry out its responsibilities under NHPA Section 106 in a manner consistent with applicable provisions of 36 CFR Part 800.

XXII. TERM OF THIS PA

This PA takes effect upon last signature date and will remain in effect thereafter for five (5) years. Upon consultation with and agreement by other parties of this PA, it may be extended, amended, or terminated at the end of five years.

Execution and implementation of the terms of this PA evidence the fact that Fort Bliss has afforded the ACHP an opportunity to comment on this program, and that Ft Bliss has taken into account the effects of the program on historic properties.

FORT BLISS, TEXAS

By: _____ Date: _____
Robert T. Burns
Colonel, U.S. Army
Garrison Commander

ADVISORY COUNCIL ON HISTORIC PRESERVATION

By: _____ Date: _____
John Fowler
Executive Director

NEW MEXICO STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____
Katherine Slick
New Mexico State Historic Preservation Officer

TEXAS STATE HISTORIC PRESERVATION OFFICER

By: _____ Date: _____
F. Lawerence Oaks
Texas State Historic Preservation Officer

ATTACHMENT A: STANDARD OPERATING PROCEDURES

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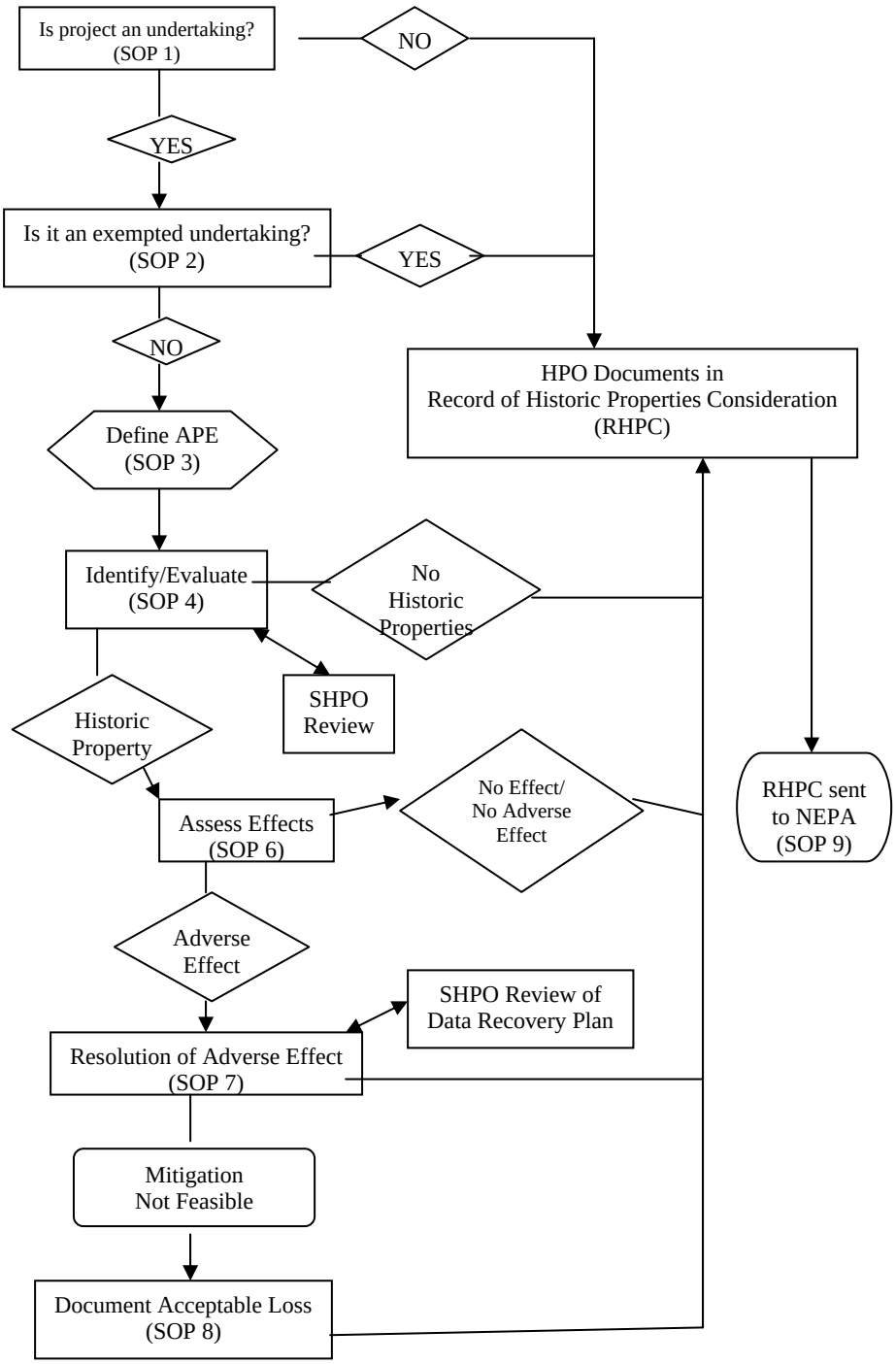

Figure 1: Section 106 Compliance Flowchart

I. CRM Standard Operating Procedure #1

Identifying Undertakings

C.1.1 1.1 APPLICABILITY

This SOP applies to all organizations, property, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.2 1.2 OBJECTIVE

The objective of this SOP is to lay out a process to be followed to determine if an action is an undertaking subject to Section 106 review.

C.1.3 1.3 POLICY

It is Fort Bliss policy to have the Historic Preservation Officer (HPO) to review all undertakings for potential to affect historic properties. To this end, it is the HPO's responsibility to identify which actions are undertakings as defined by 36 CFR Part 800 through following this SOP.

1.4 Implementing Procedures

An "undertaking" is defined under this PA as "a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of Army, including those carried out by or on behalf of Army, those carried out in whole or in part with Army funds, and those requiring Army approval" (36 CFR Part 800.16(y)). The HPO shall evaluate projects to determine if they meet this definition.

Fort Bliss undertakings may take the form of projects, work orders, contractor actions, permits, leases, Army actions, and other activities as defined above. Undertakings may originate with the Directorate of Public Works & Logistics, infrastructure maintenance contractors, military construction (MILCON), project proponents, and other entities. If another Defense Department command or Federal agency is involved with Fort Bliss in an undertaking, Fort Bliss and the other agency may mutually agree that the other agency may be designated as the lead Federal agency. In such cases, undertakings will be reviewed by the lead agency in accordance with 36 CFR Part 800.

Tenant organizations must coordinate with Fort Bliss to obtain up-to-date cultural resource information. Undertakings conducted by or for Army tenants with funding appropriated from the tenant organization are the responsibility of the tenant; likewise, compliance with this PA with these undertakings is the responsibility of the tenant unless Fort Bliss has assumed that responsibility on their behalf.

1.4.1 Notification of Potential Undertakings

The HPO shall be notified of potential undertakings early in the planning process, whether or not they appear to impact historic properties. The majority of projects that have the potential to affect historic

properties are generated either through work orders or military construction (MILCON) requests. Work orders tend to cover repair and maintenance needs under $200,000. MILCON projects tend to be new projects or major repair/maintenance actions over $200,000. Projects may also be generated by direct congressional appropriations for identified purposes.

Work orders are reviewed by the HPO as they are generated by proponents. Proponents of these shall provide the HPO with a detailed description of the project or activity, site location, and a point of contact. The HPO will prepare a Record of Historic Properties Consideration (RHPC) (see Attachment B) on each work order and it will become part of the NEPA administrative record. Work orders do not become projects until after review and funding has been put towards it. Once a work order becomes an undertaking, it is subject to this PA.

Range Scheduling and Digging Permits also provide notice of potential undertakings. Range scheduling is accomplished through the online Range Facility Management Support System (RFMSS). All training requests are reviewed by the HPO for any potential to affect historic properties. In most cases historic properties are avoided through that HPO review; for more complex training scenarios, or new scenarios, a more extensive review may be required by NEPA. In all cases, either historic properties will be avoided or adverse effects mitigated. Digging permits, issued through the DPW, are also reviewed by the HPO for any potential to affect historic properties. In all cases, either historic properties will be avoided or adverse effects mitigated. All proponents are advised that in the event of any accidental discoveries of cultural materials, SOP #10 will be followed.

Proponents of MILCON projects will coordinate with the HPO to review proposed actions to determine whether they constitute an undertaking. Proponent will provide the HPO with a detailed description of the project or activity, potential site locations, schedule information or suspense dates and a point of contact. The HPO will assist the proponents in meeting requirements of this PA.

1.4.2 Determining an Undertaking

The installation's HPO will use the information provided by the proponent to determine whether the project or activity qualifies as an undertaking per 36 CFR Part 800.16(y), and if so, whether it has the potential to affect historic properties.

1. If the project does not qualify as an undertaking, no further action under this PA is required; or
2. If the project qualifies as an undertaking, continue to SOP #2.

II. CRM Standard Operating Procedure #2

Exempted Undertakings

C.1.4 2.1 APPLICABILITY

This SOP applies to all organizations, property, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.5 2.2 OBJECTIVE

The objective of this SOP is to lay out a process to be followed to determine if an undertaking is exempted from further Section 106 review.

C.1.6 2.3 POLICY

It is Fort Bliss policy to consider health and safety issues as well as public interest in determining if undertakings that may be exempted from Section 106 review. Army-wide exemptions are established by imminent threat to human health and safety in consultation with ACHP. Fort Bliss exemptions are established through what is in the public's best interest in coordination with the New Mexico and Texas State Historic Preservation Officers, Tribal Historic Preservation Officer (THPO), and Tribes.

C.1.7 2.4 IMPLEMENTING PROCEDURES

After a project, activity, or program has been determined to be an undertaking, the HPO shall determine if the undertaking is one of the following categorical exclusions and exempted undertakings. However, only the HPO can determine if a proposed undertaking falls into these categories. All proposed undertakings will continue to be coordinated with the HPO, and undertakings determined to fall under exempted undertakings will be accounted for in the annual report.

C.1.7.12.4.1 Army-Wide Exempted Undertakings

There are Army-wide exemptions identified in the Army Alternate Procedures (AAP) for undertakings where there is an imminent threat to human health and safety. Parties to this PA recognize these AAP Army Wide Exemptions and apply them to this PA as follows:

- In-place disposal of unexploded ordnance; or
- Disposal of ordnance in existing open burning/open detonation units; or
- Emergency response to releases of hazardous substances, pollutants, and contaminants; or
- Military activities in existing designated surface danger zones (SDZs); SDZs are temporary in nature and only active during training activities. The exemption will apply to designated impact and/or dud areas—areas with unexploded ordnances. SDZs are exempted only when active.

Undertakings addressed through a fully executed nationwide Programmatic Agreement or other Program Alternative executed in accordance with 36 CFR Part 800.14, NHPA Section 106 regulations, a Program

Comment, or a Memorandum of Agreement will be exempt. Presently there is one Nationwide Programmatic Agreement and one Program Comment in Place.

- Program Comment for Capehart and Wherry Era (1949-1962) Army Family Housing. The Program Comment provides a one-time, Army-wide NHPA compliance action for all Capehart and Wherry Era housing for the following management actions: maintenance and repair; rehabilitation; layaway and mothballing; renovation; demolition; and transfer, sale, or lease from federal ownership.
- Nationwide Programmatic Agreement addressing World War II temporary buildings. Provides for the demolition of World War II temporary buildings without further Section 106 consultation.

C.1.7.22.4.2 Fort Bliss Exempted Undertakings.

Some areas of Fort Bliss will be exempted from archeological and properties of traditional religious and cultural importance inventory requirements during the planning period because of low site potential (e.g., located on steep slopes offering no shelter, active arroyos, active flood plains, located in area disturbed to a depth below the cultural layer, etc.) or limited potential for mission impact (i.e. no or minimal ground disturbing activities) (see Attachment C).

Designated impact areas containing unexploded, antipersonnel ordnance are off-limits to historic properties management. No access to these areas is allowed.

Undertakings addressed through a fully executed Fort Bliss Programmatic Agreement or other Fort Bliss Program Alternative executed in accordance with 36 CFR Part 800.14 and that are not subject to the stipulations of this PA are:

- Programmatic Agreement regarding the Fort Bliss Residential Communities Initiative (RCI). This agreement addresses implementation of the Army's privatization of Army Family Housing, for which the future effects on historic properties cannot fully be determined prior to approval of the undertaking
- Programmatic Agreement regarding the Army's Enhanced-Use Leasing Initiative (EUL) to lease underutilized property on Fort Bliss. This agreement addresses the implementation of the William Beaumont General Hospital Historic District EUL, for which the future effects on historic properties cannot fully be determined prior to approval of the undertaking.

The recording and reporting requirements within the above PAs will follow the requirements of SOP 13 of this PA. Fort Bliss may initiate procedures to terminate the above PAs in favor of rolling the RCI and EUL activities under this PA through the amendment process set forth in Section XX of this PA.

Non-ordnance contaminated areas may be identified on Fort Bliss managed lands. Hazmat, restoration, and clean-up project teams will need to coordinate with the HPO to determine the need and efficacy of survey for proposed undertakings in contaminated areas. Some contaminated areas may be off limits to ground-disturbing activities, including archeological surveys. Contaminated areas, however, that do not pose an imminent threat and undertakings in these areas are not exempt from Section 106.

Decisions made through government-to-government consultation with Tribes concerning management options on properties of religious, traditional, and cultural importance are not subject to Section 106

review by the New Mexico or Texas State Historic Preservation Officer or the Advisory Council on Historic Preservation.

If an undertaking qualifies as an exempted undertaking, the HPO will document this on the Record of Historic Properties Consideration (Attachment B) and the undertaking will receive no further consideration under this PA. If the undertaking does not qualify as an exempted undertaking, the HPO will proceed to SOP #3.

III. CRM Standard Operating Procedure #3

Defining the Area of Potential Effect (APE)

C.1.8 3.1 APPLICABILITY

This SOP applies to all organizations, property, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.9 3.2 OBJECTIVE

The objective of this SOP is to lay out a process to be followed to determine the appropriate Area of Potential Effect (APE) of an undertaking.

C.1.103.3 POLICY

It is Fort Bliss policy to consider the direct and indirect effects an undertaking may have on historic properties; including visual impacts on properties that may be in the view shed of the undertaking. Prior to evaluating specific effects that undertakings may have, Fort Bliss will identify the APE. This will be the area considered for presence of historic properties that may be affected by the undertaking.

C.1.113.4 IMPLEMENTING PROCEDURES

The APE is "the geographic area or areas within which an undertaking may directly or indirectly cause alterations in the character or use of historic properties, if any such historic properties exist. The area of potential effect is influenced by the scale and nature of an undertaking and may be different for different kinds of effects caused by the undertaking" (36 CFR Part 800.16(d). An APE may also consist of view sheds associated with historic districts, landscapes, sites, individual historic properties or properties of traditional religious and cultural importance.

The size of the APE is determined on a case-by-case basis by the appropriate cultural resources staff and includes in its calculation the scale and nature of the undertaking. Generally, the size of the APE will be commensurate with the size of the project, encompassing both potential direct and indirect effects. The APE for interior work on buildings that do not have the potential to affect exteriors will be only the interior of that building. Cumulative effects may also influence the final APE. Projects should also consider visual impacts when determining the APE.

To determine a project's APE:

- Categorize the undertaking (repair and maintenance, ground-disturbing activities, etc.);
- Determine whether the effects typically associated with this category of undertaking are the expected effects for the project;
- Determine where those effects might occur in relation to the project based on anticipated effect(s). The areas where effects might occur constitute the APE;

- May consult with appropriate SHPO, THPO, and Tribe if HPO is unsure of APE boundaries or suspects other information should be considered;
- Examine the APE to determine whether the proposed undertaking is likely to affect historic properties;
- Complete this process for all potential project locations;
- Include all APE definitions on a project map, including areas of direct and indirect effect; and
- Determine whether the scope and/or nature of the undertaking might result in additional or other effects.

Once the APE is defined and documented in the Record of Historic Properties Consideration (Attachment B), the HPO will proceed to SOP #4: Identifying and Evaluating Historic Properties.

IV. CRM Standard Operating Procedure #4

Identifying and Evaluating Historic Properties

C.1.124.1 APPLICABILITY

This SOP applies to all organizations, property, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.134.2 OBJECTIVE

The objective of this SOP is to collect information about historic properties within the APE. After the resources in the APE are identified, they are evaluated for eligibility for inclusion in the National Register of Historic Places (NRHP). Not all resources will necessarily qualify for inclusion in the NRHP. NRHP eligibility is a threshold that affects subsequent management actions for the resources. Properties do not have to be formally listed in the NRHP to meet this threshold.

C.1.144.3 POLICY

It is Fort Bliss policy to identify properties that are eligible for inclusion in the National Register of Historic Places or that are identified as Properties of Traditional Religious and Cultural Importance (TRCI) by THPO or Tribe and manage them to maintain the historic or cultural characteristics that make them eligible for inclusion in the NRHP or important as TRCIs. Only those properties that are eligible for inclusion or that are listed in the NRHP or are identified as TRCIs are subject to this PA.

4.4 Implementing Procedures

4.4.1 Identification

Identification studies typically include background research, field investigations, consultation, analysis, and documentation of findings. Prior to a project specific identification study, the HPO will conduct a pre-inventory analysis to determine whether additional investigation is necessary, and, if so, what type of inventory approach is appropriate.

4.4.1.1 Preliminary Analysis

The HPO will review the project area to establish whether the APE has been previously inventoried and to determine what types of historic properties are likely to be found in the APE. Background research should be conducted in preparation of survey as appropriate to the project. Potential sources include, but are not limited to, installation files and maps; previous identification surveys; Bureau of Land Management files; New Mexico and Texas SHPO files, previously identified historic contexts for the region; and local histories. Information may also be available from local governments, Native organizations and Tribal governments, universities, and public and private groups and institutions. Resources for this review may also include, but are not limited to:

- The inventory and maps of Fort Bliss historic properties held on the GIS at Fort Bliss including planning level surveys, building inventories, maps of established historic districts and maps of archeological sites;
- Search of state site database systems, including ARMS and ATLAS.
- Any known properties of traditional religious and cultural importance.

Based on this review, the HPO will assess the project as follows:

- If the area has been investigated previously, assess the quality of any collection data. If the area has not been investigated, or if it has been investigated, but data quality is poor or conducted with old methodologies that are no longer valid with current state standards, further identification efforts will be required.
- Determine the need for additional identification based on Planning Level Survey data, and /or predictive model results, and preliminary tribal consultation on potential properties of traditional religious and cultural significance. The HPO will determine whether the collective data provides a basis for decision-making without additional identification activities:
  - Documentation of a decision not to proceed with further identification activities shall be included in the RHPC and made part of the project file; and
  - The decision shall be documented in the annual report to the consulting parties; documentation shall include the basis for the decision.

If additional identification studies are required, the appropriate tasks may include background research, field investigation, tribal consultation, analysis, and report preparation. The persons conducting identification studies and other historic properties activities shall meet professional qualifications in the appropriate discipline.

4.4.1.2 Survey

In general, there are two types of surveys: the reconnaissance survey and the intensive survey. The reconnaissance survey is a light inspection aimed at developing a general overview of an area's resources. The primary reason for a reconnaissance survey is to support background research in preparation of an intensive survey. The objective of an intensive survey is to identify completely and precisely all properties in a specified area based on a specific research design. It involves background research and a thorough inspection and documentation of all historic properties in an area. It should provide an inventory and necessary information to evaluate properties of eligibility for inclusion in the NRHP. The requirements and methods for conducting archeological surveys on Fort Bliss are outlined in section 4.4.1.2.2 of this SOP.

As part of the research process, Fort Bliss should periodically contact the NPS or U.S. Army Environmental Center (AEC) to determine whether any nationwide historic contexts have been developed that might apply to historic properties on Fort Bliss. Similarly, the SHPOs may have a statewide context against which the historic relevance of a resource can be weighed. Fort Bliss has been proactive in developing historic contexts for resources on its installation that are specific to the history of the region and to the Army. This effort to address gaps in the literature for current and future reference should

continue. However, Army funding practices does not provide for conducting historic context development beyond the borders of the installation. The HPO will consider other potential funding sources to assist in development of local and state context and will support efforts by others to develop these.

4.4.1.2.1 Requirements for Archeological Survey

A cultural resources professional with minimum qualifications as defined in 36 CFR Part 61 will supervise all archeological surveys. The installation HPO will provide general survey areas to the field archeologist who will:

- Determine final survey area: Only areas with potential to contain archeological sites in the project's APE will be surveyed. Areas that are already highly disturbed (e.g. improved areas, borrow pits, etc) and areas inaccessible to military training or other Fort Bliss undertakings (i.e. steep slopes) will be excluded. Areas that have been previously surveyed will also be excluded if existing data is determined by the HPO to be sufficient for the proposed project.
- Survey: The archaeologist will be responsible for conducting surveys and site evaluations according to the standards and procedures outlined in section 4.4.1.2.2 that follows.
- Submit report: A report will be submitted to the appropriate SHPO on the survey. For Texas, all of the information required in the CTA guidelines will be included. Survey report will include, but are not limited to:
  - A management summary
  - Project description
  - Project area description
  - Previous work/sites
  - Methods
  - Results
  - Recommendations
  - References.

C.1.15 4.4.1.2.2 ARCHEOLOGICAL SURVEY PROCEDURES

All cultural resource surveys undertaken on Fort Bliss shall consist of comprehensive, intensive, pedestrian methods designed to identify those Historic Properties that can reasonably be detected from the surface or are exposed in profiles. The purpose of survey is to obtain accurate, descriptive field data, which are systematically collected and sufficiently detailed to assess the research potential of each site; to make evaluations for National Register eligibility; and to allow preparation of accurate data recovery plans and budget estimates. Historic properties shall include both prehistoric and historic (50 years or older) manifestations. Military debris such as bullets, cartridges, and small missile fragments shall not be recorded unless it constitutes a particular historic event or is specified in a delivery order. Historic remains shall also be recorded, including wells, tanks, fences, machinery, and ground modifications from the historic period. Modern bottles, cans, and other trash will not be inventoried, but may be noted.

4.4.1.2.2.1 Intensity. The standard distance between surveyors shall be 15 meters. Any deviations from this distance shall be justified, require prior approval by the archeological program managers, and be documented in the technical report. Obstacles that may obscure the discovery of historic properties (e.g., dense vegetation, recent alluvium, sedimentation) shall be noted and the approximate boundaries of the obstacle(s) or condition shall be indicated on the appropriate USGS quadrangle. Linear surveys shall cover a width determined appropriate by the HPO on each side of the linear undertaking being surveyed, not including previously disturbed graded or bulldozed areas.

4.4.1.2.2.2 Transect Recording Unit Survey. The preferred survey method to be used on Fort Bliss projects is the transect recording unit (TRU). Other methodologies may be used with approval of the archeological program managers. The TRU method uses a grid system configured to line up with the UTMs (NAD 83) in the area for recording materials found on survey. The survey area is divided into 15- by-15-meter cells. All cultural materials are recorded within each cell and an approved threshold is established to organize positive cells into sites based on the current Fort Bliss site criteria. All TRU survey data are collected digitally and locational data are collected using high-accuracy GPS units. Hand-held computers (i.e., PDAs, Pocket PCs, etc.) are used as field data collection units and the surveyors will develop appropriate field data collection forms and software.

C.1.15.1 4.4.1.2.3 Recordation

This section describes the standards and practices for recording archeological sites and isolated occurrences (IOs).

4.4.1.2.3.1 Site Documentation. Minimal data to be recorded include the general environmental situation, definition, and location of horizontal site boundaries; description of the location, number, and kinds of features visible from the surface; nature of artifact assemblages; density and frequency of artifacts; site integrity; potential for yielding chronometric samples (radiocarbon, dendrochronological, etc.); and paleoclimatological samples. The entire site boundary is also recorded, even if it exceeds the edge of the survey unit. Historic sites must have all relevant historic records searched as a way of adding documentary knowledge about the site. All archeological sites must have a GPS differentially corrected, highly accurate location taken in the approximate center of the site. All site boundaries must be mapped with GPS or EDM. GPS files should be converted to ArcGIS shape file format for assimilation with the GIS dataset.

4.4.1.2.3.2 Site Definition Criteria. No quantified criteria are going to cover all possibilities. Therefore, the following general criteria will be used for defining a site:

- The physical remains of past human activity that are at least 50 years old
- Ten or more artifacts of any class or type within an area 15 meters in diameter, except when all pieces appear to originate from a single source (e.g., one ceramic pot drop, one broken glass bottle, one deteriorated piece of sheet metal, etc.). The

exception is discrete, single knapping episodes, which are treated as sites. Fire-cracked rock and burned caliche are not considered artifact types for purposes of this criterion, but may fall under the category of "undatable feature."

- One or more datable archeological features with or without associated artifacts.
- Two or more undatable archeological features.
- A single undatable feature with any associated artifacts. Ten pieces of fire-cracked rock and/or burned caliche in 1 square meter is the minimum criteria for fire-cracked rock and/or burned caliche to be assigned feature status without associated feature fill
- In general, 30 meters will be the maximum distance between manifestations, beyond which the materials should be treated as spatially unrelated.

Fort Bliss archeological program managers will allow the field supervisors to assign site status to other situations outside these criteria provided a logical and reasonable argument is made in consultation with the archeology program managers. Thus, a Folsom point, end scraper, and channel flake can still be called a Paleoindian site.

Additionally, any IO must be completely recorded such that the data potential of that manifestation is exhausted. In the case of a single undatable feature, trowel tests must be conducted around the locus to ensure there is no associated stain or additional buried deposits. Additional documentation on the potential for subsurface deposits in that area must accompany any recording of a single undatable feature recorded as an IO.

4.4.1.2.3.3 Forms. Data required for the New Mexico or Texas state forms for survey and sites shall be obtained for each project and site. Other additional data forms for in-field analysis may be used at the investigator's discretion, with an archeological program manager's approval, or may be required by Fort Bliss in the future. Data will be compatible with the ARMS or TEXSITE/ATLAS systems. For New Mexico projects, the investigator is responsible for completing an NMCRIS form and obtaining the NMCRIS activity number and LA numbers for New Mexico projects.

4.4.1.2.3.4 Features. All features (e.g., rooms, hearths, bins, depressions, middens, terraces, burned rock concentrations, fences, etc.) are recorded noting quantity of materials, size, shape, construction details, probable function, and any relationship to activity areas. Black-and-white and digital color photos are taken of each feature. When specified, profiles and plans views are drawn.

4.4.1.2.3.5 Artifacts

- Sampling and density for large projects only (40 acres or more with surface collection as part of the project). The investigator shall confer with the archeological program managers to design and implement an approved procedure for (1) estimating the density (or range in density) of surface artifacts and (2)

estimating total frequency of surface artifacts for each artifact group. This should be done on a project-by-project basis and previously approved methods are not automatically acceptable for other projects. Formal sampling procedures may include transects, quadrants, or other techniques, but the procedure shall be appropriate to the overall size and complexity of the site. To preserve the integrity of each site, artifacts shall be disturbed as little as possible during in-field analysis and returned to their pre-analysis locations, unless they are collected.

- Recording artifacts. Artifacts shall be recorded using established Fort Bliss procedures or the specific procedures established in the research design and/or work plan for that project. The archeological program managers must approve any deviations in advance.

4.4.1.2.3.6 Site Maps. A sketch map shall be prepared that depicts, minimally, the relationship of the site to nearby physiographic features and identifying landmarks, the location of each visible feature, the shape and location of artifact sampling units, activity loci, the location of the site datum, site and provenience boundaries, location of test units (including probes, auger, and trowel tests) and locations of collected artifacts. All maps must have a scale, north arrow, recorder name, date, legend/key, and source graphics (e.g., quadrangle name, DOQQ name, etc.). If remote sensing techniques are used (e.g., magnetometer, GPR, etc.) these areas must be delineated on the maps as well. The field number may be recorded on the field maps; however, LA or TARL trinomial and Fort Bliss site numbers shall be used on all final and published maps. The entire site boundary shall be recorded, even if it extends outside the survey area.

4.4.1.2.3.7 Site Depth. The investigator shall assess the potential of subsurface deposits at each site based on sound geoarcheological and/or geomorphologic argument. If the professional judgment is that a site is a surface manifestation only, a clear statement citing evidence supporting that judgment shall be provided. If the investigator believes a site contains subsurface deposits, a clear statement with supporting evidence shall be provided (e.g., strata visible in arroyo cut, results of auger tests, etc.). Auger tests, probes, trowel tests and other techniques of extremely limited nature that have minimal impact on the integrity of the site may be performed to serve as a basis for making a professional assessment of depth and extent of cultural deposits. These tests are considered a routine element of survey procedures distinct from a formal testing project. The archeological program managers must approve all testing strategies prior to the start of fieldwork.

4.4.1.2.3.8 Site Integrity. The investigator shall assess the present condition of each site including (1) identifying the kinds of post-depositional activities that have affected the site, (2) estimating the percentage of total site affected by each kind of disturbance, and (3) indicating those portions of the site that remain intact. Investigators must identify all disturbance sources, manmade and natural. A thorough and accurate description of site integrity must be provided for each individual site investigated.

4.4.1.2.3.9 Chronometric Potential. For each prehistoric site, the investigator shall determine the potential for obtaining the following kinds of chronometric samples: (1) radiocarbon samples (how many, standard or AMS, and in what context); (2) dendrochronological samples (how many and from how many different features); (3) type seriation such as diagnostic artifacts (list kind and frequency); and (4) other current techniques as appropriate.

4.4.1.2.3.10 Site/Project Location Maps. Each site and project shall be plotted on the appropriate USGS 7.5 minute quadrangle topographic map at a 1:24000 scale. The actual boundary of each site, rather than a central point, shall be depicted, as shall the survey areas, features (hearths, fences, tanks, and other structures), IOs, and modern features (such as roads and power lines) within the project area. The complete site boundary shall be mapped, even if it falls outside the project area boundary. The complete project area must be plotted as well. When appropriate or requested by the archeological program managers, maps with background imagery should be provided. All locational data should be collected with a high-accuracy GPS, EDM, or other approved device. Each site shall be identified in an appropriate GIS system maintained by DOE.

4.4.1.2.3.11 Site Datum. A site datum will be placed during site recording unless otherwise indicated by the archeological program managers. In general, a datum should consist of a piece of rebar or other approved stake with an attached aluminum or other approved tag. The tag shall include the name of the contractor and/or investigator, date of placement, Fort Bliss project number, and state and Fort Bliss site numbers. Investigators shall not use in-house or company specific numbers on site tags.

4.4.1.2.3.12 Isolated Occurrences. Isolated occurrences (IOs) must be recorded with GPS or EDM and plotted on 1:24000 USGS quads and DOQQs as part of all survey reports. In instances where the distinction between an IO and a site is in question, the investigator shall consult with the cultural resources managers to determine the designation. Only diagnostic or unique artifacts may be collected unless special provisions have been made to accommodate a specific research interest. IOs must have enough attribute data recorded to exhaust the data potential of the material. IOs include artifacts/features from any cultural or temporal period where those manifestations do not qualify as a site under the current criteria.

4.4.1.2.4 Requirements for Surveys of Historic Buildings and Structures.

A professional with minimum qualifications as defined in 36 CFR Part 61 for historian, architectural historian, or historic architect will supervise building and structure surveys. Survey requirements will vary depending on the scope and character of the undertaking. In many cases existing inventories will be sufficient to identify historic buildings and structures in the APE. Building and structure surveys may be conducted as needed as part of ongoing planning level survey work as well as to provide information on resources in an APE that are not sufficiently documented.

- Determine appropriate survey requirements: The HPO will determine whether in-house or external survey would be appropriate to the scope and time frame of the undertaking, and whether historic context material will need to be developed concurrently for the evaluation phase. He/she will also consider if the APE has been previously surveyed and if that survey data is adequate for the present undertaking.
- Survey: Surveys should combine site inspections with background research. Background research may include literature reviews, archival research, interviews and consultation as appropriate. Documentary research should be thorough enough to provide for the evaluation of any resources identified. The use of interviews and oral histories is encouraged to provide additional information. Site inspections should include a minimum of a sketch site plan and digital photographs of setting and exterior elevation(s) for each resource identified.
- Documentation: A report documenting the survey will be prepared to include, but not limited to: description and map of survey area(s), documented historical narrative, architectural description using the Historic American Buildings Survey (HABS) level 4 (as defined in the *Secretary of the Interior's Standards and Guidelines for Architectural and Engineering Documentation: HABS/HAER Standards*, 1990), or equivalent Historic American Engineer Record (HAER) standards as guidance, if recording a structure, photos of all resources identified, and list of sources consulted. It should also include the evaluation of significance as presented below. Maps will be digitized and submitted in a format compatible with ArcGIS. In cases of militarily sensitive properties, photos and maps may be subject to internal review and restrictions.

If no historic resources are identified within the APE of a proposed project, the HPO will document the absence of resources and the means used to determine this absence in the project file and the project can proceed without further consideration of historic resources. This finding will be documented in the Record of Historic Properties Consideration (RHPC) (Attachment B) and made part of the project file.

If historic properties are identified in the APE, the HPO will determine if these are eligible for listing in the NRHP. This finding will be documented in the RHPC and made part of the project file.

4.4.1.2.5. Specific Requirements for Inventories of Properties of Traditional Religious and Cultural Importance

Fort Bliss will consider Properties of Traditional Religious and Cultural Importance in project planning. In respect of confidentiality issues, Fort Bliss will only collect that information necessary to consider adverse effects in the planning process; this may or may not involve determining a site's eligibility for inclusion in the NRHP. Tribal consultation shall determine the level of identification effort that is merited. It should be noted that Properties of Traditional Religious and Cultural Importance may include natural settings and do not necessarily need to contain culturally modified objects/sites to be considered in the planning process.

Confidentiality: Tribes may determine that sharing information about a Property of Traditional Religious and Cultural Importance is inappropriate. In such circumstances, consideration of adverse affects in the planning process is still possible. Tribes may delineate a boundary around a significant site, which will be large enough to avoid inadvertent discovery of the property. When Army undertakings within the boundary are proposed, consultation with appropriate Tribes will be initiated to discover whether the proposed project will affect the Property of Traditional Religious and Cultural Importance. If the project

will adversely affect the site, avoidance through project location modification will be explored. Where adverse affects cannot be avoided, consultation with Tribes shall determine appropriate mitigation measures.

4.4.2 Evaluation

Evaluation for eligibility is a judgment process based on established criteria and guidance developed by the National Register of Historic Places. The process relies on two key concepts: significance and integrity. Both of these thresholds must be met to establish NRHP eligibility. Understanding the historic context of a property allows reasonable judgments to be made about those thresholds. Because significance and integrity are subjective concepts, the NRHP has developed criteria for evaluation and definitions of integrity that this SOP must follow. These are provided in 36 CFR Part 60.4. While the same NRHP framework is used to evaluate historic resources, archeological resources, and Properties of Traditional Religious and Cultural Importance, evaluations will emphasize the aspects appropriate to the type of resource under consideration. For Prehistoric archeological sites, the thresholds established for eligibility on Fort Bliss are based on the document *Significance Standards for Prehistoric Archaeological sites at Fort Bliss: A Design for Further Research and the Management of Cultural Resources* (Abbott et al. 1996). A contract is currently underway to revise and update these standards incorporating what we have learned about the nature and extent of archeology in this region in the last 10 years. This revised Significance Standards will be reviewed and commented on by both SHPOs once completed. Once the SHPOs have concurred, this document will become incoporated into this PA and will be basis of future NRHP eligibility determinations. Until that time, the 1996 standards will be used.

4.4.2.1 Procedures for Evaluation

The procedures to be followed by the HPO for evaluating a cultural resource of any type are as follows:

4.4.2.1.1. Categorize the Resource

The HPO shall determine if the cultural resource is an archeological site, Property of Traditional Religious and Cultural Importance, buildings, structure, landscape, object, district, or combination. If the property is a property of Traditional Religious and Cultural Importance, 4.4.2.1.6 should be followed.

4.4.2.1.2. Establish the Historic Context of the Cultural Resource

- The HPO shall identify the theme(s), geographical limits, and chronological periods that provide a perspective from which to evaluate the cultural resource's significance; and
- The HPO shall determine how the theme(s) within the context may be significant to the history of the local area, the state or the nation. Although it is desirable to understand local and state contexts that may apply to Fort Bliss properties, funding does not always provide for conducting such studies off base. The HPO will consider other potential funding sources to conduct such studies and support local and state efforts to fill this gap. A theme is considered significant if scholarly research indicates that it is important in American or regional history; and
- The HPO shall determine if the cultural resource type is important in illustrating the historic context. Contexts may be represented by a single cultural resource type or by a variety of types; and

- The HPO shall determine how the cultural resource illustrates the historic context through specific historic associations, architectural or engineering values, or information potential; and
- The HPO shall determine whether the cultural resource possesses the physical features necessary to convey the aspects of prehistory or history with which it is associated.
    - (NOTE: The revised *Significance Standards* will provide Historic Contexts for prehistoric archeological properties.)

4.4.2.1.3. Determine Whether the Cultural Resource is Significant under the NRHP's Criteria

The HPO shall apply the following NRHP criteria for evaluation of eligibility for inclusion in the NRHP. If the historic property meets one or more of these criteria and retains integrity, the HPO shall proceed to 4.4.2.1.4. If the resource does not meet any of the criteria or does not retain integrity, the HPO shall determine that the resource is not eligible for inclusion in the NRHP; this determination will be stated in the Record of Historic Properties Consideration and made part of the project file. In that case, no further action is required under this PA. Determinations of Eligibilities are subject to appropriate SHPO review.

- (NOTE: The current and revised *Significance Standards* provide guidelines for eligibility of archeological properties.)

National Register of Historic Places Criteria for Evaluation:

"**Criteria:** The quality of significance in American history, architecture, archeology, engineering, and culture is present in districts, sites, buildings, structures, and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

A. that are associated with events that have made a significant contribution to the broad patterns of our history; or

B. that are associated with the lives of persons significant in our past; or

C. that embody the distinctive characteristics of a type, period, or method of construction or that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or

D. that have yielded, or may be likely to yield, information important in prehistory or history.

- Criterion A: Event. Under this criterion, an historic property must be associated with one or more events important in the historic context. To establish significance under this criterion:
    - determine the nature and origin of the cultural resource; and
    - identify the significant historic context with which it is associated; and
    - evaluate the historic context(s); and
    - evaluate the resource's history to determine whether it is associated with the historic context in any important way.

- Criterion B: Person. This criterion applies to historic properties associated with individuals whose activities are demonstrably important within a local, state, or national context. The cultural resource must illustrate the person's achievement. To determine an historic property's significance under this criterion:
  - determine the importance of the individual; and
  - ascertain the length and nature of the person's association with the resource and determine if there are other historic properties associated with the individual that more appropriately represent that person's contributions.

- Criterion C: Design/Construction. This criterion applies to historic properties significant for their physical design or construction, including such elements as architecture, landscape architecture, engineering, and artwork. The historic property, to qualify, must:
  - embody distinctive characteristics of a type, period, or method of construction; or
  - represent the work of a master; or
  - possess high artistic value; or
  - represent a significant and distinguishable entity whose components may lack individual distinction.

- Criterion D: Information Potential. Historic properties may be eligible for the NRHP if they have yielded, or may be likely to yield, information important to prehistory (pre-contact) or history (post-contact).

4.4.2.1.4 Determine if the Historic Property represents a Type Usually Excluded from the National Register of Historic Places, and if so, meets any of the Criteria Considerations.

Some kinds of properties are normally excluded from NRHP eligibility. These include religious- built properties, properties that have been moved, birthplaces and graves, cemeteries, reconstructed properties and properties less than fifty years old. However, exceptions can be made for these kinds of properties if they meet one of the standard criteria in 4.4.2.1.3 above and fall under one of the seven special Criteria Considerations. Before examining the Criteria Considerations, the HPO shall determine if the historic property meets one or more of the four NRHP Criteria for Evaluation and retains integrity, and document the finding in the RHPC.

- If the historic property meets one or more of the four Criteria for Evaluation and has integrity, determine if the historic property is of a type that is usually excluded from the NRHP. If it does not meet one of these types, proceed to 4.4.2.1.5.
- If the historic property is a type cited in the Criteria Considerations, the HPO must determine if the historic property meets the special requirements stipulated for that type in the Criteria Considerations. If so, the HPO shall proceed to 4.4.2.1.5. If the historic property does not meet the requirements, the HPO shall determine that the historic property is not eligible for the NRHP and document that determination in the RHPC. No further action is required under this PA on properties that are not eligible for inclusion in the NRHP.

Criteria Consideration G, properties that have achieved significance within the past fifty years, is the main criteria consideration that applies to historic properties on Fort Bliss. It is recognized that properties dating from the Cold War era (1946-1989) require evaluation under this consideration. The HPO will evaluate properties less than 50 years old from this period for their "exceptional importance" under Criteria A, B, and C to identify those that may be eligible for inclusion in the NRHP. Evaluation of Cold War era properties will be limited to exteriors only. Properties greater then 50 years old in this period will be evaluated for their significance under the three criteria.

4.4.2.1.5 Evaluate the Cultural Resource's Integrity

In addition to significance, an historic property must possess integrity to be eligible for the NRHP. Integrity is the ability of the resource to convey its significance; to reveal to the viewer the reason for its inclusion in the NRHP. Integrity is a subjective quality, but must be judged based on how the cultural resource's physical features relate to its significance. Seven aspects are used to define integrity. Some, if not all, should be present for the resource to retain its historic integrity: location, design, setting, materials, workmanship, feeling, and association. The HPO shall assess integrity as follows:

- The HPO will define the essential physical features that must be present for a cultural resource to represent its significance. Although not all the historic physical features need to be present, those that convey its historic identity are necessary, including those that define why and when the resource was significant. Under Criteria A and B, the resource must retain those features that made up its character or appearance during the period of its association with the important event, historical pattern, or person(s). Under Criterion C, the resource must retain most of the physical features that constitute that style or technique. Under Criterion D, integrity depends on the data requirements defined in the research design. The significant data contained in the historic resource must remain sufficiently intact to yield the expected important information under appropriate methodologies; and
- The HPO will determine whether the essential physical features are enough to convey significance; and
- The HPO will determine whether the cultural resource needs to be compared with similar properties (historic and non-historic). A comparison may help determine what physical features are essential to historic properties of that type; and
- The HPO will determine, based on the significance and essential physical features, which aspects of integrity are particularly vital to the cultural resource being evaluated and if they are present. For Criterion A and B, the presence of all seven aspects of integrity are the ideal, however integrity of design and workmanship may not be as important or relevant. Under Criterion C, a cultural resource must have integrity of design, workmanship, and materials. Location and setting are important for those whose design is a reflection of their immediate environment. For Criterion D, settings will be included under Criterion D for evaluating sites.
    - (NOTE: The current and revised *Significance Standards* provide guidelines for assessing archeological site integrity.")

If the HPO determines that a cultural resource meets one or more of the four Criteria for Evaluation, integrity must be evaluated. If, upon evaluation, the HPO determines that the resource retains integrity, the resource shall be determined eligible for the NRHP and the HPO shall document finding in the RHPC

and provide the appropriate SHPO with a 30 day review period for concurrence with that finding. Once SHPO concurrence is received, the HPO will proceed to SOP #6. If the HPO determines that the resource does not retain integrity, the HPO will determine that the resource is not eligible for inclusion in the NRHP. This determination will be documented in the RHPC and submitted to the appropriate SHPO for concurrence. Upon receipt of the documentation, the SHPO will respond within 30 days. If not comments are received within that time, concurrence with Ft Bliss' finding will be assumed. No further action is required under this PA for properties determined not eligible for inclusion in the NRHP.

4.4.2.1.6 Methods for Evaluation

In some cases, observations made during survey and recording may not be sufficient to determine the nature and extent of subsurface deposits or assess site integrity. In these cases, a formal testing program may be needed. The following outlines the general standards and procedures for subsurface testing on archeological sites:

4.4.2.1.6.1 Testing. Directorate of Environment (DOE) may request formal limited subsurface tests (such as 1- by-1-m test units) or systematic auguring and/or shovel testing to assess subsurface deposits or aid in the design of site specific data recovery plans. Tests should determine the extent and nature of subsurface deposits, including trash middens, artifact scatters, thermal features, or salvage of obviously endangered chronometric samples (e.g., a hearth eroding from the face of an arroyo bank). Information normally gathered in the survey stage, but absent, shall be obtained during testing. Tests should limit adverse effects to potentially eligible properties while maximizing significant data collection. If a site requires extensive tests to define data recovery efforts more accurately, the investigator should include these recommendations in the management section of their report. All units and tests must be screened thru one-quarter-inch mesh or one-eighth-inch mesh as appropriate to the materials being discovered.

4.4.2.1.6.2 Test Data. Test units/locations, including auger and trowel tests, shall be plotted on site maps using GPS or EDM. When subsurface tests are performed, all soil horizons and strata shall have written descriptions using standard scientific terms. Color descriptions shall be made in Munsell terminology. All excavated features shall be recorded using basic dimensions, orientation, and depth. Profile drawings and photographs (if possible) shall be made of at least one wall of each test pit and tested feature. Artifact descriptions, photography, and maps shall be as described under survey techniques. Upon completion of any test, units shall be restored as nearly as possible to conditions prior to excavation, except on specific instructions from the archeological program managers.

4.4.2.1.7 Determination of Eligibility for Inclusion in the National Register of Historic Places for Properties of Traditional Religious and Cultural Importance.

As previously discussed, it may not be necessary or appropriate to specifically identify and evaluate all Properties of Traditional Religious and Cultural Importance for inclusion in the NRHP. However, when this is determined to be an appropriate measure, the following guidelines will be applied. The

identification, evaluation, and management of Properties of Traditional Religious and Cultural Importance require Tribal consultation and participation.

A Property of Traditional Religious and Cultural Importance is defined in the National Register Bulletin 38 as a site "eligible for inclusion in the NRHP because of its association with cultural practices or beliefs of a living community that (a) are rooted in that community's history, and (b) are important in maintaining the continuing cultural identify of the community." Besides meeting these definitions, Properties of Traditional Religious and Cultural Importance must also meet one or more of the four NRHP Criteria for Eligibility and retain integrity. The statement of significance describing why a site is eligible will be based on traditional knowledge, literature reviews and archival records. Integrity is best determined by the Tribe recognizing the site's significance.

Properties of Traditional Religious and Cultural Importance need not be eligible for inclusion in the NRHP to be subject to management as if eligible. If such a property is determined eligible for inclusion in the NRHP, the appropriate SHPO will be consulted for concurrence with the finding if the Tribe identifying the property agrees to this consultation. All Properties of Traditional Religious and Cultural Importance will continue to SOP #6 to address potential effects the undertaking may have on that property.

C.1.16 V. CRM STANDARD OPERATING PROCEDURE #5

C.1.17 SURVEY STRATEGY FOR THE CHANGING MISSION ON FORT BLISS AND THE CHANGE IN LAND USE ON TRAINING LANDS

C.1.185.1 APPLICABILITY

This SOP applies to any land controlled by Fort Bliss, or as may be acquired or used by Fort Bliss, that may undergo a change in land use from no off-road maneuver to free off-road maneuver for wheeled and tracked vehicles.

C.1.195.2 OBJECTIVES

The objective of this SOP is to provide an appropriate program by which archeological survey and site evaluation will be conducted to accommodate the change in the military mission on Fort Bliss to free off-road maneuver for wheeled and tracked vehicles. On McGregor Range, that survey will be a 30 percent sampling.

C.1.205.3 POLICY

C.1.20.1 5.3.1 Existing Maneuver Areas in Texas and Dona Ana in New Mexico

Survey of most of the Texas and Doña Ana training areas has been completed; however, some areas that will undergo a change in land use may require additional survey. Current resources in the Doña Ana and Texas Maneuver areas will be managed through the Fort Bliss site database, GIS system, NEPA and the Form 88 process.

C.1.20.2 5.3.2 McGregor Range Maneuver

Training on McGregor Range will change from no off-road maneuver to free off-road maneuver by wheeled and tracked vehicles. Under the Army Campaign Plan, Army Transformation is implemented, and changes in land use are expected. Of the approximate 700,000 acres, 57% has been surveyed. An additional 300,000 acres remain uninvestigated. DOE proposes to perform a sample survey of approximately 30 percent of the unsurveyed land (98,000 acres). Survey will then continue year by year beyond the 30 percent threshold on uninvestigated lands (based upon the availability of funds). It is anticipated that the 30 percent survey will be completed before the change in land use begins. Otero Mesa is not included in that change in land use at this time. Additional Red Zones will be designated as the data become available and will also be off limits to training.

Sampling will be conducted training area by training area. Fort Bliss will prioritize surveys in these training areas to accommodate the mission needs. Survey began with FY 05 projects, which are specifically geared towards the training areas expected to receive the greatest impacts as well as those areas that are expected to have the highest density of historic properties based on a GIS predictive model.

C.1.215.4 IMPLEMENTING PROCEDURES

DOE will conduct surveys across McGregor Range (excluding Otero Mesa) to reach the 30 percent threshold for each training area. Survey parcels will be determined by one of two methods: (1) in areas

where the highest traffic is anticipated and/or (2) in sample parcels based on a GIS predictive model developed for Fort Bliss considering such factors as soils, vegetation, slope, distance from water source, and other environmental variables. These units will be placed in areas anticipated to contain archeological sites based on the model. As the 30 percent mark is reached, changes in land use will begin. The overall goal will be to designate areas with high densities of historic properties as Red Zones (off-limits areas) to protect representative types of significant archaeological sites from maneuver impact.

Once the 30 percent thresholds have been reached, each year for the life of this PA, Fort Bliss will endeavor to complete an additional 10,000 acres of survey (funds allowing) on McGregor Range. Survey parcels will be determined using the selection criteria discussed in Section 5.1 of this section. These surveys will be programmed into the current Army funding mechanism and justified based on the requirements of this PA. In the event that funds are not approved for these projects, Fort Bliss will consult with the New Mexico SHPO on a mutually acceptable alternative.

Fort Bliss will submit the report generated for each of these survey and evaluation projects to the New Mexico SHPO for review and comment immediately following acceptance of the final report by the HPO. These reports will be submitted individually upon acceptance, not as part of the annual report.

VI. CRM STANDARD OPERATING PROCEDURE #6

C.1.22ASSESSING EFFECTS

C.1.236.1 APPLICABILITY

This SOP applies to all organizations, property, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army, by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.246.2 OBJECTIVE

This SOP provides for the consideration of the effect of a project on historic properties. If the HPO determines that historic properties are present within a project APE, it must be determined if the undertaking will affect those properties. Effect is defined as an alteration to the characteristics of a cultural resource that qualify it for listing in or eligible for listing in the NRHP. Based upon the evaluation of effect, the HPO will determine if there are No Historic Properties Affected or if Historic Properties are Affected.

C.1.256.3 POLICY

It is Fort Bliss' policy to understand potential effects proposed undertakings may have on historic properties. Fort Bliss will manage its historic properties to minimize effects while meeting its missions.

6.4 Implementation

6.4.1 No Historic Properties Affected

If the HPO finds that there are no historic properties present or that there are historic properties present but the undertaking will not alter the characteristics of the resource that qualify it for eligibility for the NRHP, then the HPO will determine that there will be no historic properties affected. This determination will be documented in a RHPC and made part of the project file, annual report as well as in the NEPA documentations. No further action is required under this PA.

6.4.2 Historic Properties Affected

If the HPO finds that there are historic properties that may be affected by the undertaking the CRM shall determine if these effects are adverse.

6.4.2.1. Finding of No Adverse Effect

This determination is made when there may be an effect, but the effect will not be harmful to those characteristics or historic values that qualify the property for inclusion in the NRHP. This finding will be documented in the RHPC, annual report and made part of the project file as well as in the NEPA documentation. No further action is required under this PA.

6.4.2.2 Finding of Adverse Effect

This determination is made when there may be an effect, and that effect could diminish the integrity of the characteristics that qualify the property for the NRHP.

> 36 CFR Part 800.5(a)(1): An adverse effect is found when an undertaking may alter, directly or indirectly, any of the characteristics that qualify a historic property for inclusion in the National Register of Historic Places in a manner that would diminish the integrity of the property's location, design, setting, materials, workmanship, feeling, or association. Consideration shall be given to all qualifying characteristics of an historic property, including those that may have been identified subsequent to the original evaluation of the property's eligibility for the National Register of Historic Places. Adverse effects may include reasonably foreseeable effects caused by the undertaking that may occur later in time, be farther removed in distance or be cumulative.
>
> 36 CFR Part 800.5(a)(2): Adverse effects on historic properties include, but are not limited to:
>
> "(i) Physical destruction of or damage to all or part of the property;
>
> (ii) Alteration of a property, including restoration, rehabilitation, repair, maintenance, stabilization, hazardous material remediation and provision of handicapped access, that is not consistent with the *Secretary's Standards for the Treatment of Historic Properties* (36 CFR Part 68) and applicable guidelines;
>
> (iii) Removal of property from its historic location;
>
> (iv) Change of the character of the property's use or physical features within the property's setting that contribute to its historic significance;
>
> (v) Introduction of visual, atmospheric or audible elements that diminish the integrity of the property's significant historic features;
>
> (vi) Neglect of a property which causes its deterioration, except where such neglect and deterioration are recognized qualities of a property of religious and cultural significance to a Native tribe; and
>
> (vii) Transfer, lease, or sale of property out of Federal ownership or control without adequate and legally enforceable restrictions of conditions to ensure long-term preservation of the property's historic significance."

When the HPO makes a finding of adverse effect, the finding will be documented in the RHPC and the procedures set forth in SOP #7 will be followed.

6.4.2.2.3 Reporting of No Historic Properties Affected and No Adverse Effect

Undertakings will be reviewed by Fort Bliss Cultural Resources professionals who meet the Secretary of the Interior's Professional Qualifications Standards (48 CFR § 44738-9). When undertakings are determined to have no effect or no adverse effect on historic properties, the appropriate SHPO will be

provided an opportunity to comment either in the NEPA process (SOP #9) or through the Annual Report (SOP #13). If the SHPO does not concur with the HPO's finding, the dispute will be addressed in accordance with SOP #14, Section 14.4.2. Further discussion of undertakings that will be reviewed by Fort Bliss is presented in SOP #7 and identified in Attachment C: Activities Review by Fort Bliss Requiring No SHPO or ACHP Review. At the request of the New Mexico or Texas SHPO and Fort Bliss, the list of undertakings can be modified to include or delete items.

6.5 Emergency Actions

No requirement of this SOP shall delay immediate actions required in an emergency to protect health and human safety or avoid substantial loss of building fabric. Reasonable and prudent efforts, in coordination with the HPO, shall be made to avoid or reduce adverse effects to historic properties during the implementation of immediate emergency actions, documented in writing after the fact with documentation submitted to signatories within 30 days as notification of actions taken and included in the PA annual report addressed in SOP #13.

VII. CRM Standard Operating Procedure #7

Resolution of Adverse Effects

C.1.267.1 APPLICABILITY

This SOP applies to all organizations, properties, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.277.2 INTRODUCTION

The Advisory Council on Historic Preservation's implementing regulations provides the definition of adverse effect in 36 CFR Part 800.5 Assessment of Adverse Effects. An adverse effect occurs when an undertaking may alter any characteristic that makes the property eligible for inclusion in the National Register of Historic Places. An adverse effect will result in the diminishment of the property's integrity (i.e., location, design, setting, materials, workmanship, feeling, or association). This SOP defines Fort Bliss policy in regards to adverse effects with the options of (1) how it will strive to avoid adverse effects, and (2) when avoidance is not possible, how it will mitigate such effects.

C.1.287.3 POLICY

It is Fort Bliss' policy to avoid adverse effects to historic properties under its management to the extent possible while meeting mission needs. If adverse effects may occur, Fort Bliss will apply best management practices to consider all options to avoid or limit impacts to historic properties. If, after applying best management practices, avoidance is not an option, Fort Bliss will address mitigation of the effect as provided for under 36 CFR Part 800.6 (Resolution of Adverse Effects.)

C.1.297.4 IMPLEMENTATION

C.1.29.1 7.4.1 Applying Best Management Practices

If the HPO, after applying assessment of adverse effects (36 CFR Part 800.5), determines a proposed undertaking will have an adverse effect on a historic property, he or she will consult with the undertaking's implementing organization to consider options for avoiding the effects. This consultation will explore the options available for meeting the mission's needs while maintaining the qualities of the historic property that make it eligible for inclusion in the NRHP. If consultation successfully eliminates the adverse effect, the HPO will document this process in a RHPC, along with the changes made to the undertaking to bring it in compliance with a finding of "no historic properties adversely affected," and submit it to NEPA. The project will be summarized in the PA annual report. At a minimum, the HPO and implementing organization will consider the following options: (1) project cancellation, (2) project relocation to avoid impact to the historic property, (3) minimization of impact, and (4) project redesign to avoid adverse effect to the historic property. When undertaking proposes the demolition of a historic

building, the option of adaptive reuse of that building must also be considered. Other options identified during consultation may be considered.

C.1.29.2 7.4.2 Other Options

If, after considering alternative options, it is determined that the undertaking cannot avoid an adverse effect the HPO will apply mitigation measures identified in this SOP, prepare a RHPC for submittal to NEPA and provide access to the RHPC as outlined below.

C.1.29.3 7.4.3 Consultation/Mitigation

If the HPO determines that mitigation measures identified in this SOP are not adequate for the level of effect on the historic property, a RHPC proposing appropriate mitigation measures will be prepared and submitted to NEPA. If an EA is not prepared, the RHPC will be submitted to the SHPO, ACHP, THPO, Tribes, and interested parties for consultation on mitigation measures. If the project requires an EA, the SHPO, ACHP, and interested parties will have an opportunity to comment in the preparation of the EA. If the project requires an EIS, consultation with the SHPO, ACHP and interested parties will be conducted to identify appropriate mitigation measures and made part of the Record of Decision (ROD). When appropriate and in consultation with the SHPO, off-site mitigation may be considered. If the HPO and SHPO cannot reach agreement on appropriate mitigation measures, SOP #14 will provide guidance on resolution of the disagreement.

7.4.3.1 Buildings or Structures. Mitigation of adverse effects caused by proposed demolition of a building or structure will include documentation of the best example of that architectural/building or structure type on Ft Bliss following Historic American Buildings Survey (HABS) or Historic American Engineering Record (HAER), as applicable, Level 2 standards. If HABS/HAER is not interested in receiving the original documentation, photographic documentation will be done digitally in place of large format photography. If no drawings exist for the historic property type to be demolished, new drawings will be prepared following HABS/HAER standards. The HPO will maintain the original documentation with electronic copies provided to the SHPO. Interested parties will be provided copies upon written request. The HPO will relocate the Fort Bliss collection of photographs and architectural and engineering drawings for the building to the permanent publicly accessible Fort Bliss cultural resources archives.

The HPO will identify materials in the building/structure to be reused in the maintenance and repair of other historic buildings/structures on Fort Bliss. Materials identified will be removed, protected, and reused as appropriate.

When the finding of Historic Properties Adversely Affected is limited to a single building that contributes to a historic district but that effect does not threaten the eligibility of that historic district for inclusion in the National Register of Historic Places (a finding of No Historic Properties Affected on the district level), the effected building will be mitigated under standard mitigation measures identified under this section. This mitigation will be referenced in the RHPC and the annual report. When making a finding of effect for a

contributing building in a district, cumulative effects to the district will be considered. If adverse affects to individual contributing elements have cumulated over time to a point where it does threaten the eligibility of the historic district, then mitigation measures will address the historic district.

Other potential mitigation measures may also be considered such as off site mitigation, development of public educational materials, spending of specific project mitigation money on preservation of a like property, etc. Other mitigation measures will be considered in consultation with the appropriate SHPO under the NEPA process as presented in SOP #9.

All actions taken under this SOP will be documented in the annual report and in the NEPA process as discussed in SOP #9.

7.4.3.2 Historic Landscapes. Mitigation of proposed demolition of historic landscapes will consist of documentation of the existing landscape following Historic American Landscape Surveys (HALS) Level 2 standards as general guidance, through existing drawings (preparation of measured drawings if there are no existing drawings addressing landscaping), digital photography, and written recordation. The HPO will maintain the original documentation with electronic copies provided to the appropriate SHPO. Interested parties will be provided copies upon written request. The HPO will relocate the Fort Bliss collection of photographs and drawings for the landscape to the permanent Fort Bliss cultural resources archives.

The HPO will identify landscape features that have the potential for reuse or relocation. The identified features will be removed and placed in temporary plantings for future use if their reuse is not immediate.

All proposed actions taken under this SOP will be made part of NEPA for comment or the RHPC will be submitted to appropriate SHPO for review and documented in the annual report.

7.4.3.3 Archeology. If an archeological site determined to be eligible for inclusion in the National Register of Historic Places, in consultation with the appropriate SHPO, is to be adversely affected by a specific undertaking or as part of the ongoing land management plan, and avoidance is not possible, Fort Bliss will develop an archaeological data recovery plan to mitigate adverse effects to archaeological sites eligible for the significant information they contain. The plan will be developed in accordance with the ACHP's Recommended Approach for Consultation on Recovery of Significant Information from Archaeological Sites, effective June 1, 1999 and consultations under this PA (including consultations on the mitigation strategies in the Significance Standards for Prehistoric Archeological Sites at Fort Bliss once completed). The results of all such data recovery projects will be submitted to the SHPOs and the ACHP upon completion.

In the broader management plan, and upon review and completion of the revised *Significance Standards for Prehistoric Archeological Sites at Fort Bliss* and the development of historic contexts, DOE will enter into consultation with the SHPOs to develop sampling strategies for mitigation of different site types. When an agreement is reached on an appropriate strategy, the strategy will become a document incorporated into this PA. The SHPOs will provide a letter of concurrence, and the new standards will be used from that date forth.

If the HPO determines that mitigation is not feasible, the HPO will follow SOP #8: Documenting Acceptable Loss.

VIII. CRM Standard Operating Procedure #8

Documenting Acceptable Loss

C.1.308.1 APPLICABILITY

This SOP applies to all organizations, property, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.318.2 POLICY

The applicability of this SOP to the Fort Bliss decision-making process is conditioned by fulfillment of 36 CFR Part 800 and other SOPs of this PA. Unless these have been met, documenting acceptable loss cannot be undertaken. Prior to implementing this SOP, Fort Bliss must document why treatment of adverse effects cannot be achieved. Use of this SOP by Fort Bliss should be rare, as other mechanisms for compliance with Section 106 under this PA will reduce the need to make acceptable loss determinations. A cost associated with mitigation is not justification for use of this SOP.

C.1.328.3 IMPLEMENTATION

The Garrison Commander will make acceptable loss determinations, after consulting with the HPO. These determinations will be based on weighing the need to mitigate a historic property that will be adversely affected by an installation undertaking against public interest decisions. The following examples may be applicable under this SOP:

- **Properties of Traditional Religious and Cultural Importance.** Avoidance of impacts altogether and protective measures are among the preferable mitigation measures for properties of traditional religious and cultural importance. Mitigation measures for properties of this type, which are significant to a Native American tribe, must take into consideration the expertise and wishes of the Tribe. There may be cases where a Tribe, understanding the need for a particular installation undertaking and the adverse effects that will result, may decide that mitigation measures should not be undertaken out of respect for their values. In these cases, the Garrison Commander, after consultation with the Tribe and in consideration of Tribe's views, may make a decision to forego undertaking standard mitigation measures for that property.
- **Historic Buildings.** Avoidance of impacts altogether, renovation, reuse, and leasing or transfer are among the preferable mitigation measures for historic buildings. If these measures cannot be done and it becomes necessary to demolish a historic building, mitigation usually involves recordation through some level of HABS/HAER documentation. For Army properties constructed under standardized plans, it may not be in the public interest to further document

an adequately documented property type. In these cases, the Garrison Commander may make a determination that no mitigation measures be undertaken to treat adverse effects to a historic building scheduled to be demolished.

- **Archeological Sites.** Archeological data recovery is time-consuming, and difficult to undertake, and should only be done when there is adequate justification to do so. Justification to conduct archeological data recovery is typically found in a research design or data recovery plan related to a specific archeological site. Data recovery at archeological sites should focus on gaining new information that will be useful to further understanding of past cultures, both for the public as well as archeologists, and to capture the significance of the property. This may include gathering information that can be used to verify or disprove current hypotheses regarding prehistory or history. It is the responsibility of archaeologists to adequately document the need for data recovery based on information collected to make a determination that the site is eligible for inclusion in the National Register of Historic Places. In cases of repetitive site types that offer no new information not available at other sites or already obtained, the Garrison Commander may make a determination that it is not in the public interest to conduct archeological data recovery.

After reviewing all project information and the decisions made in carrying out the SOPs of this PA, the HPO will make a recommendation to the Garrison Commander on the need to proceed with documenting acceptable loss. A package documenting the process that led to selection of acceptable loss will be prepared by the HPO. This documentation is to be submitted to consulting parties and the ACHP. This documentation package will include:

- A letter from the Garrison Commander stating the intent to document acceptable loss,
- A discussion of how Fort Bliss applied the procedures of 36 CFR Part 800 and this PA and the outcome of each of the steps of these procedures, and
- A rationale as to why treatment of adverse effects should not be considered.

The Garrison Commander will allow 30 days for NM and TX SHPOs, Tribes, THPO, and ACHP to submit comments on the documentation. At the close of the review period, the Garrison Commander, in consultation with the HPO, will consider these comments in making a final determination on the project. The Garrison Commander will notify the consulting parties and the ACHP in writing of the outcome of the review and the final decision made prior to implementing the undertaking.

IX. CRM Standard Operating Procedure #9

Reviewing and Monitoring Through NEPA[1]

C.1.339.1 APPLICABILITY

This SOP applies to all organizations, property, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.349.2 OBJECTIVES

The New Mexico and Texas SHPOs, federally recognized tribes, and interested members of the public will continue to participate in the process of reviewing and commenting on Fort Bliss undertakings with the potential to affect historic properties. Participation shall occur through the installation's public participation procedures as provided in 36 CFR Part 800.8: Coordination with the National Environmental Policy Act, and, where no NEPA documentation is prepared, through the RHPC (Attachment B) when addressed findings of eligibility or mitigation of Historic Properties Adversely Affected. Projects that result in findings of No Historic Properties Affected or No Historic Properties Adversely Affected are identified through the biannual report for the first two years of this PA and in the annual report after the initial two year period. The documentation used to reach these later two findings will be available for review upon request.

The National Environmental Policy Act of 1969 (NEPA), as amended, is a federal environmental statute that requires the Army to consider the effects of its proposed action on the quality of the human environment before it makes a decision to go forward with a specific course of action. Historic properties are considered elements of the human environment requiring consideration under NEPA. NEPA also directs the Army, in specified circumstances, to disclose environmental effects to the public, to seek the public's comment, and to consider those comments before proceeding. The Army's NEPA procedures are published in the Code of Federal Regulations at 32 CFR Part 651. Review and monitoring shall proceed as illustrated in Figure 2: NEPA Review Flow Chart.

C.1.359.3 POLICY

The NEPA process can result in three types of review; Record of Environmental Consideration (REC), Environmental Assessment (EA), and Environmental Impact Statement (EIS). NEPA provides for categorical exclusion (CATEX) for undertakings that do not normally have a significant environmental impact. The Army's NEPA CATEXs are listed in SOP #2, Attachment C, and 32 CFR Part 651, and can only be used if the project can pass the screening criteria set forth in 32 CFR Part 651.29. A Record of Historic Properties Consideration (RHPC) form will be prepared on all undertakings regardless of whether it is covered by a REC, EA, or EIS. If a finding of No Historic Properties Affected or No Historic Properties Adversely Affected for an undertaking and only REC is prepared as the NEPA document, this action will be reported in the Biannual Report for the first two years of the PA with

[1] NEPA refers to Fort Bliss DOE NEPA procedures or staff.

associated RHPC made available upon request. If an EA is prepared for the proposed undertaking, the RHPC will be made part of that document and released to the stakeholders for a 30 day comment period. If an EIS is prepared for an undertaking, the RHPC will be made part of the document and the stakeholders will be invited to participate in development of the EIS as appropriate. If there is a finding that Historic Properties Adversely Affected and no NEPA documentation is prepared, the RHPC and supporting documentation will be submitted to the stakeholders for a 30 day review. In all cases, comments received within the 30 day review period will be considered in the preparation of the final documentation prior to start of the undertaking.

C.1.369.4 NOTIFICATION OF NEPA REVIEWS

C.1.36.1 9.4.1 Notification for Actions for which an Environmental Assessment or Environmental Impact Statement is Prepared

Fort Bliss shall maintain a list of parties with a demonstrated interest in management of historic properties on the installation. This list shall include, among others, the New Mexico and Texas SHPOs, federally recognized Tribes, consulting parties and other interested parties.

When Fort Bliss proposes an undertaking with the potential to adversely affect a historic property, the installation, if preparing an EA or EIS, shall use the NEPA process to notify consulting parties and provide an opportunity for their participation in the process. In particular:

- If the installation initiates a public scoping process prior to preparing the EA or EIS, it will specifically notify all consulting parties on the list referenced above and request their participation.
- The EA or draft EIS shall contain information regarding the installation's efforts and methods for identification and evaluation of historic properties, assessment of effects to such properties, and proposed mitigation. The installation shall provide interested parties with electronic access to the EA or draft EIS and request their review and comment. The notification shall direct the recipient to those portions of the document relevant to historic properties.
- The installation shall review and consider all comments submitted from interested parties before finalizing an EA or EIS. For comments received on a draft EIS, the installation will specifically respond to those comments in a final EIS as necessary.

C.1.36.2 9.4.2 Notification for Actions for which an Environmental Assessment or Environmental Impact Statement Is Not Prepared.

The installation will prepare a RHPC for undertakings that have the potential to affect historic properties. If the installation proposes an undertaking that is likely to adversely affect a historic property without preparation of an EA or EIS, and thus no NEPA public participation, the installation shall make the RHPC available to the list of interested stakeholders. The RHPC will demonstrate the installation's compliance with this PA and at a minimum, briefly describe the installation's efforts and methods for identification and evaluation of historic properties, assessment of effects to such properties, and proposed mitigation. If the RHPC includes a determination of eligibility for inclusion in the National Register of Historic Places, the installation will provide the RHPC to the appropriate SHPO for a 30-day period to provide comment regarding concurrence or nonconcurrence. When a finding of eligibility addresses a property of Tribal interest, the RHPC will be provided to the THPO and Tribes for a 30-day review period.

The installation's HPO will maintain all RHPCs prepared under this SOP and list these in its annual report (see SOP #13). Copies will be provided to consulting parties upon request.

C.1.379.5 ACTIONS NORMALLY REQUIRING AN ENVIRONMENTAL ASSESSMENT

The following actions normally require preparation of an EA:

- Special field training exercises or test activities on Army land of a nature or magnitude not within the annual installation training cycle.
- Military construction, including contracts for off-post construction.
- An installation pesticide, fungicide, herbicide, insecticide, and rodenticide use program.
- Changes to established installation land use that generates impacts on the environment.
- Proposed changes in doctrine or policy that may have a potential environmental impact.
- Acquisition or alteration of, or space for, a laboratory that will use hazardous chemicals, drugs, or biological or radioactive materials.
- New weapon systems development and acquisition, including the material acquisition, transition, and release process.
- Development of an installation master plan.
- Development of natural resource management plans (land, forest, fish, and wildlife).
- Proposals that may lead to accessing Army real property.
- Field activities on land not controlled by the military. This includes firing of weapons, missiles, or lasers over navigable waters of the United State, or extending 45 meters or more above ground level in the national airspace. It also includes joint air attack training that may require participating aircraft to exceed 250 knots at altitudes below 3,000 feet above ground level.

- Army National Guard /Operations and Maintenance projects that will impact environmental quality.
- Special field training exercises or test activities off Army or DOD property that extend into the national airspace (45 meters above the ground level).
- Changes to established airspace use that generates impacts on the environment or socioeconomic systems or creates a hazard to nonparticipants.

C.1.389.6 ACTIONS NORMALLY REQUIRING AN ENVIRONMENTAL IMPACT STATEMENT

The following actions normally require preparation of an EIS:

- Significant expansion of a military facility or installation.
- Construction of facilities that have a significant effect on wetlands, coastal zones, or other areas of critical environmental concern.
- The disposal of nuclear materials, munitions, explosives, industrial and military chemicals, and other hazardous or toxic substances that have the potential to cause significant environmental impact.
- Land acquisition, leasing, or other actions that may lead to significant changes in land use.
- Realignment or stationing of a brigade or larger.
- Training exercises conducted outside the boundaries of an existing military reservation where significant environmental damage might occur.
- Major changes in the mission or facilities either affecting environmentally sensitive resources or causing significant environmental impact.

C.1.399.7 ANNUAL REVIEW AND MONITORING

In addition to project-based NEPA reviews, Fort Bliss may also hold an annual review and monitoring meeting hosted by the Directorate of Environment as deemed necessary upon request of signatories. The three primary purposes of the annual review and monitoring are (1) to review past undertakings, (2) to discuss upcoming undertakings, and (3) to review the SOPs. Fort Bliss will document the annual review meeting and distribute this documentation to consulting parties after the conclusion of the meeting. No later than sixty (60) days prior to any scheduled annual review meeting, the installation's HPO will provide signatories to this PA with an annual report (see SOP 13). Consulting parties who want to see or visit particular historic properties dealt with under this PA during the review period must contact the HPO no later than twenty-one (21) days in advance of the scheduled meeting. In addition to the annual review, the HPO will provide signatories to this PA with a mid-year update consisting of a log identifying projects reviewed under terms of this PA in the previous six (6) months for the first year of this PA.

C.1.409.8 REVIEW PAST UNDERTAKINGS

The annual report will provide a listing of all undertakings reviewed the previous year under this PA. Stakeholders may select those undertakings of interest to them for further review. The individual stakeholders determine the number of and types of undertakings that they wish to receive additional

information on to understand how review of the undertakings were accomplished under this PA. For undertakings that require a determination of eligibility or that has a finding of Historic Properties Adversely Affected, the documentation will be provided throughout the year and also identified in the Annual Report.

C.1.419.9 REVIEW PROGRAMMED UNDERTAKINGS

Fort Bliss will identify programmed undertakings that are scheduled, or are likely to be scheduled, for the next fiscal year and that may be anticipated beyond one year. Consulting parties will have an opportunity during the scheduled meeting (or through commenting on the annual report) to express their views over any changes needed in the methods of identification, evaluation, and treatment of historic properties likely to be affected by these undertakings. These programmed undertakings may form the basis for review during the next meeting held with consulting parties.

C.1.429.10 REVIEW SOPS

Fort Bliss and its consulting parties will review any of the SOPs that may need to have changes made to them in order to accomplish the historic preservation goals set out in Ft Bliss' ICRMP. SOPs that do not consistently achieve the desired goals will be considered for amendment.

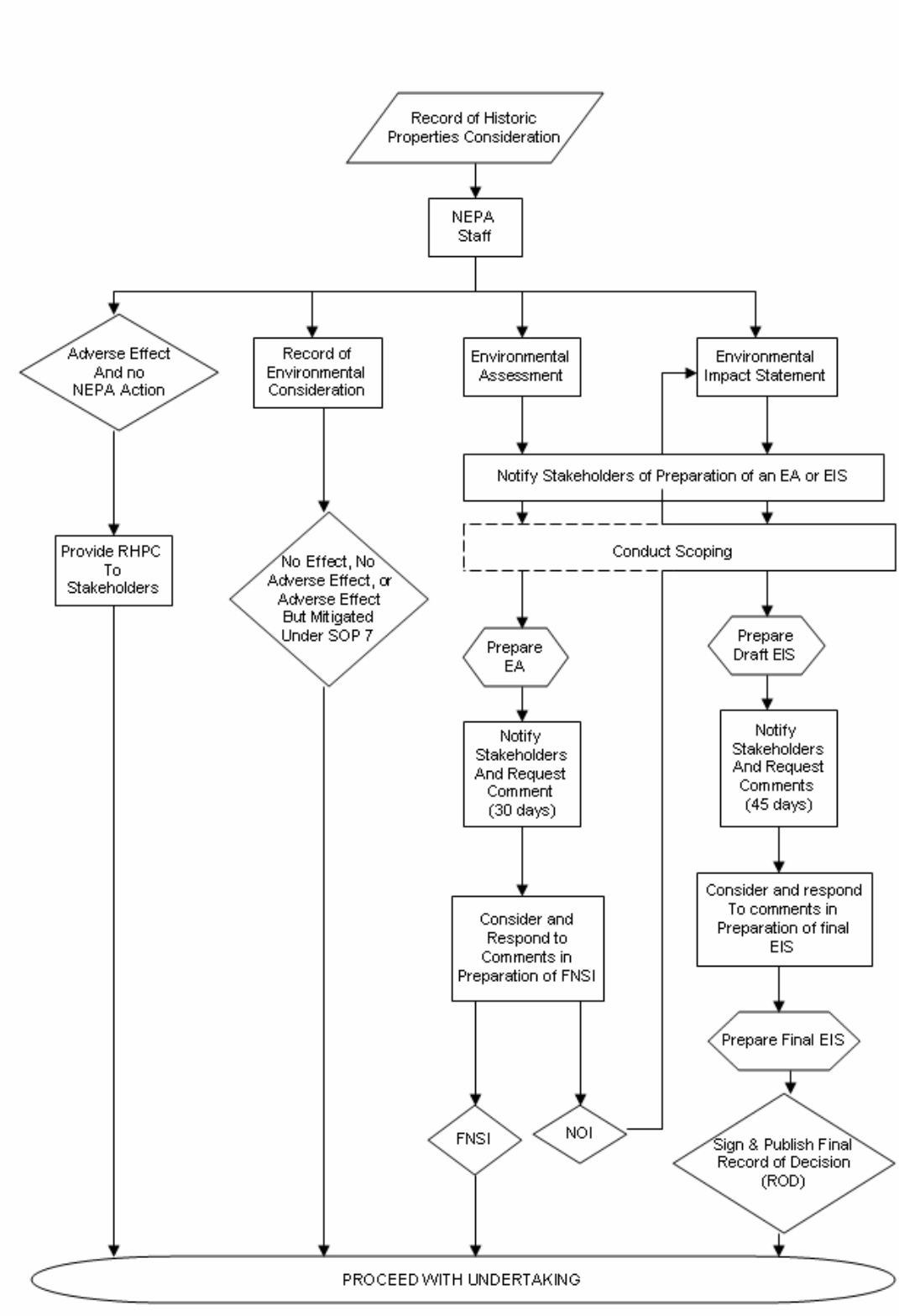

FIGURE 2: NEPA Review Flow Chart

X. CRM Standard Operating Procedure #10

Accidental Discovery of Historic Properties

C.1.4310.1 APPLICABILITY

This SOP applies to all organizations, property, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.4410.2 OBJECTIVES

The objectives of this SOP are to have procedures in place in the event of accidental discovery of archeological materials. This can apply to both previously recorded and new sites and to archeological sites in any part of Fort Bliss.

C.1.4510.3 POLICY

C.1.45.1 10.3.1 Inadvertent Discovery of Archeological Materials

Historic and prehistoric archeological sites can be found in most areas at Fort Bliss, including the cantonment, McGregor Range, and the maneuver areas. Historic period sites can be divided into two types, military and nonmilitary, and are usually characterized by one or more of the following artifact types: glass, ceramics, metal, bricks, and wood. Prehistoric period sites usually contain ceramics (usually brownwares, both decorated and undecorated), lithic artifacts (projectile points, scrapers, worked tools, flakes, cores, manos, and metates), bone (both burned and worked implements), and/or thermally-altered rock (including burned caliche). In addition, Native American burials can be encountered anywhere on Fort Bliss. These will be indicated by the presence of large bones and/or small bones, soil stains, and grave goods such as pottery, beads, and exotic items.

- In the event of inadvertent discovery of archeological materials during a construction project or field training exercise in the maneuver areas, all work in the area affecting the materials must cease immediately.
- The conservation division chief and/or Fort Bliss HPO must be notified immediately upon discovery of previously unknown archeological materials. The HPO and/or archeological program managers will inspect the site where archeological materials have been discovered. Documentation of the disturbance will be made, including notes and photographs.
- The HPO will consult with the State Historic Preservation Officer (SHPO) of the appropriate state and appropriate federally recognized Tribe on a course of action if the HPO determines the discovery may constitute an NRHP eligible property. Notification will be done within 48 hours of the discovery by fax and/or telephone. Within three (3) days, the HPO will follow this initial consultation with a letter detailing the disturbance, the location, and any necessary actions.

The HPO will complete the NAGPRA process if Native American burials are encountered. A state site form (LA or TARL) will be prepared for the site(s) discovered.

- The SHPO will have 48 hours to respond.
- In the event that mitigation of the damage to a site is necessary, the archeological program managers will prepare a research design for fieldwork and submit it to the SHPO of the appropriate state (Texas or New Mexico) and appropriate federally recognized Tribes. The SHPO will have 10 days to respond. If there are no objections within the specified time, data recovery will proceed under the attached programmatic agreement.

C.1.45.2 10.3.2 Willful Destruction of Archeological Materials

The willful destruction of archeological materials is a violation of the Archeological Resources Protection Act of 1979 (as amended) and may result in a felony prosecution.

C.1.45.3 10.3.3 Native American Human Remains

In the event the find is or is suspected to be Native American human remains or funerary objects that are or may have been associated with human remains, the HPO will contact the appropriate Native American groups and comply with the requirements of NAGPRA, as applicable. Fort Bliss will follow the NAGPRA protocol in its Integrated Cultural Resource Management Plan.

XI. CRM Standard Operating Procedure #11

Reporting Damage to Historic Properties Buildings, Sites, Landscapes, Districts, Objects, etc.

C.1.4611.1 APPLICABILITY

This SOP applies to all organizations, property, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.4711.2 OBJECTIVES

The objectives of this SOP are (1) to ensure damage is reported so corrective actions may be developed to avoid future unintentional damage, (2) to identify organizations and individuals responsible for intentional damage so appropriate measures can be followed, and (3) to ensure that willful violations of federal law are reported to the range commander, Fort Bliss provost marshal, the staff judge advocate, and the Garrison Commander so appropriate action can be taken.

C.1.4811.3 INTRODUCTION

Routine military training activities at Fort Bliss and the operation and maintenance of Fort Bliss facilities poses a risk of unintentional damage to properties that are or may be eligible for inclusion in the National Register of Historic Places. Such damage may occur through the failure of the routine administrative controls provided in Fort Bliss' ICRMP or through the failure of trainers or other personnel to confine ground-disturbing activities to the areas that have been cleared to avoid adverse effects.

Willful damage and violation of federal law is also possible. For determining reporting requirements under this SOP, damage is considered willful when the person responsible for, or who approved, the implementation of the action could have reasonably been expected to be aware of the law.

C.1.4911.4 POLICY

Funds programmed for the implementation of this PA will not be diverted to repair or mitigate damage caused by failure to follow the provisions of the PA.

C.1.5011.5 PROCEDURE

C.1.50.1 11.5.1 Archeological Sites

When a recorded site has been damaged, Fort Bliss HPO or archeological program managers will review the site records, visit the site, and make an initial determination of National Register eligibility of the site, if not already determined, and the damage to the site. An updated state site form will be prepared and forwarded to the appropriate state in consultation with the SHPO.

- Where the damage is slight, not an *in situ* deposit, or not eligible for the National Register for other reasons, the archeological program managers may make a recommendation of No Historic Properties Affected and the HPO will report the incident in the PA annual report.
- Where the damage is severe and the archeological program managers feel there is evidence the site had been found, or may have been found, eligible for the National Register before the damage, the HPO will prepare a RHPC documenting the circumstances of the damage, its extent and effect. This RHPC, with a transmittal letter signed by the Fort Bliss Garrison Commander, will be submitted for notification to the appropriate SHPO within 30 days after the Fort Bliss HPO was made aware of the damage.

C.1.50.2 11.5.2 Native American Cultural Properties

When a property with documented Native American cultural values has been impacted in a manner contradictory to Fort Bliss Policy or its PA, the HPO will review the incident and prepare a report for the Garrison Commander documenting the impact and recommending procedures (or modifications to existing procedures) that avoid future impacts.

- Native Americans with ties to the impacted cultural property will be notified and consulted regarding Fort Bliss's proposed methods to address damage to properties of traditional cultural value to which they have ties. The SHPO of the state where the impact has occurred will be notified through the Annual Report.
- The HPO will include documentation of the incident in the PA annual report, taking care to ensure that information considered confidential by Native Americans is not made available to the public or any agency or organization the Native American individual or group does not specifically indicate should receive information.

C.1.50.3 11.5.3 Aboveground Properties (Including, but not Limited to Buildings, Bridges, Landscapes, Structures, Districts, Objects, and Traditional Cultural Properties Not Associated with Native Americans)

10.5.3.1. When an aboveground property that has previously been determined eligible for inclusion in or is listed in the National Register of Historic Places or an unevaluated property that the HPO finds eligible has been impacted, the installation historic architect with the assistance of a historian, architectural historian, ethnographer, folklorist, or landscape architect, as appropriate, will visit the property and make a determination of effect. When the aboveground property affected is 45 or more years old and has not been previously evaluated for eligibility the installation historic architect with the assistance of a historian, architectural historian, ethnographer, folklorist, or landscape architect, as appropriate, will visit the property and make an initial determination of National Register eligibility and effect.

- Where damage is slight or does not affect features that contribute to the historic significance of the property, the installation historic architect will make a determination of No Historic Properties Affected or No Historic Properties

Adversely Affected, prepare a RHPC, and report the incident in the PA annual report.

- Where the damage is adverse, or demolition or partial demolition took place, and the installation historic architect finds that the property has already been found eligible or may have been eligible for the NRHP before the damage, the installation historic architect will prepare a report documenting the circumstances of the damage, its extent, and effect. This report will be submitted with a transmittal letter signed by the Fort Bliss Garrison Commander to the appropriate SHPO, THPO, and Tribes. Potential mitigation measures may be offered for consideration.

11.5.3.2. When new construction (or a modification to proposed construction that has not been reviewed in accordance with this PA) is discovered within the historic district or within the view shed, the installation historic architect will visit the site and make an initial evaluation of the impact the construction may have on the district.

- Where construction is determined not to affect the features that contribute to the historic significance of the property, the installation historic architect will make a determination of No Historic Properties Affected and will report the incident in the PA annual report.
- Where construction is determined to have no adverse effect on historic properties, the installation historic architect will prepare a RHPC documenting the project and make available to SHPOs as part of the Annual Report.

XII. CRM Standard Operating Procedure #12

Public Involvement in the Fort Bliss Cultural Resources Management Program

C.1.5112.1 APPLICABILITY

The Fort Bliss HPO is responsible for carrying out the provisions of this SOP in cooperation with the public affairs officer. Other organizations are responsible for providing information regarding undertakings for which they are the proponent, user, or implementing organization.

C.1.5212.2 INTRODUCTION

Various provisions of federal law, codified regulations and Army regulations require that interested members of the public have access to the decision-making processes and the results of historic preservation and environmental management undertaken at the public expense (36 CFR Part 800, AR 200-1, AR 200-2, AR 200-4).

This SOP outlines the minimum routine measures that Fort Bliss will take to ensure such access within the implementation of the Fort Bliss ICRMP and this PA. Additional effort to determine public concerns may be required if Fort Bliss proposes undertakings that the New Mexico or Texas SHPO or the ACHP feels have the potential to have an adverse effect on Fort Bliss' historic properties. In that case, the public and interested parties will be informed of action at Fort Bliss that may affect historic properties consistent with the requirements of 36 CFR Part 800.***8.***

When compliance with the NEPA requires either an environmental assessment or environmental impact statement, specific requirements of that law and its implementing regulation regarding public comment must be met concurrently with or in addition to those required by this SOP (AR 200-1, AR 200-2). When Fort Bliss includes wording in its NEPA notifications to the public specifically stating that comment is also being requested to meet the Army's responsibilities under the NHPA, the resulting public participation and comment will fulfill all requirements for public participation under NHPA.

C.1.5312.3 SHPO AND ACHP RIGHTS AND RESPONSIBILITIES

Nothing in this SOP or the PA changes the right granted under federal law or regulation or separate agreement to the Army, for the appropriate SHPO or the ACHP to issue public notice, solicit public opinion, or hold, facilitate, or participate in public meetings relative to Fort Bliss undertakings.

C.1.5412.4 POLICY

Fort Bliss will make research reports prepared in conjunction with this plan available to local public libraries (El Paso, Las Cruces, Alamogordo, and Fort Bliss); the University of Texas at El Paso; New Mexico State University; the University of New Mexico; the University of Texas at Austin; Texas A&M University; El Paso, Doña Ana, and Otero county historical and archeological societies; Native American groups with ties to Fort Bliss; and individuals who have expressed an interest and granted permission to have their names and addresses retained on the Fort Bliss Conservation Division mailing list. As part of the consultation process, reports are also provided to the Texas and New Mexico SHPOs.

Reports and other compliance documents that include the exact location(s) of archeological sites or other information that, in the opinion of the HPO, might endanger the resources or are administrative in nature and have neither research value nor public interest will be released consistent with section 304 of the NHPA.

C.1.5512.5 IMPLEMENTING PROCEDURES

C.1.55.1 12.5.1. Mailing Lists

The HPO will maintain mailing lists of institutions and interested individuals by area of interest and/or research concern, as listed in the policy statement above. The HPO will request assistance from the New Mexico and Texas SHPOs in identifying interested parties.

C.1.55.2 12.5.2. Reports

The HPO will send reports that have research value or are of public interest, as defined above, routinely to the ACHP, the SHPOs, appropriate state universities, and appropriate county historical and archeological societies. Brochures with notifications of technical reports availability, including a brief abstract of their contents, will be made available to others on the mailing lists according to expressed area of interest. Interested individuals/organizations may contact Fort Bliss and request the reports.

C.1.55.3 12.5.3. Mailing

The HPO will (at least twice during the implementation of this PA) send a mailing requesting the recipient verify his/her current postal or electronic mail address, reaffirm continuing interest in receiving Fort Bliss reports, and give Fort Bliss permission to have his/her name, postal or electronic mail address, and telephone number maintained in the PA database and provide his/her name, postal or electronic mail address and telephone number to the SHPO and ACHP. Those who do not respond will be deleted from the mailing list.

C.1.55.4 12.5.4. Materials of Interest

When materials (in the opinion of the HPO) will have a wider range of interest, they may be published in scholarly journals, periodicals, books, or given as papers at learned and historical societies. All materials prepared by the HPO staff will be submitted through channels to the Fort Bliss Public Affairs Officer (PAO) to ensure compliance with Army Regulation 360-5. Release of materials prepared under contract will be approved as specified in the contract. The Fort Bliss HPO will ensure that a process that meets the standards of AR 360-5 is included in the scope of work for contracts approved by Fort Bliss.

C.1.55.5 12.5.5 Cultural Resources Meetings

The HPO (and/or at his/her discretion other professional members of the cultural resources management staff) will in his/her official capacity attend meetings of local and state organizations concerned with cultural resources management issues at county and state historical and archeological societies. The HPO may speak on the status of Fort Bliss cultural resources management program. Informal presentations, including slide presentations, may be presented without prior approval of the PAO. The HPO will notify the PAO in advance of anticipated informal presentations and coordinate further if the PAO so requests. If a formal paper is given and copies are distributed, the text will be submitted to the PAO prior to the presentation to ensure the requirements of AR 360-5 are met. The HPO will inform the PAO and appropriate members of the command group of any potentially controversial issues raised during formal or informal presentations.

C.1.55.6 12.5.6 Popular Publications

The HPO and his or her staff will include the development of popular publications as companions to technical reports when project budgets allow. Fort Bliss will provide Portable Document Files (.pdf) of popular publications to individuals and organizations.

C.1.55.7 12.5.7 Web Page

The HPO will explore the potential to develop a web page that can be used to disseminate information to a broader audience on Cultural Resource materials and program.

C.1.55.8 12.5.8 PA Annual Reports

Interested parties will be provided copies of the PA annual report. Comments on the report will be requested along with identification of preservation issues of concern to them.

XIII. CRM Standing Operating Procedure #13

Annual Report

C.1.5613.1 APPLICABILITY

This SOP applies to all organizations, property, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.5713.2 INTRODUCTION

This PA requires that Fort Bliss provide an annual report to interested members of the public, the New Mexico and Texas SHPOs, and the ACHP. If this report is not prepared, Fort Bliss will be required to comply with the provisions of 36 CFR Part 800 of the National Historic Preservation Act for each individual undertaking at Fort Bliss that has the potential to affect historic properties.

Submittal of the annual report to the SHPOs and the ACHP and appropriate consideration of their comments fulfills the compliance requirements with the NHPA, Section 106, for all the undertakings included in the PA.

C.1.5813.3 POLICY

The following documentation will be provided annually to every interested party on every mailing list maintained in accordance with this SOP and the Fort Bliss Public Affairs Office: (1) an overview describing the implementation of this PA; (2) a list of all projects that proceeded under the procedures in this PA; (3) a revised list of projects proposed for the coming year; and (4) recommendations for amending the PA, if applicable.

In addition to the documents listed above, the following information will be provided to the SHPO, THPO, Tribes and the ACHP: (1) a description of each project undertaken without complete review of the SHPO, THPO, Tribes and the ACHP, as specified in this PA, and (2) a status report on the implementation of PA SOPs, including all reports and documents specified in those SOPs for inclusion in the annual report. For projects in New Mexico, a complete NMCRIS Information Abstract will be provided.

C.1.5913.4 IMPLEMENTATION

C.1.59.1 13.4.1. The Fort Bliss HPO will:

- Retain the original documentation of each project undertaken without formal review of the SHPO for a period of three (3) years. A summary of these will be made part of the annual report. Original documentation will be made available to the SHPO, THPO, Tribes and ACHP, or interested parties upon written request.

- Prepare the final report and submit it, through command channels, for approval, reproduction, and release on 15 November or mutually agreed-upon date
- Annual Report will include at a minimum a listing of all undertakings reviewed for the previous year. The report will include a list of undertakings that have been consulted on with the appropriate SHPO, project-by-project during the course of the year (such as all determinations of eligibility and resolutions of Adversely effects). It will also include all those undertakings that were reviewed in-house as stipulated in the SOPs and Appendix C as broken down by:
  - Determinations of Eligibility

NEPA Number/ RHPC Number	Project title	Project Description	Eligibility Finding	Date to SHPO

  - No Historic Properties Affected

NEPA Number/RHPC Number	Project title	Project Description

  - No Historic Properties Adversely Affected

NEPA Number/ RHPC Number	Project title	Project Description

  - Historic Properties Adversely Affected

NEPA Number/ RHPC Number	Project title	Project Description	Agreed upon mitigation measures

  - Damaged Properties Addressed During the Year

RHPC number	Property Affected	Project Description	Mitigation Measure Taken

- Provide a mid-term update as required in SOP #9.7.
- May also hold an annual review and monitoring meeting hosted by the Directorate of Environment as deemed necessary as presented in SOP # 9.7 upon request of signatories.
- Consult with any objecting party to answer questions and resolve any disagreement if the objecting party has questions regarding implementation of the PA.
- When resolution regarding the disagreement cannot be met, Fort Bliss (HPO) will request ACHP comment within 30 days of making such a request. If no comment is forthcoming within the allotted time, it will be assumed by all parties that ACHP concurs with Fort Bliss.
- If Fort Bliss is unable to accommodate the comments of the ACHP, Fort Bliss (HPO) will advise IMA and HQDA of the reasons for this action and record the failure to agree in the Environmental Assessment or Environmental Impact Statement that includes the undertaking. If no NEPA compliance documentation is being prepared that includes the undertaking, Fort Bliss will consult with IMA to determine if the requirements of AR 200-1 or AR 200-2 have been met prior to proceeding with the undertaking.

C.1.59.2 13.4.2. The SHPO, THPO, Tribes and the ACHP will:

- Notify Fort Bliss by letter within 60 days of their receipt of the annual report with any comments or any requests for specific RHPCs. If there is no response within this time, it will be assumed that the annual report is acceptable.
- Participate in the consultation with any objecting party to answer questions and resolve any disagreement if the objecting party has questions regarding implementation of the PA.
- When resolution regarding the disagreement cannot be met and it is forwarded to ACHP, ACHP will comment within 15 days of such a request or requests an additional 15 days within the initial 15 days. If no comment is forthcoming within the allotted time, it will be assumed by all parties that ACHP concurs with Fort Bliss.

XIV. CRM Standard Operating Procedure #14

Dispute Resolution

C.1.6014.1 APPLICABILITY

This SOP applies to all organizations, property, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.6114.2 INTRODUCTION

Preservation practice can be subjective and open for interpretation. To manage historic properties under its management and to ensure application of sound preservation practices, Fort Bliss will retain a professional cultural resource expertise that meets the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* (*Federal Register* Vol. 48, No. 190, Part IV, 44716-44742). Even so, disputes may arise in application of the criteria for properties' eligibility for inclusion in the National Register of Historic Places, finding of effects, best management practices, etc. This SOP provides Fort Bliss' policy on dispute resolution. It addresses both internal and external disputes.

C.1.6214.3 POLICY

It is Fort Bliss' policy to address all disputes in a professional manner and with the objective of reaching mutual agreement on dispute resolutions through meaningful consultation with objecting parties. Meaningful consultation needs to begin in the planning and preparation and review of this PA to limit disputes after implementation.

C.1.6314.4 IMPLEMENTATION

C.1.63.1 14.4.1 Internal Disputes

Should an implementing organization object to an action recommended by the HPO under this PA, the two will meet to discuss objections and consider potential ways to resolve the dispute in meeting both mission and legal requirements. If consultation fails to resolve the dispute, both parties will seek the SJA's opinion on applicability with cultural resource laws and regulations or applicability of the PA for the disputed issue. Final dispute resolution, if necessary, will rest with the Fort Bliss Garrison Commander who will consider SJA's legal opinion in making a final decision.

C.1.63.2 14.4.2 External Disputes

Should the signatories object to any action carried out or proposed by Fort Bliss with respect to implementation of this PA, the objecting party will send its objection in writing to Fort Bliss' HPO. The HPO will consult with the objecting party to resolve the objection. If the dispute cannot be resolved through this consultation process or if other parties are affected by the dispute, Fort Bliss will consult

with all signatories of this PA. Should another interested party that is not a signatory object to any action, Fort Bliss shall take the objection into account and document its consideration.

14.4.2.1 Determinations of Eligibility. If the objection between Fort Bliss and SHPO**,** THPO, or Tribe concerns determinations of eligibility, and if the two parties cannot reach concurrence after consultation, the HPO will submit the determination of eligibility package originally submitted to the SHPO to the Keeper for final determination. The submittal package to the Keeper will also include all correspondence and consultation between the HPO and SHPO addressing the finding of eligibility. The Keeper will respond to a request for formal determination of eligibility within 45 days of receipt of the request. If there is no response within the allotted time, it will be assumed by all parties that the Keeper concurs with Fort Bliss' determination and the property will be managed accordingly.

14.4.2.2 Determination of Effects. If the objection between Fort Bliss and the SHPO, THPO, and/or Tribes concerns determinations of effect as addressed in the Annual Report, and if the parties cannot reach concurrence after consultation, the HPO will submit the determination of effect to the ACHP for final determination. The submittal package to the ACHP will also include all correspondence/consultation between the HPO and SHPO, THPO, and/or Tribes addressing the finding of effect. The ACHP will respond to the request for a formal determination of effect within 15 days of receipt of submittal. The ACHP may request an addition 15 days for response. Non-response by ACHP within 15 days of receipt of the submittal will constitute agreement with Fort Bliss' finding of effect. Participating parties may request amending appropriate SOPs to incorporate any changes required, based on ACHP's comments.

14.4.2.3 Disputes other than Determinations of Eligibility or Effect. For disputes centered on other parts of implementing this PA, other than findings of eligibility or effect, and where agreement cannot be reached between Fort Bliss and objecting parties, Fort Bliss will forward all documentation relevant to the dispute along with its proposed resolution to the ACHP. ACHP will exercise one of the following options within 45 days of receipt of all pertinent documentation:

- Advise Fort Bliss that ACHP concurs in the proposed final decision, whereupon Fort Bliss will respond to the objection accordingly; or
- Provide Fort Bliss with recommendations, which Fort Bliss will take into account in reaching a final decision regarding its response to the objection; or
- Notify Secretary of the Army that ACHP will comment pursuant to 36 CFR Part 800(7) (c), and proceed to comment. The resulting comment will be taken into account by Fort Bliss according to 36 CFR Part 800(7)(c)(4) and Section 110(1) of the National Historic Preservation Act.

Should the ACHP not exercise one of the above options within 45 days of receipt of all pertinent documentation, all parties shall assume ACHP's agreement with Fort Bliss's proposed response to the objection.

Fort Bliss will take into account any ACHP recommendation or comment provided by this SOP with reference only to the subject of the objection; the installation's responsibility to implement other actions under this PA that are not the subject of the objection will remain unchanged. Any changes to the PA resulting from ACHP recommendations or comments will be highlighted in the PA annual report, with such changes made part of the PA.

XV. CRM Standard Operating Procedure #15

Military Activities in Anticipation of Immediate Deployment, Mobilization or Armed Conflict

C.1.6415.1 APPLICABILITY

This SOP applies to all organizations, property, and activities under the control of the Department of the Army and located within the boundaries of Fort Bliss or other contiguous land under Fort Bliss control. It also includes activities undertaken on behalf of the Army or with consent of the Army, or as a result of consent of the Army by contract, lease, or interservice support agreement or other instrument to which Fort Bliss, the United States Army, or the Department of Defense is a party, within Fort Bliss or other contiguous land under Fort Bliss control.

C.1.6515.2 OBJECTIVES

The objectives of this SOP are to ensure the effects of military undertaking (in anticipation of deployment, mobilization, or armed conflict) on historic properties are considered and a reasonable effort is made to ensure that damage to historic properties is avoided.

C.1.6615.3 POLICY

Fort Bliss will proceed with undertakings required to support mobilization and training required in anticipation of immediate deployment, mobilization, or armed conflict without prior review of these activities by the SHPOs or the ACHP. The Fort Bliss HPO or other appropriate cultural resources professional with appropriate security clearance will conduct an internal review.

C.1.6715.4 IMPLEMENTING PROCEDURES

C.1.67.1 15.4.1. Implementing Organization

The implementing organization will include the HPO in planning activities when an undertaking includes ground-disturbing activities, modifications to or demolition of buildings or grounds more than 45 years old, or the disposal of records connected with historic properties or unevaluated archeological sites or buildings more than 45 years old.

C.1.67.2 15.4.2. Historic Preservation Officer

The HPO will ensure the implementing organization is aware of the potential adverse effects of all courses of action on historic properties under consideration and recommend ways to avoid and reduce adverse effects.

C.1.67.3 15.4.3. Following Recommendations

The implementing organization will follow the HPO's recommendations when practical.

- If the implementing organization cannot follow the HPO's recommendation, it will provide the HPO with a summary report detailing the decision-making process and why avoiding adverse effects was not practical. The implementing organization will ensure that their next higher command is aware of the decision and include the report, along with recommendations for reducing adverse effects during future undertakings, in the after-action report.
- The HPO will include summary documentation of the undertaking(s) and their effects on historic properties in the annual report, provided no information is classified or would have the potential to affect classified actions. Projects funded will include as part of the deliverables a report describing the project.

ATTACHMENT B

RECORD OF HISTORIC PROPERTIES CONSIDERATION

1. CRM Number: _____
2. NEPA Number: _____
3. Work Order Number: _____
4. Archeological Number: _____

5. Project Name: _____

6. Proponent: _____

   6A. Proponent's initials: _____ 6B. Date: _____

7. Project Location: _____
_____
_____
_____

8. Project Description: _____
_____
_____
_____

9. Project Timeline: _____

10. Define Area of Potential Effect: _____
_____
_____
_____

11. Does Project Affect a Historic Properties

    11a Is/are there property/properties listed in or eligible for listing in the National Register of Historic Places? ___ Yes ___ No ___ Undetermined

    11b Identification
    Preliminary Analysis-Identify resources referenced to determine if survey is required:
_____
_____
_____

    Survey-document level of survey conducted to identify historic properties: _____
_____
_____
_____

11c Evaluation

Identify historic context(s) used in evaluation of property(ies): _____

_____

_____

_____

Criteria for Evaluation- address each Criterion as relates to property

Criterion A: _____

_____

_____

_____

Criterion B: _____

_____

_____

_____

Criterion C: _____

_____

_____

_____

Criterion D: _____

_____

_____

_____

Do Criteria Considerations apply to the property? ___ Yes ___ No

If yes, explain: _____

_____

_____

_____

Does the property have historic integrity? ___ Yes ___ No

Explain: _____

_____

_____

_____

11d Assessing Effects

___ No Historic Properties Affected. Explain: _____

_____

_____

_____

___ No Historic Properties Adversely Affected. Explain:
_____
_____
_____
_____

___ Historic Property Adversely Affected. Explain: _____
_____
_____
_____

If No Historic Properties Affected or No Historic Properties Adversely Affected, do not proceed. Sign form and submit to NEPA staff.

12. Treatment of Adverse Effects
Provide mitigation measures to be met prior to undertaking moving forward: _____
_____
_____
_____

13. Document Decision of Acceptable Loss
Is this undertaking subject to acceptable loss? ___ Yes ___ No
If yes, explain how mitigation was not applicable: _____
_____
_____
_____

Attach a copy of the Garrison Commander's letter to the ACHP notifying them of intent to implement SOP #8 along with ACHP's comments on this action.

14. Was form submitted to SHPO prior to Annual Report? ___ Yes ___ No
If yes, attached SHPO comments.
How were SHPO concerns addressed:_____
_____
_____
_____

Proponent (only on findings of adverse effects): _____

Date: _____

Preparer: _____ Date: _____

HPO (or designee): _____ Date: _____

Date RHPC sent to NEPA: _____

ATTACHMENTS:

Map showing APE

Other as appropriate (i.e. site reports)

ATTACHMENT C

ACTIVITIES REVIEWED BY FORT BLISS REQUIRING NO SHPO OR ACHP REVIEW

Fort Bliss Cultural Resources Professionals who meet the Secretary of the Interior's *Standards and Guidelines for Archeology and Historic Preservation* will review the undertakings listed below without further SHPO review when the undertakings are determined to have no effect or no adverse effect on historic properties eligible for inclusion in the National Register of Historic Places. Projects that fall under Attachment C will be reported in the Annual Report. At the request of the SHPO of Texas or New Mexico and Fort Bliss, THPO, or Tribes, the following list can be modified to include or delete items.

C.1 Non-Undertaking Activities

Site Work

1. Maintenance work on existing features such as roads, fire lanes, fences, mowed areas, active disposal areas, manmade ditches, and ponds when no new ground disturbance is proposed.

2. Outdoor recreational programs including hunting, fishing, in accordance with Fort Bliss and Army regulations, when there will be no ground-disturbance, including no off-road vehicular travel and when there are no known sites.

3. The following natural resources management activities: tree plantings, planting, maintenance of wildlife food and shrub plots and guzzlers in previously disturbed areas, and improvement of existing dry stream crossing where the depth of the undertaking will not exceed the current disturbance and/or will not impact an intact soil layer with the potential to contain cultural materials.

4. Maintenance, removal, and replacement in kind of existing landscape and plant materials when keeping with the historic character when they are dead, dying, diseased (unsalvageable), and/or pose an imminent hazard to people or structures.

C.2 ACTIVITIES THAT QUALIFY AS UNDERTAKINGS

Work

1. Replacement of existing landscape and plant materials within the main post or range base camps with native and/or regional landscapes to conserve Fort Bliss natural resources, provided such design meets previously approved landscape design guidelines, is compatible with the building it surrounds, and does not adversely effect an NHRP-listed or eligible landscape (e.g., parade field).

2. Undertakings in previously disturbed areas to the same depth and extent, such as bladed parking lots determined by the HPO to retain no integrity and the HPO has made a finding of no historic properties affected.

3. Any undertaking on the main cantonment, McGregor Base Camp, Doña Ana Range Camp and Biggs Army Airfield in previously surveyed areas where no archeological or historic sites have been identified and with survey methods consistent with current state standards.

4. Paving, repair, and in-kind replacement of streets, driveways, sidewalks, and curbing as they now exist or in existing locations unless historic materials are present.

5. Repair and replacement of existing water, sewer, natural gas, and communications lines in their present configuration and alignments and at the same depth and extent as previous disturbance.

6. Any undertaking in an area surveyed in which no cultural properties are identified and thus the HPO determines that no historic properties will be affected within the APE and with survey methods consistent with current state standards.

7. Installation of traffic signs as required by law when circulation and quantity of traffic adjacent to historic properties or within a historic district will not be affected.

8. Installation of new and replacement of existing building signs in kind, when the design is compatible with the architectural character or period of significance for the building and does not adversely affect the building's historic fabric.

9. Removal of animals, birds, insects, and their associated debris when no damage to historic materials will result.

10. Installation of facilities to provide access to historic properties by disabled persons provided the alterations are architecturally compatible with the facility, are freestanding, and do not damage nor require removal of historic materials.

11. Temporary buildings or structures that will not have a life longer then five years and are required under activities addressed in SOP 15: Military Activities in Anticipation of Immediate Deployment, Mobilization or Armed Conflict.

12. Disturbance in an area less than one square meter, such as placement of fence posts.

Roofs

1. Repair, replacement in kind, or restoration of existing roofing materials provided the color selection is specifically reviewed by the installation historic architect. Where feasible, roof replacements will be returned to their original roofing materials, details, and configurations.

2. Installation of materials or equipment for the specific purpose of deterring bird habitat on building components provided such materials do not damage or detract from the architectural character of the building.

Exterior Walls

1. Refinishing of surfaces with chemically compatible materials of historic or existing color provided surface preparation meets the Secretary of the Interior's Standards.

2. Removal of deteriorated or damaged paint or coatings down to the next sound layer by hand scraping or sanding. Abrasive methods, sandblasting, and water blasting are specifically prohibited.

3. Repair of existing materials and partial replacement in kind of stucco, masonry, wood siding, trim, porch decking, porch rails, joists, columns, and stairs (including framing).

4. Repair of existing elements that are not visible or that are not character-defining features of architectural properties. The repairs will be limited to those requiring no structural modifications.

Doors

1. Repair of existing doors or replacement in kind when each door is separately evaluated and determined to have deteriorated beyond repair.

2. Replacement of doors shall consist of replacing with a door of original design/configuration or a compatible door (where original or historic doors are missing or have been previously replaced with a non-historic door).

3. Installation of hardware to include dead bolts, door latches and locks, window latches, locks, hinges, and door peepholes, provided historic materials are not removed. New hardware shall be of a plain, contemporary design and made of the same material as remaining historic hardware.

4. Repair or replacement in kind of existing door screens.

Windows

1. Repair of existing window frames and sashes provided no change results to the interior or exterior appearance of the window, and replacement in kind of window sashes that have deteriorated beyond repair, provided each sash is separately evaluated.

2. Adjustment of window counterweights including associated disassembly and reassembly.

3. Reglazing accidentally broken windows with clear glass of the same thickness as the broken glass.

4. Repair or replacement in kind of existing window screens and storm windows.

5. Installation of hardware to include window latches, locks, hinges, provided historic materials are not removed. New hardware shall be of a plain contemporary design and made of the same material finish as remaining historic hardware.

Interiors

1. Repair of existing historic cabinetwork and cabinet hardware.

2. Replacement of kitchen and bathroom appliances, fixtures, fittings, accessories, and cabinets that are less than 45 years old with compatible items. This includes replacement of non-historic kitchen cabinets with compatible items.

3. Replacement of existing non-historic flooring and carpets, provided that when attachment to historic materials is required it is done in a reversible manner.

4. Repair and replacement in kind of only those portions of historic flooring that are extensively deteriorated.

5. Removal of deteriorated or damaged paint or coatings down to the next sound layer by hand- scraping or sanding. Abrasive methods, sandblasting, and water blasting are specifically prohibited.

6. Installation of fire, smoke, and security detectors, provided all effects to historic materials are reversible.

7. Interior renovation when historic materials or structural configurations are not damaged, to include spaces being renovated that have been significantly impacted within the last 45 years and no longer contribute to the significance of the building, provided the structural loading of the building will not be altered and character-defining features of the property will not be affected.

8. Purchase and installation of interior furniture/furnishings and Information Technology systems and equipment where those items will not alter or detract from those qualities that make the resource eligible for the National Register.

9. Repair of existing elements that are not visible or that are not character-defining features of architectural properties. The repairs will be limited to those requiring no structural modifications.

10. Refinishing in kind, i.e., painting surfaces with the same, or original, materials, and same, or original, color.

Electrical/Plumbing/HVAC

1. Repair of existing electrical and plumbing fixtures and repair or replacement of existing wiring, lines, and pipes when it can be achieved without damaging other historic features or materials.

2. Repair or replacement of existing heating and cooling systems and duct work when they do not contribute to the historic significance of a building, and provided the new heating and cooling systems do not alter or damage a building's historic features or materials.

3. Repair and replacement of existing electrical, power, lighting and communications lines and poles in their present configuration**,** same depth and same extent as previous disturbance, and alignments or when they do not contribute to the historic significance of the building.

4. Repair of existing elements that are not visible or that are not character-defining features of architectural properties. The repairs will be limited to those requiring no structural modifications.

Energy Conservation

1. Energy conservation measures that are not visible or do not alter or detract from those qualities that make the resource eligible for the National Register of Historic Places may include:

2. Modifications to heating, ventilation, and air conditioning control systems;

3. Insulation of roofs, crawl spaces, ceilings, attics, walls, floors, and around pipes and ducts (this exclusion does not include the installation of materials that induce, retain, or introduce moisture into a building);

4. Interior modification when the significance of the NRHP eligible building does not include the interior space based on the determination of eligibility;

5. Caulking and weather stripping, provided the color of the caulking and weather stripping is consistent with the appearance of the building; and

6. Replacement or modification of lighting systems when the modifications do not alter or detract from the significance of the resource.

Maintenance

1. All maintenance and repair work on elements that are not visible and do not contribute to the historic significance of the property.

2. Maintenance, repair, and rehabilitation of non-historic structures within a listed or eligible historic district or within the view shed of historic properties provided no change in the overall size, massing, appearance or color of materials results.

3. Maintenance to buildings that are less than 50 years old provided they do not qualify under the criteria consideration for properties achieving significance within the past 50 years.

Mothballing/Layaway

1. Mothballing of historic properties provided the action is completed in consideration of the procedures established by the NPS in Preservation Brief 31: Mothballing Historic Buildings.

Deconstruction and Demolition

1. Demolition of World War II temporary buildings in accordance with the 1986 Army-wide Programmatic Agreement.
2. Demolition and all other undertakings associated with all Capehart-Wherry Era (1949-1962) Army Family Housing, associated structures, and landscape features in accordance with the 2002 Program Comment.
3. Deconstruction, demolition and all other undertakings occurring to buildings, structures, and landscapes that have been previously evaluated for NRHP eligibility and have been determined to be ineligible for inclusion in the NRHP in coordination with the appropriate SHPO, and which will not negatively impact existing historic properties or result in ground disturbance.
4. Deconstruction, demolition, and all other undertakings that may occur to buildings and structures that are covered through other nationwide programmatic compliance actions (Nationwide PAs, Program Comments, Exemptions, or other Program Alternatives).

New Construction

1. Construction in areas where the APE of the construction project does not include historic properties and which do not require ground disturbance (such as storage buildings built on existing slabs or other non-ground-disturbing foundations, etc.)

ATTACHMENT D

ACRONYMS/DEFINITIONS

D.1 ACRONYMS

ACHP	Advisory Council on Historic Preservation
AEC	Army Environmental Center
AMS	Accelerated Mass Spectrometry
APE	Area of Potential Effect
AR	Army Regulation
ARMS	Archaeological Records Management System
ARPA	Archaeological Resources Protection Act
CATEX	Categorical Exclusion
DOE	Directorate of Environment
DOE-C	Directorate of Environment-Conservation
DOQQ	Digital Ortho Quarter Quad
DPW	Directorate of Public Works
EA	Environmental Assessment
EDM	Electronic Distance Measurement
EIS	Environmental Impact Statement
EUL	Enhanced-use Leasing Initiative
GPR	Ground Penetrating Radar
GPS	Global Positioning System
HABS	Historic American Building Survey
HAER	Historic American Engineering Record
HALS	Historic American Landscape Survey
HPO	Historic Preservation Officer
ICRMP	Integrated Cultural Resource Management Plan
IO	Isolated Occurrence
LA	Laboratory of Anthropology
MICON	Military Construction
NAGPRA	Native American Graves Protection and Repatriation Act
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act of 1966
NMCRIS	New Mexico Cultural Resources Information System
NRHP	National Register of Historic Places
PA	Programmatic Agreement
PAO	Public Affairs Officer
RCI	Residential Community Initiative
REC	Record of Environmental Consideration
RFMSS	Range Facility Management Support System
SDZ	Surface Danger Zone
SHPO	State Historic Preservation Officer
SJA	Staff Judge Advocate
SOP	Standard Operating Procedure
TARL	Texas Archaeological Research Laboratory
TCP	Traditional Cultural Property
THPO	Tribal Historic Preservation Officer

TRCI	Properties of Traditional Religious and Cultural Importance
TRU	Transect Recording Unit
USGS	U.S. Geological Society
UTM	Universal Transverse Mercator

D.2 DEFINITIONS

36 CFR Part 800. The Codified Federal Regulation implementing Section 106 of the NHPA (See Appendix B for a list of CFRs associated with cultural management resources by the Army and other federal agencies.).

Aboveground properties. Properties or portions of properties, typically buildings, structures, and landscapes that are not archeology.

Adverse effect. Includes but is not limited to the physical destruction, damage, or alteration of part or all of a property's characteristics that contribute to the property's eligibility for inclusion in the National Register of Historic Places. Examples include the introduction of elements that are out of character with the property or affect its setting, neglect resulting in deterioration or destruction of the property, and transfer, lease or sale of the property.

Advisory Council on Historic Preservation (ACHP). Established under Title 11 of the National Historic Preservation Act, as amended. The ACHP is to be afforded a reasonable opportunity to comment with regard to proposed federal, federally licensed, federally permitted, or federally assisted undertakings that may affect properties included in or eligible for inclusion in the National Register of Historic Places.

Archeological program manager. Senior staff who meet the requirements under the 1983 Secretary of Interior's *Standards and Guidelines for Archeology and Historic Preservation*.

Area of potential effect (APE). Geographic area or areas within which an undertaking may cause changes in the character or use of historic properties, if any such properties exist there. This area always includes the actual site of the undertaking, and may include other areas where the undertaking will cause changes in land use, traffic patterns, or other aspects that could affect historic properties.

Artifact. An object made or modified by human beings.

Association. The link of a historic property with a historic event, activity, or person, also, the quality of integrity through which a historic property is associated with a particular past time and place.

Building. A resource, such as a house, created principally to shelter any form of human activity.

Criteria. The general standard by which the significance of a historic property is judged.

Design. A quality of integrity applied to the elements that create the physical form, plan, space, structure, and style of a property.

Determination of eligibility. The process of ascertaining a property's eligibility for the National Register of Historic Places (NRHP). A property eligible for the NRHP but not actually listed or formally determined eligible by the Secretary of the Interior is afforded the same protection under Section 106 as a listed property.

District. A significant concentration, linkage, or continuity of sites, buildings, structures, or objects united historically or aesthetically by plan or physical development.

Effect. An effect on a historic property may result when an undertaking alters characteristics of the property that may qualify the property for inclusion in the NRHP. For determining effect, alteration to

features of a property's location, setting, or use may be relevant depending on a property's significant characteristics and should be considered.

Evaluation. Process by which the significance and integrity of a historic property are judged for eligibility for the NRHP.

Feeling. Quality of integrity through which a historic property evokes the aesthetic or historic sense of past time and place.

Ground-disturbing activities. Any action that disturbs soil either temporarily or permanently accomplished by any method including but not limited to hand or machine excavation, grading and removal of vegetation, rocks, or other ground cover.

Historic American Buildings Survey (HABS). Program administered by the National Park Service to record in detail historic buildings through architectural rendering, large format photography, and written documentation.

Historic American Engineering Record (HAER). Program administered by the National Park Service to record in detail historic structures through engineering drawings, large format photography, and written documentation.

Historic American Landscape Survey (HALS). Program administered by the National Park Service to record in detail historic landscapes through rendering, large format photography, and written documentation.

Historic context. An organizing structure for interpreting history that groups information about historic properties that share a common theme, common geographical location, and common time period. The development of historic contexts is a foundation for decisions about the planning, identification, evaluation, registration, and treatment of historic properties, based upon comparative significance.

Historic Preservation Officer (HPO). The HPO, designated by the Installation Commander, is the expert in cultural resources and the administrator of the Integrated Cultural Resources Management Plan (ICRMP) and this PA. The HPO acts on behalf of the Installation Commander to coordinate compliance with this PA. If the HPO does not meet qualifications as outlined by the *Secretary of the Interior's Professional Qualifications Standards (48 CFR 44738-9)*, appropriate qualified staff will assume duties of this PA.

Historic property. Any prehistoric or historic district, site, building, structure, object, or traditional cultural property included in, or eligible for inclusion in the NRHP. The term includes artifacts, records, and remains related to and located in such properties.

Historic resource. Historic resource is any real or personal property, record, or life way. These can be historic or prehistoric. Real properties include archeological and architectural places, monuments, planned landscapes, engineering features, or other properties that may meet the criteria for listing in the National Register of Historic Places. Personal properties include artifacts or relics, whereas examples of historic records are any historical, oral historical, ethnographic, architectural, or other document or source reference that provides a record of the past.

Integrity. Authenticity of a property's historic identity, evidenced by the survival of physical characteristic(s) that existed during the property's historic or prehistoric period. Integrity consists of seven elements: location, design, setting, materials, workmanship, feeling, and association.

Interested parties/Stakeholders. Those individuals and organizations concerned with the effects of a particular undertaking on historic properties. May include, but not limited to SHPO, ACHP, Tribes, Preservation Groups, etc.

Keeper: National Park Service employ responsible for the National Register of Historic Places program. Limited use areas (Green Zones). Maneuver areas where only roll-through is allowed.

Location. A quality of integrity retained by a historic property existing in the same place as it did during its period of significance.

Material. A quality of integrity applying to the physical elements that were combined or deposited in a particular pattern or configuration to form a historic property.

Mitigate. Reduce harm to historic properties.

National Register of Historic Places (NRHP). A list of districts, sites, buildings, structures, and objects significant in American history, architecture, archeology, engineering, and culture.

Object: A construction primarily artistic in nature or relatively small in scale and simply constructed, such as a statue or milepost.

Period of significance. Span of time in which a property attained the significance for which it meets the NRHP.

Programmatic agreement (PA). An agreement document that records the terms and conditions agreed upon to resolve potential adverse effects, typically developed for a large or complex project or a class of undertakings that would otherwise require numerous individual requests for ACHP comments under the NHPA, Section 106.

Proponent. The organization with technical and administrative control over the execution of a project or training exercise; e.g., the DPW acts as the user's agent for construction activity and is the implementing organization for those projects.

Red Zones. Restricted areas on Fort Bliss in which no activity is allowed.

Section 106 process. A review process established under NHPA Section 106 of the National Historic Preservation Act and administered by the Advisory Council on Historic Preservation under its regulations. During this process, agencies afford the ACHP an opportunity to comment on any agency activity or undertaking that may affect historic properties, and must take such comments into account.

Section 110. The section of the NHPA that defines federal agencies' responsibilities to preserve and use historic buildings and to establish a program to identify, evaluate and nominate historic properties to the NRHP.

Setting. A quality of integrity applying to the physical environment of a historic property.

Site. Location of a significant event, a prehistoric or historic occupation or activity, or a building or structure, whether standing, ruined, or vanished, where the location itself possesses historic, cultural, or archeological value regardless of the value of any existing structure.

State Historic Preservation Officer (SHPO). A federally funded position created under the NHPA. The SHPO is appointed by the governor and charged with the administration of the NHPA and to ensure that the state's interests are considered.

Structure. A functional construction made for purposes other then creating shelter, such as a bridge.

Traditional cultural property (TCP). Properties associated with the traditional cultural practices of a living community that (a) are rooted in that community's history or (b) are important in maintaining the continuing cultural identify of the community. TCP is the terminology used by the National Register of Historic Places program. Properties of Traditional Religious and Cultural, which is the legal terminology, is synonymous with TCP.

Undertaking. Undertaking means a project, activity, or program funded in whole or in part under the direct or indirect jurisdiction of a Federal agency including those carried out by or on behalf of a Federal

agency; those carried out with Federal financial assistance; and those requiring a Federal permit, license, or approval.

View shed. Areas under the direct or indirect jurisdiction of a federal agency that can be seen from historic properties, typically from the perimeter of a historic district or historic property.

Workmanship. A quality of integrity applying to the physical evidence of the crafts of a particular culture during any given period or prehistory.

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APPENDIX C

HAZARDOUS AND UNIVERSAL WASTE GENERATED AT FORT BLISS

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Table C-1. Summary of Hazardous and Universal Waste Generated 2000-2004

WASTE DESCRIPTION	*TCEQ WASTE CODE*	*EPA HAZARDOUS WASTE CODE*				*WASTE GENERATED (lbs)*				
						2004	*2003*	*2002*	*2001*	*2000*
Trichlorotrifluoroethane	0001202H	F001	U121							
Isopropanol (Isopropyl Alcohol)	0002219H	D001						5,052		
Expired Methyl Ethyl Keton	0004203H	D001	D035	F005	U159	35				
Acid (Chromic) Solution	0006104H	D007	D005							
Chromic Acid (1%) and Water	0006105H	D007	U112							
Paint Booth Filters (Hexavalent Chrome)	0007310H	D007						761		
Lacquer	0008209H	D001								
Epoxies	0009210H	D001				152			142	137
Paint (Enamel)	0010209H	D001								
Trichloroethylene	0011202H	F001	U228	F002						
Acetone	0012203H	F003	U002							
Naptha	0014211H	D001							3,154	
Batteries/Chemical Kits with Chromium	0015309H	U061					892	6,203	1,730	51
Methyl Alcohol	0016203H	F003	U154							
Methyl Alcohol	0016801H	D001								13
Spent Toluene	0017203H	D001								
Xylene	0019203H	F003	U239			156	361			
Paint Primer	0020209H	D001	D007							
Trichloroethane	0021202H	F001	U226				3			
Isopropanol (Isopropyl Alcohol)	0022219H	D001								
Adhesives	0024210H	D001				616	1,851			
Sodium Hydroxide	0025110H	D002							6,715	2,470
General Purpose Cleaner, Sealant	0026219H	D001								
Carbon Remover	0027202H	U070							10	
Contaminated Jet Fuel	0030211H	D001								
Paints	0031209H	D001	F003						23,027	22,730
Ignitable Waste	0032219H	D001				13,124	15,681	32,647	51,286	8,090

WASTE DESCRIPTION	*TCEQ WASTE CODE*	*EPA HAZARDOUS WASTE CODE*				*WASTE GENERATED (lbs)*				
						2004	*2003*	*2002*	*2001*	*2000*
Corrosive Waste	0033105H	D002				821	693			
Lithium Batteries	0034309H	D003							1,493	2,474
Lab Waste	0035001H	D001	D002	D003	D009		8		41	316
Photographic Fixer	0036219H	D001	D011							
Paint Filters	0037310H	D007								
Contaminated Mogas	0038211H	D001					594			90
Waste Sulfuric Acid	0039103H	D002	D008					1,607	952	3,614
Pesticide Waste	0040219H	D012	D013	D014	D015			9	40	190
Hebicide Waste	0041219H	D016	D017							
Cleaner Lubricant	0042202H	F001								
Polyurethane Coating	0044209H	D001								
Corrossion inhibitor (halogenated solvent)	0045202H	D001	D007							
Paint Sludge (Hydrogen Containing)	0046211H	D001	D007							
Spent Solvents	0047203H	D001	D007	F005						219
Contaminated JP-8	0048211H	D001	D007						3,736	141
Waste Oil	0049206H	D001	D008						676	
Safety-Kleen Solvent	00501203H	D018	D006	D008	D035					
Corrosive Characteristic Waste	0051105H	D002					1,275.8	5,475	12,836	8,545
Benzene	0053203H	U022								
Benzene	0056203H	U019								
Phenol Waste	0057219H	U188	D018			6	10	28		3
Chloroform	0060202H	U044				5	139	71	7	31
Chromium Toxicity Characteristic	0061319H	D007				4,521	1,594	1,243	1,607	8,770
Cresol	0063208H	U052	F004						6	
Reactivity Characteristic Waste	0067309H	D003								
Dichlorodifluoromethane	0068801H	U075				4				
Halogenated Solvents	0069202H	F001	F002				95			
Acetic Acid	0071105H	D001	D002	U112		3				
Dibutyl Phthalate	0079001H	U069							21	

WASTE DESCRIPTION	*TCEQ WASTE CODE*	*EPA HAZARDOUS WASTE CODE*				*WASTE GENERATED (lbs)*				
						2004	*2003*	*2002*	*2001*	*2000*
Lead Toxicity Characteristic	0079603H	D008					17		23,255	19,116
Mercury Toxicity	0080309H	D009				8	146		444	1,248
Mercury Waste	0081119H	U151	D009				25	8		
Methyl Alcohol	0082219H	U154				686	358			
Formaldehyde	0086219H	U122					242		55	36
Methylene Chloride	0087202H	U087						138		
Cadmium Toxicity Characteristic	0089309H	D006				262	373		312	629
Spent Solvent (non halogenated)	0090203H	D036	F004							
1,1,1 Trichloroethan	0093202H	U226						27		
Lindane	0094401H	D013	U129			8				
Silver Toxicity Characteristic	0095106H	D011				2,231	55		2	
1,1,1 Tetrachloroethane	0101202H	U208				19				
Trichloroethylene	0102202H	F001	U228					15		
Pol Contaminated Soils	0106489H	D018								
Antifreeze	0107296H	P042								
Spent Fuel Filters	0109489H	D001								
Waste Paint	0110209H	D001								
Waste Batteries (Wet)	0039309H	D002	D008							
Batteries (Lead acid)	0096309H	D002	D008	D009						
Fuel Contaminated w/Oil, Dirt, Water etc.	0113211H	D001								
Paints, Aerosols	0116801H	D001				264	416		54	46
Expired Methyl Ethyl Keton	0018203H	D001	D035	F005			17			
Sodium Azide	0119119H	P105	P030	P098					9	
Oil-Water Separator Sludge	0120603H	D025								
Potassium Cyanide	0122312H	P098						5		
Spent Inorganic Solids	0123319H	D002	D001			357	1,250			
Spent Sodium Hydroxide	0124305H	D002					3			
Corrosivity Characteristic Waste (Caustic)	0125110H	D002				4,381	85			
Expired MRE heaters	0129319H	D003				449	302			

WASTE DESCRIPTION	*TCEQ WASTE CODE*	*EPA HAZARDOUS WASTE CODE*				*WASTE GENERATED (lbs)*				
						2004	*2003*	*2002*	*2001*	*2000*
Spent Sodium Cacodylate	0131119H	U136					3			
Expired Dimethyl Sulfate	0135219H	U103				4	4			
Expired Aniline	0138219H	U012					528			
Expired Lead Acetate	0139219H	U144					22			
Expired Organic Acids	0140219H	D002					17			
Expired Barium Containing Waste	0141319H	D005				5				
Expired Solid Paraffin Wax	0144409H	D001				36				
Photographic Waste Containing Silver	0145319H	D011				409				
Inorganic Liquids	0147119H	D006	D007	D008		170				
Recycled Photo-fixer/developer	0095106H	D011								
Recycled photo solutions (Safety kleen)	0629119H	D011					3,058	4,392	9,024	20,883
Safety-Kleen solvent	0501203H	D039	D008	D018	D040				640	
Safety-Kleen solvent	0566203H	D006	D008	D018	D021	432	522.6	616	616	598
Potassium Cyanide	0098312H	P098					5			
Expired Formic Acid	0073104h	D002					67			
Safety-Kleen solvent	0839102H	D039	D006						560	996
TOTAL WASTE GENERATED (lbs)						**29,164**	**30,712**	**58,297**	**142,450**	**101,436**

WASTE DESCRIPTION	*TCEQ WASTE CODE*	*EPA HAZARDOUS WASTE CODE*	*WASTE GENERATED (lbs)*				
			2004	*2003*	*2002*	*2001*	*2000*
UNIVERSAL WASTE							
SPENT LITHIUM BATTERIES	FBUW0000-001		3,209	7,076			
MAGNESIUM BATTERY	FBUW0000-004		707				
LEAD ACID BATTERIES (WET,NON SPILLABLE)	FBUW0000-005		1,447	6,995			
NICAD BATTERIEDS	FBUW0000-006		2,368	1,047			
MERCURY BATTERIES	FBUW0000-007		3,128	1,463			
WASTE PAINT RELATED MATERIALS	FBUW0000-013		60,674	27,376			
USED OR EXPIRED MERCURY THERMOMETERS	FBUW0000-020		160				
TOTAL UNIVERSAL WASTE GENERATED (lbs)			**71,693**	**43,957**	**27,526**		
WASTE RECYCLED (Safety-Kleen and other solvents)			**432**		**5,008**	**10,840**	**21,481**
TOTAL WASTE DISPOSAL			**28,732**	**30,712**	**53,289**	**131,610**	**79,955**

*FBUW0000-001 SPENT LITHIUM BATTERIES INCLUDE THE FOLLOWING INTERNAL TRACKING NUMBERS THAT COORESPOND TO OTHER LITHIUM BATTERY TYPES:
FBUW0000-003 AND FBUW0000-018.

**FBUW0000-013 WASTE PAINT RELATED MATERIALS INCLUDES THE FOLLOWING INTERNAL TRACKING NUMBERS THAT COORESPOND TO OTHER WASTE PAINT:
RELATED MATERIALS, FBUW0000-008, FBUW0000-009, FBUW0000016, FBUW0000-022, FBUW0000-011, AND FBUW0000-010.

Table C-2. Summary of Toxic Release Inventory 2000-2005

Chemical Name	*CAS Number*	*2000*	*2001*	*2002*	*2003*	*2004**	*2005*
Methyl Ethyl Ketone	78-93-3	21,083	38,673	NR	NR	NR	NR
Toluene	108-88-3	11,247	15,874	NR	NR	NR	NR
Xylene	1330-20-7	NR	13,870	NR	NR	NR	NR
Copper	7440-50-8	NR	82,796	35,095	43,286	279,826	284,209
Lead	7439-92-1	NR	22,725	35,727	12,570	69,212	75,771
Lead Compounds	N420	NR	206	308	308	217	1,275
Diisocyanates	N120	NR	NR	NR	119	NR	NR
Nitroglycerin	NA	NA	NA	NA	NR	NR	24,294

Source: USEPA Toxic Release Inventory Form R Query; Fort Bliss Directorate of Environment
NR = No Release; NA = not available

APPENDIX D

COMMENTS AND RESPONSES

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Appendix D

Table of Contents

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INTRODUCTION

This appendix presents all comments received by the Army on the Fort Bliss Mission and Master Plan Draft Supplemental Programmatic Environmental Impact Statement (SEIS) during the public comment period. The Draft SEIS was distributed for public review and comment on October 6, and public comments were accepted through December 12, 2006 for inclusion in the Final SEIS. Three public meetings were held on November 6, 8, and 9, 2006 to accept oral comments.

This appendix contains verbatim transcripts of the three public meetings and copies of all written comments received during the review period for the Draft SEIS. Comments are displayed in the left-hand box and responses, when provided, in the right-hand box of the page. Responses are provided to comments that contained questions or raised issues needing clarification of or expansion on the findings in the Draft SEIS. The responses indicate whether additional information or clarification has been added to other sections of the Final SEIS. Comments that only offered opinions or information are included, but no response is needed or provided. All comments will be considered by the decision-maker.

Table D-1 lists all commenters who provided either oral (at the public meetings) or written comments during the comment period, alphabetically by last name. It provides the page numbers where their comments and responses to those comments, if applicable, begin.

The Army thanks all commenters for participating in the NEPA process and for providing input.

Table D-1. Individuals and Organizations That Submitted Comments on the Draft SEIS

No.	*Name of Commenter*	*Organization*	*Date of Comment*	*Comment Page Number*	*Response Page Number*
1	Addington, Bill	Sierra Club	11/09/2006	D-63	D-65
2	Anaya, Gilbert G.	International Boundary and Water Commission United States and Mexico	11/03/2006	D-72	N/A
3	Chee, Marklyn	The Navajo Nation	12/11/2006	D-73	D-73
4	Childs, Quana	Texas Historical Commission	12/06/06	D-75	N/A
5	Curry, Ron	New Mexico Environment Department	12/4/2006	D-76	D-77
6	Dayoub, Richard	El Paso Chamber of Commerce	11/09/2006	D-57	N/A
7	DeGarmo, Glen		12/11/2006	D-81	D-81
8	Geyer, Bob	Sierra Club	11/9/2006	D-60	D-61
9	Grace, Lance		12/12/2006	D-89	D-89
10	Hutchison, Bill	El Paso Water Utilities	11/09/2006	D-46	N/A
11	Jones, Bob	Otero County Grazing Board	11/08/2006	D-30	D-30
12	Kirkpatrick, Lisa	State of New Mexico Department of Game and Fish	12/12/2006	D-90	N/A
13	Lee, Bebo		11/08/2006	D-33	D-33
14	McMurray, Heather		12/12/2006	D-68	D-69
15	Moore, Doug	Otero County	11/8/2006	D-28	D-29
16		New Mexico State Historic Preservation Officer	No date	D-93	N/A
17	Oaks, F. Lawrence	Texas Historical Commission	11/13/2006	D-95	D-95
18	Roberson, Edwin L.	Bureau of Land Management, Las Cruces District Office	12/12/2006	D-96	D-96
19	Rosmarino, Nicole	Forest Guardians	12/12/2006	D-98	D-99
20	Roxlau, Katherine		12/13/2006	D-126	D-126
21	Smith, Rhonda	United States Environmental Protection Agency	12/01/2006	D-127	N/A
22	Toahty, Ruth	Comanche Tribe	12/11/2006	D-128	D-128
23	von Finger, Kevin[1]		12/12/2006	D-48	D-50
24	Wicker, Julie C.	Texas Parks & Wildlife	12/14/2006	D-129	D-130

1. Comments read into record by Bill Addington

N/A = not applicable

PUBLIC MEETING

FOR COMMENTS ON SEIS

HELD ON

NOVEMBER 6, 2006

AT

MESILLA PARK RECREATION CENTER AUDITORIUM

304 WEST BELL AVENUE

LAS CRUCES, NEW MEXICO

COPY

ORIGINAL

MS. HILLER: So good evening, and welcome to this public meeting to accept your comments on the Fort Bliss Mission and Master Plan Draft Supplemental Programatic Environmental Impact Statement, or SEIS, which was distributed for public review on October the 6th, 2006.

My name's Deborah Hiller, and I'll be your moderator for this evening. And with me, I've got Ginger Zachary, court reporter, who will be taking a verbatim transcript of these proceedings. Also with me is Dr. Rafael Corral.

Mr. Corral, would you stand up in the back?

He's with the Fort Bliss Directorate of Environment. He will be our interpreter this evening if anyone wishes to make comments in Spanish. Is there anyone present who would like to make comments in Spanish?

Dr. Corral, if you would -- want to offer that up? Okay. I don't think -- I don't think so.

So I'd like to start the proceedings by introducing Colonel Robert Burns, Fort Bliss Garrison Commander, who will say a few words.

Colonel Burns?

MR. KNOPP: Just turn the mike off.

COLONEL BURNS: Turn it off?

MR. KNOPP: Off.

COLONEL BURNS: I think it is off.

Okay. Thanks for coming. Okay. This is a real important time for Fort Bliss. For the last few years, we've had a very active mobilization mission that's prepared the soldiers for deployment, sent them to support our campaigns in Southwest Asia, and brought them back home. The SEIS is an important part of our partnership with this community, because it will help us both plan for the major changes that are occurring at Fort Bliss and the region.

The land use changes proposed in the draft SEIS are critical to our ability to give these young men and women the best possible training, so they are better prepared for the rigors of combat. We accomplish that by providing high-quality, realistic training, and to do that, we have to increase our off-road maneuver training capability. It's really a transformation of our training capabilities.

In addition, we are proposing to develop facilities in the main cantonment area of Fort Bliss to support our mission and also provide a suitable quality of life for our soldiers while they're here. So this SEIS is part of Fort Bliss's active program to sustain our lands in an environmental, responsible way, and your

valuable input will help us do that job better.

So I look forward to hearing your comments, and thank you for taking the time to participate in this process.

MS. HILLER: Thank you, Colonel Burns.

So this is our agenda for the evening. And we'll first have a short briefing to provide you an overview of what's proposed, the alternatives being considered, and the draft SEIS process.

We'll then take a quick 15-minute break, during which time y'all can examine the displays in the back or ask -- if you haven't already done so, ask any questions you might have. We'll have Army representatives and subject manner -- subject manner -- matter experts who are available to you as you ask those questions.

We'll then reconvene for the main purpose of this meeting, and that is to accept your comments on the draft SEIS.

So I'd now like to introduce Colonel White, the deputy garrison commander, to start the briefing.

COLONEL WHITE: Good evening. We've invited you here tonight to give us your input on the findings in the Fort Bliss Mission and Master Plan Draft EIS -- correction -- SE- -- SEIS. The draft SEIS

supplements the Fort Bliss Master -- Mission and Master Plan Programatic Environmental Impact Statement, or the PEIS, published in December of 2000.

We are preparing the SEIS because changes in the Fort Bliss mission require us to modify how we manage our lands and resources. Not everything needs changing, and the PEIS still remains relevant and in effect for a lot of our activities. Thus, the SEIS incorporates appropriate parts of the PEIS and focuses on the proposed land use modifications.

These modifications are necessitated by a number of recent events that affect the mission of Fort Bliss and the composition of the units assigned here. They include the overall transformation of the Army, which was addressed in an Armywide Programatic EIS published in 2002; the Army campaign plan developed and implemented Army transformation; the integrated global presence and basing strategy that is bringing units in Europe and other overseas locations back to the United States; and the base realignment and closure process known as BRAC.

An important component of the Army transformation and the Army campaign plan is to move to what is called a modular force. Simply put, this approach changes the way the Army is organized into more

self-sufficient units that incorporates elements that fight together, as well as supporting elements like supply and engineering, as integral parts of the unit.

The primary building block of the new organization is called the brigade combat team, or the BCT. The BRAC commission identified both incoming and outgoing units, as shown on this chart. Fort Bliss will receive a total of four brigade combat teams over the next five years, as well as an armored division headquarters.

Other incoming units include an artilleries brigade, a combat aviation brigade, a sustainment brigade, and other supporting organizations. The BRAC decisions became law in December of 2005, resulting in substantial personnel and other changes at Fort Bliss that we must respond to and prepare for.

At the same time, the Air Defense Artillery, or ADA, School and three ADA brigades have been identified to move out of Fort Bliss, although the BRAC commission acknowledged that the brigade -- ADA brigades would need to be returned to Fort Bliss for missile firings.

As you may know, the first heavy BCT, the the 4th BCT of the 1st Cavalry Division, has already come to Fort Bliss, has undergone training, and was

deployed to Iraq a little over a week ago.

As the previous slide indicated, the brigade combat teams at Fort Bliss is -- that we are receiving at Fort Bliss are called heavy BCTs. Heavy BCTs are armored units that fight with tanks, Bradley fighting vehicles, and artillery, as shown on this slide.

A heavy BCT has several battalions with specific combat roles and pieces of equipment. Each BCT has about 3,800 soldiers and includes approximately 360 track vehicles and 900 wheeled vehicles, as well as generators and other pieces of equipment. With four heavy BCTs, Fort Bliss is expecting a net increase of about 1400 track vehicles and 7- to 800 wheeled vehicles.

This chart shows the expected personnel changes that will occur over the next five years. In sum, we are expecting a net increase of approximately 20,000 military personnel, many with dependents, and about 3800 civilians.

The incoming units will have a different mission from the ADA units currently at Fort Bliss, so their training requirements will be different. They will need to become proficient in using their weapons, which requires live fire through qualification ranges.

The combat aviation brigade and its helicopters will need training on onground targets -- air ground targets. Excuse me. The heavy equipment battalions need off-road vehicle maneuver training. Based on their training requirements, Fort Bliss needs a minimum of approximately 539,000 acres of off-road vehicle maneuver area.

Currently, only 335,000 acres are approved for off-road vehicle maneuver. The land use changes and the construction considered in the draft SEIS are proposed to meet these training needs.

I'll now turn the podium over to Colonel Kirby to describe the alternatives, analyze the draft supplemental EIS.

COLONEL KIRBY: Thank you, and good evening. My name is John Kirby, and I am the Fort Bliss Range Commander. My job is to manage the Fort Bliss training complex in a manner that provides the best possible preparation of our soldiers being sent into combat, ensure the long-term sustainability of the land.

As Colonel White indicated, the draft SEIS provides information about the environmental consequences associated with bringing in 20,000 new troops and constructing new facilities to support them. The primary decisions being considered in the SEIS,

however, are proposed land use changes to accommodate the incoming units and provide the training they need.

One proposal is to expand the main cantonment area and change its land use designation to mixed use. This is needed to accommodate new complexes for the heavy BCTs and the combat aviation brigade. These complexes are self-contained inquiries (phonetic) that include a mix of facility types, including barracks, administrative facilities, and maintenance and supply facilities, as well as various community services and amenities.

This mixed-use approach allows soldiers to live near their place of work, enhances efficiency, and reduces resources needed to transport people and equipment.

In order to accommodate these mixed-use complexes, we are proposing to designate the entire main cantonment area for mixed land use, where the location of individual facilities would conform to Army regulations and guidelines for land use compatibility and environmental management.

In the Fort Bliss training complex, we will be developing a number of new live fire and qualification ranges, most of which will be located on or adjacent to existing ranges on Dona Ana Range and in

the south part of McGregor Range, near the existing Meyer complex, forward area weapon sites, and McGregor Range Camp.

We are proposing to develop a new range complex on McGregor Range in the area of the existing Oro Grande Range and short-range air defense system site. This complex would house a number of new facilities and include a digital air ground integration range primarily for helicopter training by the combat aviation brigade.

The main land use change we are proposing is opening up training areas in the Tularosa basin portion of McGregor Range for off-road vehicle maneuver. The alternatives considered in the draft SEIS provide for different combinations of training area use for that purpose.

I want to make it clear at the onset that we are not considering off-road vehicle maneuvers or any land use changes on Otero Mesa or the Sacramento Mountains foothills that lie within the Fort Bliss training complex, nor do we have any plans for future use of Castner Range. Furthermore, all the changes under consideration involve land that is currently within the Fort Bliss boundaries. We are not considering expanding the installation.

Finally, this SEIS is not being prepared to support the BRAC decisions. Those decisions became law last December. This SEIS identifies the environmental impacts from the BRAC actions, but only the decisions that will be made pursuant to the SEIS are the land use decisions I described.

As required by the National Environmental Policy Act regulations, the draft SEIS includes a no-action alternative. Under this alternative, none of the proposed land use changes would be made, and land use at Fort Bliss would remain as designated in the mission and master plan PEIS published in December 2000, with some minor modifications.

Construction of facilities and ranges would occur, but only in keeping with the land uses currently authorized. Off-road vehicle maneuvers would be limited to the south training areas, north training areas, and one training area, training area eight on McGregor Range, that is already approved for that use.

This alternative includes development of one BCT complex for the 4th BCT of the 1st Cav, which was assessed in accordance with the proposed -- correction -- with the procedures and criteria described in the 2000 PEIS.

Although we are required to include it, the

no-action alternative is not a reasonable option, because it will not provide adequate training capability for the units that are coming to Fort Bliss as a -- as a result of the BRAC decision.

Alternative one in the draft SEIS implements the land use changes I mentioned for the main cantonment area and includes construction of the new facility needed to support all the incoming units identified in the BRAC decision. It also includes new live fire and qualification ranges at Dona Ana and McGregor Ranges, including the Oro Grande Range complex and the helicopter range I mentioned.

This alternative proposes to open training areas in the south Tularosa Basin portion of McGregor Range south of New Mexico Highway 506, the area shown in brown, to off-road vehicle maneuver. This would add 216,000 acres of off-road vehicle maneuver capability to the 335,000 acres currently available for that use.

Together, these areas would provide the minimum amount of off-road vehicle maneuver capability needed, but it would severely curtail our ability to continue supporting the training needs of other users, including the air defense artillery missile firings and the mobilization mission.

Alternative two considered in the draft

SEIS includes the land use changes and construction of alternative one and further extends the area in the Tularosa Basin portion of McGregor Range that would be available for off-road vehicle maneuver into training areas north of Highway 506. In addition, this alternative examines the environmental effects of bringing a second combat aviation brigade to Fort Bliss.

We are considering that possibility in order to understand the implications of providing the additional infrastructure and training capability at the installation, but I want to clarify that there is currently no plan to station a second combat aviation brigade at Fort Bliss and no decision will be made about that possibility at this time.

This alternative would authorize off-road vehicle maneuver training in a total of 615,000 acres of the Fort Bliss training complex, allowing us to continue providing limited support to mobilization training and missile firings, as well as training the incoming units.

Alternative three is similar to alternative two. It includes the same changes and improvements in the main cantonment area and the firing ranges, but instead of extending off-road vehicle maneuver north of Highway 506, it would extend it to the ridges and valleys of the southeast training areas below Otero

Mesa.

This area offers important capabilities not available in other training areas, because it provides different terrain from the flat and sandy, copious dunes of the north and south training areas and southwest training areas of McGregor Range. Providing variety in the training environment is important for preparing our units to operate in different areas of the world.

In addition to authorizing off-road vehicle maneuver in the areas shown in brown, this alternative also expands the training uses allowed in those areas to include mission facilities, weapons firing, and surface danger zone. Many of the training areas already permit some or all of those uses, but this alternative would make the land use designations uniform across all areas used for off-road vehicle maneuver.

This alternative would result in approximately 622,000 acres being available for off-road vehicle maneuver, which is similar to the capability provided by alternative two, just in a different part of the installation.

Finally, alternative four in the draft SEIS includes all of the changes and developments of alternatives one, two, and three. It proposes to extend off-road vehicle maneuver capability to all of the

Tularosa Basin portion of McGregor Range, including the training areas north of Highway 506 and in the southeast area of the range.

It would also provide for a uniform land use designation across those training areas, allowing for mission facilities, weapons firing, and surface danger zones, in addition to off-road vehicle maneuver. This would make a total of 687,000 acres available for off-road vehicle maneuvers.

Alternative four is the Army's proposed action and preferred alternative because it offers the most capability, variety, and flexibility to respond to current and future training needs. In evaluating this alternative, the draft SEIS considers the effects of bringing two additional heavy BCTs to Fort Bliss, as well as a second combat aviation brigade.

There are currently no plans to bring any additional units in, other than those identified through Army transformation and BRAC. The impacts associated with the additional units have been included in the analysis to help us understand the potential implications of further expanding the Fort Bliss mission. Like the combat aviation brigade, no decision concerning the additional BCTs will be made at this time.

That concludes my portion of the briefing. Now I would like to turn the briefing over to Walter Christianson to describe the SEIS process.

MR. CHRISTIANSON: Hello. I'm Walter Christianson from the Fort Bliss Directorate of Environment. I'll give a very brief overview of the draft SEIS process and findings of the documents. However, because of time limits, I will not be able to describe the contents of the draft SEIS thoroughly or in any real detail, so I encourage everyone to read the document for yourselves in order to really understand what it says. If you do not have a copy, we have some available tonight, and it's also available at local libraries and online at the Fort Bliss web site.

The draft SEIS was completed in accordance with the National Environmental Policy Act, or NEBA, and both the president's council on environmental quality and the Army's implementing regulations. It addresses the environmental and socioeconomic impacts of -- from the five alternatives described by Colonel Kirby in 14 resource areas.

It is called a draft because it reflects the Army's assessment of expected impacts, but we want your input before we finalize our analysis and provide our conclusions to the decision maker for consideration.

The decision maker will see all the comments we receive during this review period, including any comments made tonight, and those comments will be published in the final SEIS, along with appropriate responses. Tonight is an important step in this process.

The SEIS process began with publication of a notice of intent, which was published in the Federal Register on November 15 of last year. This initiated a scoping period, during which we solicited input on the topics to be addressed in the SEIS. As part of scoping, we held public meetings last December.

The draft SEIS was distributed for public review and comment on October 6th of this year. NEBA regulations require a minimum of 45 days for public review and comment. However, we provided for an extended comment period, which ends December 12, 2006. Anyone wishing to make comments on the contents of the draft SEIS needs to submit those comments by December 12 in order for them to be included in the final SEIS. All comments made tonight will be included.

Our current schedule is to complete and distribute the final SEIS next spring. After the notice of availability, a final SEIS is published in the Federal Register. A record of decision will be issued no sooner than 30 days later. The record of decision

will specify which alternative the Army has selected and list any mitigation measures that will be adopted to reduce environmental impacts. Both the final SEIS, notice of availability, and the record of decision will be publicly announced and posted on the Fort Bliss web site.

These next few slides summarize the main findings of the draft SEIS. I realize this is a lot to absorb, especially during a briefing, but there are fact sheets at the display tables with this information, which you're welcome to take with you. Again, the best way to get a thorough understanding of the SEIS findings is to read the document itself.

Many of the expected effects are related to the influx of new military and civilian personnel at Fort Bliss. With their dependents, these personnel will increase the regional population by over 60,000 people. The additional income and expenditures generated are projected to attract almost 60,000 additional people to the region, for a total population impact of about 120,000 people.

The proposed land use changes in the Fort Bliss training complex, specifically, the increase in off-road vehicle maneuver, will result in some changes in the local visitation and ecology. The soils in the

area are susceptible to wind erosion, so the maneuvers can be expected to generate -- generate more dust. However, our modeling indicates the levels of particulate matter will not exceed air quality standards outside the installation.

There will be more training at the large caliber range -- weapons ranges on Dona Ana and McGregor Ranges, so noise levels will increase, especially in communities adjacent to those areas. Safety and hazardous materials and waste issues are not expected to increase significantly because of management processes already in place.

Finally, increased population means more housing and community services will be needed.

MS. HILLER: So we'll now take a 15-minute break. And for those of you who haven't, please feel free to go look at the displays. The discussions in the back of the room, please be aware that those won't be recorded. However, Ginger Zachary will be available during the break for people who prefer to make their comments in private.

Also, while the Army representatives here can answer questions you might have to the best of their ability, they may not have all the answers readily at hand and may need to get back to you or to defer the

response to the final SEIS, where the information will be available to everyone.

Again, Dr. Corral and Sylvia Wagner from the Fort Bliss Directorate of Environment are available if anyone would like assistance in Spanish.

After the break, we'll reconvene and take public comments, which will be recorded by Ginger Zachary for the record. I currently have no persons signed up to speak at this time. If you'd like to make a comment and did not check the box when you signed in, you can receive your card at the registration desk, which is in the back, and they'll add your name -- your name to the list of potential speakers for the evening.

So there are rest rooms to the back of the room, and if we don't have any speakers, then we'll -- the meeting will be adjourned. So right now, we'll just adjourn to a 15-minute break.

(Break taken from 7:01 p.m. to 7:15 p.m.)

MS. HILLER: So we've now come to the main purpose of this meeting, and that is to obtain your comments on the draft SEIS. So at this point, are there any members of the audience who would wish to speak?

(No response.)

MS. HILLER: Okay. I'd like you -- I'd like to remind you-all that we do have Ginger Zachary

available if you have any private comments.

And I want to thank you. Thank you for participating in this public meeting on the Fort Bliss Mission and Master Plan Draft Supplemental Programatic Environmental Impact Statement.

If you decide not to present any comments to Ginger Zachary, there are other options for making comments. One of those is to fill out a written comment form. We have plenty of these available here at the meeting tonight. They are over on the far wall at the comment table.

You can either fill this out and turn it in to us tonight, or you can take it with you and then submit it. You're also welcome to submit comments in any format that you wish: by e-mail -- there's a sheet over there -- it's just like this slide up here -- that informs the various methods for submitting comments. And, again, that can be in your own letter or in an e-mail.

The important part is that we receive those comments by December 12th. That is the close of the comment period, and that is the date by when we need comments to consider them for the SEIS.

So this concludes the meeting. I want to thank you-all for being here and please drive home

safely. Thank you.

(Hearing concluded at 7:17 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 New Mexico, do hereby certify that this transcript is a true record of the Public Meeting for Comments of SEIS, and that said transcription is done to the best of my ability.

Given under my hand and seal of office on this 16th day of November, 2006.

Ginger G. Zachary, RPR, CCR
CCR New Mexico #286
Expiration Date: 12/31/07
300 E. Main, Suite 1024
El Paso, Texas 79901
(915) 533-1199

BRANNON RASBERRY & ASSOCIATES CERTIFIED COURT REPORTERS
300 E. MAIN, SUITE 1024, EL PASO TX 79901 (915) 533-1199

In Re: Fort Bliss Mission and Master Plan Draft Supplemental Enviornmental Impact Statement Public Meeting.

TRANSCRIPT OF PROCEEDINGS

On the 8th day of November, 2006, at 6:30 p.m., a public scoping meeting was held at City Hall, 1376 E. Ninth Street, Alamogordo, New Mexico.

At which time, the following proceedings were had:

ORIGINAL → COPY

PRESENTATIONS

DAMA'S REPORTING SERVICE
P.O. Box 2022, Alamogordo, New Mexico 88311

MS. HILLER: Good evening to all of you. And I want to welcome you tonight to this public meeting to accept your comments on the Fort Bliss Mission and Master Plan Draft Supplemental Programmatic Environmental Impact Statement, that's a mouthful. We call it an SEIS. And this SEIS was put out for public comment on October 6th of 2006 and that's what we're here for tonight.

My name is Deborah Hiller and I'll be your moderator this evening. With me, we have Jan Wimberly, who will be the court reporter, and she'll be taking a verbatim transcript of this evening's proceedings. We also have with us Dr. Raphael Corral, right here in the middle, who will be our interpreter for the evening for any folks who would like assistance in Spanish. And Dr. Corral, would you like to see if anyone would like an interpreter for the evening?

DR. CORRAL: I guess not but I'll be ready anyway. Thanks.

MS. HILLER: Thank you. So before we begin, if you have a cell phone, please turn it off at this time. And I'd like to start the proceedings by introducing Colonel Robert Burns, who is the Fort Bliss Garrison Commander, and he's going to just say a few words. Colonel Burns.

COL BURNS: After I turn off my cell phone, I don't want to be the first violator. Good evening, everybody. Thanks for coming, especially to those of you that I recognize as coming again

that were here the first time that we were here. This is a real important time for Fort Bliss. And for the last few years, you may know that we've had a very active mobilization mission that's prepared thousands of soldiers for deployment to support combat operations in Iraq and Afghanistan. We've also redeployed thousands of them. This SEIS is a real important part of our partnership with the communities because it helps us both plans for the major changes that are going to occur at Fort Bliss and will be occurring in the region in general.

Land use changes proposed in the Draft SEIS are critical in our ability to give our young men and women the most realistic training so they're prepared for the rigors of combat. We accomplish that by providing high quality, realistic training, and we need to do that in a manner that replicates what they're going to encounter in theater and how they're gonna fight. To do that, we have to increase our off-road maneuver training to support components organic to the First Armored Division and its comment and the organic brigade combat means associated to it.

In addition, we're proposing to develop facilities in the Main Cantonment Area of Fort Bliss to support our mission there and to provide a suitable quality of life for our soldiers while they're here. So this is a significant transformation of Fort Bliss and our training areas.

This SEIS is part of Fort Bliss's active program to sustain our lands in an environmental responsible way, and your

valuable input helps us do that job better so we're very anxious to get your comments. So I'll look forward to hearing from you and thank you for taking time to participate tonight, thanks.

MS. HILLER: Thank you, Col Burns. So I want to let you all know a little bit about how this evening is going to go. This is our agenda for the evening: First we'll have a short briefing to provide you all an overview of what's being proposed, the alternatives being considered, and the Draft SEIS process.

We'll then -- after the briefing, we'll take a short 15 minute break and that'll provide you an opportunity to go into the forum and review the displays, if you haven't already had an opportunity to do so. And if you have questions, we'll have Army representatives out there, as well as subject matter experts. This really is your opportunity, that if you have any questions to have those answered because we do have those individuals here to assist you, the subject matter experts and the Army representatives.

We'll then reconvene here for the main purpose of the meeting, and that is to accept your comments on the draft SEIS. So I'd now like to introduce Col White, the Deputy Garrison Commander at Fort Bliss, to start the briefing.

COL WHITE: Good evening. We've invited you here tonight to give us your input on the findings of the Fort Bliss Mission and Master Plan Draft SEIS. The Draft SEIS supplements the Fort Bliss Mission and Master Plan Programmatic Environment Impact Statement, or the PEIS, published in December of 2000. We are

preparing the SEIS because changes in the Fort Bliss mission require us to modify how we manage our lands and resources. Not everything needs to be changed, and the PEIS still remains relative and in effect for a lot of our activities. Thus, the SEIS incorporates appropriate parts of the PEIS and focuses on the proposed land used modification.

These modifications are necessitated by a number of recent events that affect the mission of Fort Bliss and the composition of the units assigned there. They include the overall transformation of the Army, which was addressed in the Army-wide Programmatic EIS published in 2002, the Army Campaign Plan developed to implement Army Transformation, the Integrated Global Presence and Basing Strategy, which is bringing units in from Europe and other overseas locations back to the United States, and the Base Realignment and Closure process known as BRAC.

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The BRAC Commission identified both incoming and outgoing units, as shown on this chart. Fort Bliss will receive a total of four BCTs over the next five years, as well as an Armor

Division headquarters. Other incoming units include the Artillery Brigade, a Combat Aviation Brigade, a Sustainment Brigade, and other supporting organizations. The BRAC decision became law in December 2005, resulting in substantial personnel and other changes at Fort Bliss that we must respond to and prepare for.

At the same time, the Air Defense Artillery, or ADA, school and three ADA brigades have been identified to move out of Fort Bliss, although the BRAC Commission acknowledged that the ADA brigades would need to be returned to Fort Bliss for missile firings.

As you may know, the first heavy BCT, the 4th Brigade Combat Team of the 1st Cavalry Division has already come to Fort Bliss, undergone some training, and was deployed to Iraq a little more than a week ago.

As the previous slide indicated, the BCTs at Fort Bliss -- that we are receiving at Fort Bliss are called the Heavy Brigade Combat Teams. Heavy BCTs are armored units that fight with tanks, Bradley fighting vehicles, and artillery, as shown on this slide. The heavy BCT has several battalions with specific combat roles and pieces of equipment. Each BCT is about 3800 soldiers and includes approximately 360 tracked vehicles and 900 wheeled vehicles, as well as generators and other pieces of equipment. With four heavy BCTs, Fort Bliss is expecting a net increase of about 1400 tracked vehicles and 7800 wheeled vehicles.

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will occur over the next five years. In sum, we're expecting a net increase of approximately 20,000 military personnel, with many dependents, and about 3800 civilians.

The incoming units will have a different mission from the ADA units currently at Fort Bliss, so their training requirements are gonna be different. They'll be required to become more proficient in using their weapons, which requires live-fire and qualification ranges. The Combat Aviation Brigade and its helicopters will need training on air-ground targets. The heavy equipment battalions need off-road maneuver training areas. Based on the training requirements, Fort Bliss needs a minimum of approximately 539,000 acres of off-road vehicle maneuver space. Currently only about 335,000 acres are approved for off-road vehicle maneuver. The land use changes and construction considered in the Draft EIS are proposed to meet these training needs.

I'll now turn the podium over to Colonel Kirby to describe the alternatives analyzed in the draft SEIS.

COL KIRBY: I'd like to break from the script just for a minute to congratulate Mr. Moore on his reelection. Congratulations, we look forward to continuing to work with you over the next four years.

MR. MOORE: Thank you.

COL KIRBY: So thank you and good evening. My name is John Kirby, and I am the Fort Bliss Range Commander. My job is to manage the Fort Bliss Training Complex in a manner that provides

the best possible preparation of our soldiers being sent into combat and ensures the long-term sustainability of the land.

As Col White indicated, the Draft SEIS provides information about the environmental consequences associated with bringing in 20,000 new troops and constructing new facilities to support them. The primary decisions being considered in the SEIS, however, are proposed land use changes to accommodate the incoming units and provide the training they need.

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We are proposing to develop a new range complex on McGregor Range in the area of the existing Orogrande Range and the Short Range Air Defense System Site. This complex would house a number of new facilities and include a Digital Air-Ground Integrated Range primarily for helicopter training by the Combat Aviation Brigade.

The main land use change we are proposing is opening up training areas in the Tularosa Basin portion of McGregor Range for off-road vehicle maneuver. The alternatives considered in the Draft SEIS provide for different combinations of training area use for that purpose.

I want to make it clear at the onset that we are not considering off-road vehicle maneuvers, or any land use changes on Otero Mesa or the Sacramento Mountain foothills that lie within the Fort Bliss Training Complex. Nor do we have any plans for future use of Castner Range. Furthermore, all the changes under consideration involve land that is currently within the Fort Bliss boundaries. We are not considering expanding the installation.

Finally, this SEIS is not being prepared to support the BRAC decisions. Those decisions became law last December. This SEIS identifies the environmental impacts from the BRAC actions, but the only decisions that will be made pursuant to the SEIS are the

land use decisions I've described.

As required by the National Environmental Policy Act regulations, the Draft SEIS includes a No Action Alternative. Under this alternative, none of the proposed land use changes would be made, and the land use of Fort Bliss would remain as designated in the Mission and Master Plan PEIS published in December 2000, with some minor modifications.

Construction of facilities in ranges would occur, but only in keeping with the land uses currently authorized. Off-road vehicle maneuvers would be limited to the south training areas, north training areas, and one training area, Training Area 8 on McGregor Range that is already approved for that use. This alternative includes development of one BCT complex for the 4th Brigade Combat Team of the 1st Cavalry division, which was assessed in accordance with the procedures and criteria described in the 2000 PEIS.

Although we are required to include it, the No Action Alternative is not a reasonable option because it will not provide adequate training capability for the units that are coming to Fort Bliss as a result of the BRAC decision.

Alternative 1 in the Draft SEIS implements the land use changes I mentioned for the Main Cantonment Area and includes construction of the new facilities needed to support all the incoming units identified in the BRAC decision. It also includes now live-fire and qualification ranges at Dona Ana and McGregor

Ranges, including the Orogrande Range Complex and the helicopter range I mentioned.

This alternative proposes to open training areas in the south Tularosa Basin portion of McGregor Range south of New Mexico Highway 506, the area shown in brown, to off-road vehicle maneuver. This would add 216,000 acres of off-road vehicle maneuver capability to the 335,000 acres currently available for that use. Together, these areas would provide the minimum amount of off-road vehicle maneuver capability needed, but it would severely curtail our ability to continue supporting the training needs of other users, including the Air Defense Artillery missile firings and the mobilization mission.

Alternative 2 considered in the Draft SEIS includes the land use changes and construction of Alternative 1 and further extends the area in the Tularosa Basin portion of McGregor Range that would be available for off-road vehicle maneuver into training areas north of Highway 506. In addition, this alternative examines the environmental effects of bringing a second Combat Aviation Brigade to Fort Bliss. We are considering that possibility in order to understand the implications of providing the additional infrastructure and training capability at the installation, but I want to clarify that there is currently no plan to station a second Combat Aviation Brigade at Fort Bliss, and no decision will be made about that possibility at this time.

This alternative would authorize off-road vehicle

maneuver training in a total of 615,000 acres of the Fort Bliss Training Complex, allowing us to continue providing limited support to mobilization training and missile firings, as well as train incoming units.

Alternative 3 is similar to Alternative 2. It includes the same changes and improvements in the Main Cantonment Area and the firing ranges. But instead of extending off-road vehicle maneuver north of Highway 506, it would extend it to the ridges and valleys of the southeast training areas below Otero Mesa. This area offers important capabilities not available in other training areas because it provides different terrain from the flat and sandy coppice dunes of the north and south training areas and southwest training areas of McGregor Range. Providing variety in the training environment is important for preparing our units to operate in different areas of the world.

In addition to authorizing off-road vehicle maneuver in the area shown in brown, this alternative also expands the training uses allowed in those areas to include mission facilities, weapons firing, and surface danger zone. Many of the training areas already permit some or all of those uses, but this alternative would make the land use designations uniform across all areas used for off-road vehicle maneuver.

This alternative would result in approximately 622,000 acres being available for off-road vehicle maneuver, which is similar to the capability provided by Alternative 2, just in a

different part of the training complex.

Finally, Alternative 4 in the Draft SEIS includes all the changes and developments of Alternatives 1, 2 and 3. It proposes to extend off-road vehicle maneuver capability to all of the Tularosa Basin portion of McGregor Range, including the training areas north of Highway 506 and in the southeast area of the range. It would also provide for a uniform land use designation across those training areas, allowing for mission facilities, weapons firing, and surface danger zones, in addition to off-road vehicle maneuver. This would make a total of 687,000 acres available for off-road vehicle maneuvers.

Alternative 4 is the Army's proposed action and preferred alternative because it offers the most capability, variety, and flexibility to respond to current and future training needs. In evaluating this alternative, the Draft SEIS considers the effects of bringing two additional heavy BCTs to Fort Bliss, as well as a second Combat Aviation Brigade. There are currently no plans to bring any additional units in, other than those identified through Army transformation and BRAC.

The impacts associated with the additional units have been included in the analysis to help us understand the potential implications of further expanding the Fort Bliss mission. Like the Combat Aviation Brigade, no decision concerning the additional BCTs will be made at this time. That concludes my portion of the briefing, now I'd like to turn the briefing over to Walter

Christensen to describe the SEIS process.

MR. CHRISTENSEN: Hello. I'm Walter Christensen from the Fort Bliss Directorate of Environment. I will give a very brief overview of the SEIS process and the findings of the draft document. However, because of our limited time tonight, I will not be able to describe the contents of the Draft SEIS thoroughly or in any detail. I encourage everyone to read the document for yourselves in order to really understand what it says. If you don't have a copy, we have some available tonight, and it's also available at the local libraries and on the Fort Bliss website.

The Draft SEIS was completed in accordance with the National Environmental Policy Act, or NEPA, as well as both the Council on Environmental Quality and the Army's implementing regulations. The document addresses the environmental and socioeconomic impacts from the five alternatives described by Col Kirby in 14 different resource areas. This document is considered draft because it reflects the Army's assessment of expected impacts, but we want your input before we finalize our analysis and provide conclusions to the decision maker for consideration.

All comments received during the public comment period, including any comments made tonight, will be addressed in the Final SEIS and provided to the decision maker. Tonight is an important step in this process.

The SEIS process began with publication of a Notice of Intent in the Federal Register on November 15 of this last year.

This initiated a scoping period during which we asked for public input on the topics to be addressed in the SEIS. We held public meetings last December as part of the scoping process. The Draft SEIS was distributed for review and public comment on October 6th of this year.

NEPA regulations require a minium of 45 days for public review and comment, but we provided for an extended comment period which ends on December 12, 2006. Anyone wishing to make comments on the contents of the Draft SEIS needs to submit those comments by the December 12th deadline in order for them to be included in the Final SEIS. All comments made tonight will be included.

Under our current schedule, we aim to complete and distribute the final SEIS next spring. After the Notice of Availability is published in the Federal Register, we will wait at least 30 days before issuing a Record of Decision. The Record of Decision will specify which alternative the Army has selected and list any mitigation measures that will be adopted to reduce environmental impacts. Both the Final SEIS Notice of Availability and the Record of Decision will be publicly announced and posted on the Fort Bliss website.

These next few slides summarize the main findings of the Draft SEIS. I realize this is a lot to absorb, especially during a briefing, but there are fact sheets at the display tables outside with this information and you're welcome to take those fact

sheets home with you. Again, the best way to get a thorough understanding of the SEIS is to read the document itself.

Many of the expected effects are related to the influx of new military and civilian personnel at Fort Bliss. With their dependents, these personnel will increase the regional population by over 60,000 people. The additional income and expenditures generated by this population increase are projected to attract almost 60,000 additional people to the region, for a total population of about 120,000 people.

The proposed land use changes in the Fort Bliss Training Complex, specifically the increase in off-road vehicle maneuver, will result in some changes in the local vegetation and ecology. The soils in the area are susceptible to wind erosion, so the maneuvers can be expected to generate more dust. However, expert modeling indicates that the levels of particulate matter will not exceed air quality standards outside the installation.

There will be more training at the large caliber weapons ranges on Dona Ana and McGregor Ranges, so noise levels will increase, especially in communities adjacent to those areas. Safety and hazardous materials and waste issues are not expected to increase significantly because of the management processes already in place.

Finally, increased population means more housing and community services will be needed. I'd now like to turn the podium over to Ms. Hiller for the next phase of this meeting. Thank you.

MS. HILLER: So we're now going to take the 15 minute break. And again, I'd like you all to feel free to look at the displays and ask questions of the Army representatives during this break. Please be aware that those informal discussions will not be on the record. However, Jan Wimberly will be available during the break for those of you who'd like to make comments in private.

Also, while the Army representatives are here to try to answer questions you might have to the best of their ability, they may not have all the answers readily available to them, and may need to either get back to you in order to respond, or defer the responses to the Final SEIS where they'll be available to everyone. So again, Dr. Corral will be available for anyone who would like assistance in Spanish.

After the 15 minute break, we'll reconvene here and we'll take public comments, which will be recorded by Jan Wimberly for the record. How many people do we currently have signed up to speak? We have one person currently signed up to speak. If you would like to make a comment but did not indicate so at the sign-in table, you can go back to the sign-in table and get your sign-in card and sign up during the break and we'll add you to the list. I think the restrooms are just down the hall here if you need those facilities and we'll see you in 15 minutes.

(Recess was taken from 7:08 until 7:25 p.m.)

MS. HILLER: Okay, we'll go ahead and just get started. We have now come to the main purpose of this evening's

meeting, and that is to obtain your comments on the SEIS. So we've got two individuals who would like to speak. And because we only have two, I'm not going to limit time tonight. But if I need to, I will, so we'll see how that goes. As a courtesy to government officials, I'm going to call on Mr. Doug Moore first. Thank you for being here. And you can speak from wherever you feel most comfortable.

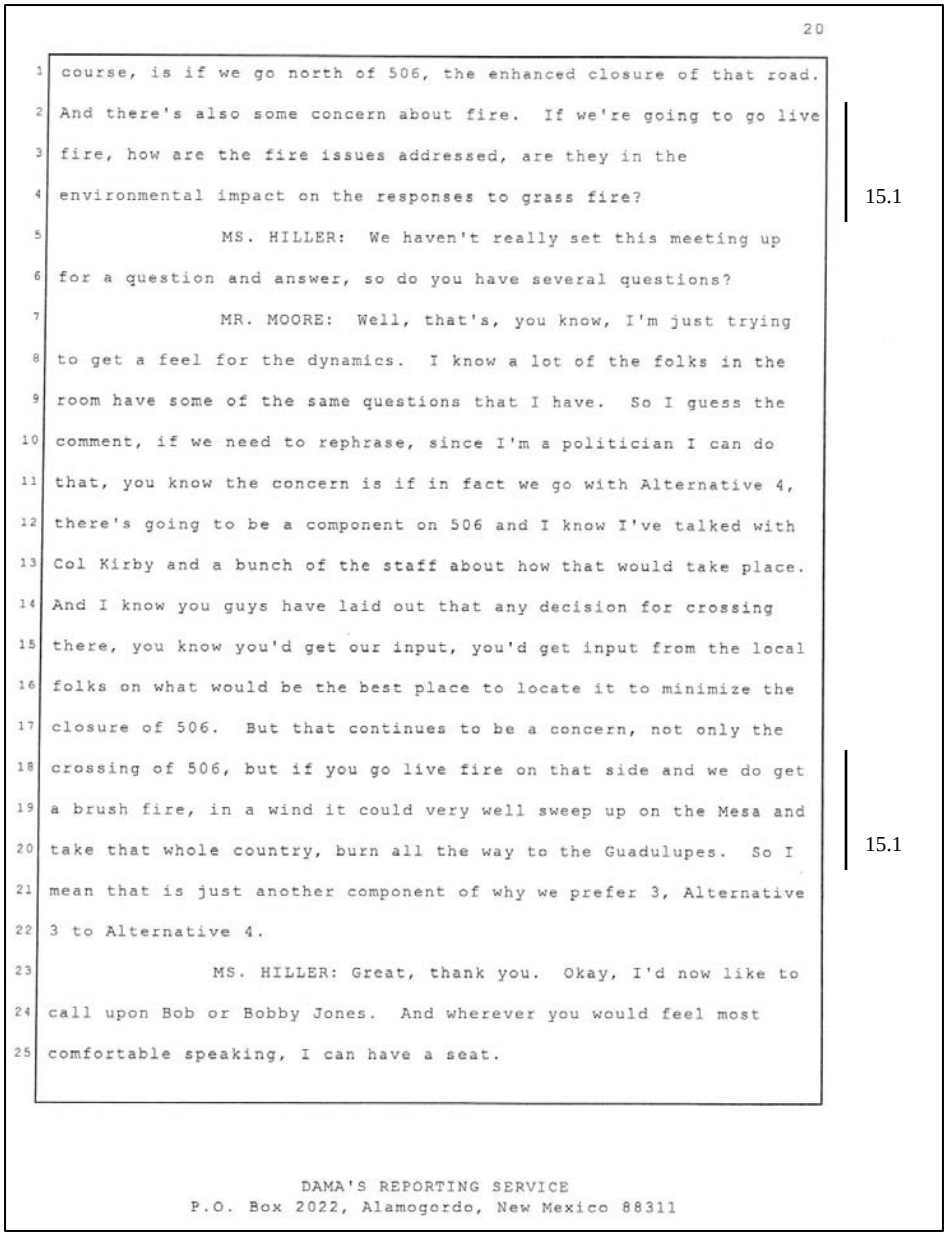
MR. MOORE: Can you hear me back here? Well, you know, I appreciate you guys coming and providing this information to us. When we had the scoping meeting late last year and looked at all the alternatives, I think the County voiced our opinion, representing in the residents in that area, that we prefer Alternative 3. Is that decision made? No? When we talk about a decision maker, who will take all these public comments, who will that be? We talk about, you know in some of these comments you made, who will be the decision maker on which alternative and to what degree it is implemented?

MS. HAMILTON: It'll be the Commander of the Installation Management Command.

MR. MOORE: And that is?

COL BURNS: That is General Wilson, but I believe he's delegated it to his deputy, which is General McDonald.

MR. MOORE: And of course, we in the community want to have our troops as well trained as possible. My son's in the Army, he's been deployed a couple of times. And so our concern, of



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course, is if we go north of 506, the enhanced closure of that road. And there's also some concern about fire. If we're going to go live fire, how are the fire issues addressed, are they in the environmental impact on the responses to grass fire? 15.1

MS. HILLER: We haven't really set this meeting up for a question and answer, so do you have several questions?

MR. MOORE: Well, that's, you know, I'm just trying to get a feel for the dynamics. I know a lot of the folks in the room have some of the same questions that I have. So I guess the comment, if we need to rephrase, since I'm a politician I can do that, you know the concern is if in fact we go with Alternative 4, there's going to be a component on 506 and I know I've talked with Col Kirby and a bunch of the staff about how that would take place. And I know you guys have laid out that any decision for crossing there, you know you'd get our input, you'd get input from the local folks on what would be the best place to locate it to minimize the closure of 506. But that continues to be a concern, not only the crossing of 506, but if you go live fire on that side and we do get a brush fire, in a wind it could very well sweep up on the Mesa and take that whole country, burn all the way to the Guadulupes. So I mean that is just another component of why we prefer 3, Alternative 3 to Alternative 4. 15.1

MS. HILLER: Great, thank you. Okay, I'd now like to call upon Bob or Bobby Jones. And wherever you would feel most comfortable speaking, I can have a seat.

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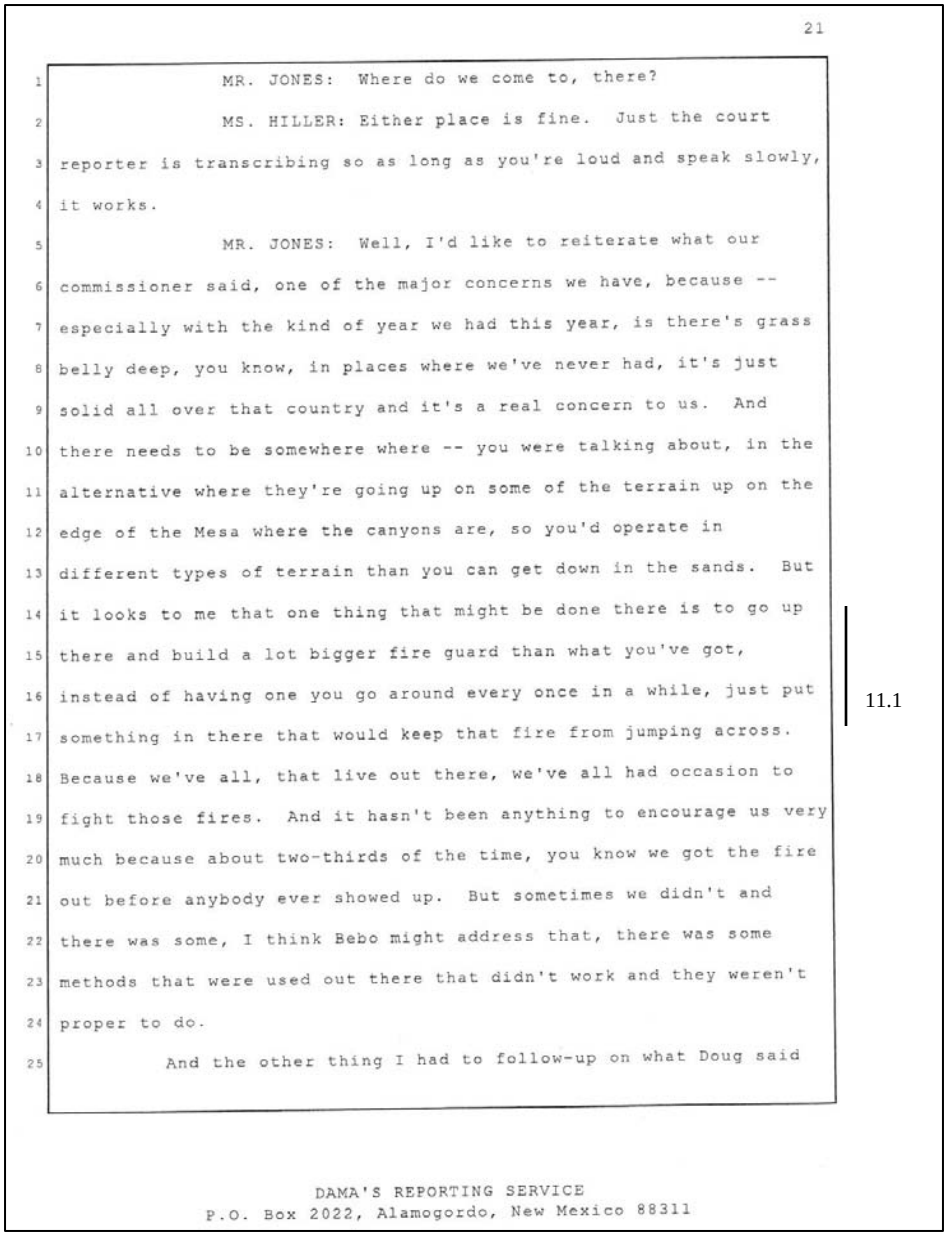
15.1. Additional information and analysis has been added to Sections 4.11 and 5.11 of the Final SEIS to more completely address the risk of wildfires. No live fire is planned in training areas north of Highway 506.



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MR. JONES: Where do we come to, there?

MS. HILLER: Either place is fine. Just the court reporter is transcribing so as long as you're loud and speak slowly, it works.

MR. JONES: Well, I'd like to reiterate what our commissioner said, one of the major concerns we have, because -- especially with the kind of year we had this year, is there's grass belly deep, you know, in places where we've never had, it's just solid all over that country and it's a real concern to us. And there needs to be somewhere where -- you were talking about, in the alternative where they're going up on some of the terrain up on the edge of the Mesa where the canyons are, so you'd operate in different types of terrain than you can get down in the sands. But it looks to me that one thing that might be done there is to go up there and build a lot bigger fire guard than what you've got, instead of having one you go around every once in a while, just put something in there that would keep that fire from jumping across. Because we've all, that live out there, we've all had occasion to fight those fires. And it hasn't been anything to encourage us very much because about two-thirds of the time, you know we got the fire out before anybody ever showed up. But sometimes we didn't and there was some, I think Bebo might address that, there was some methods that were used out there that didn't work and they weren't proper to do.

And the other thing I had to follow-up on what Doug said

11.1

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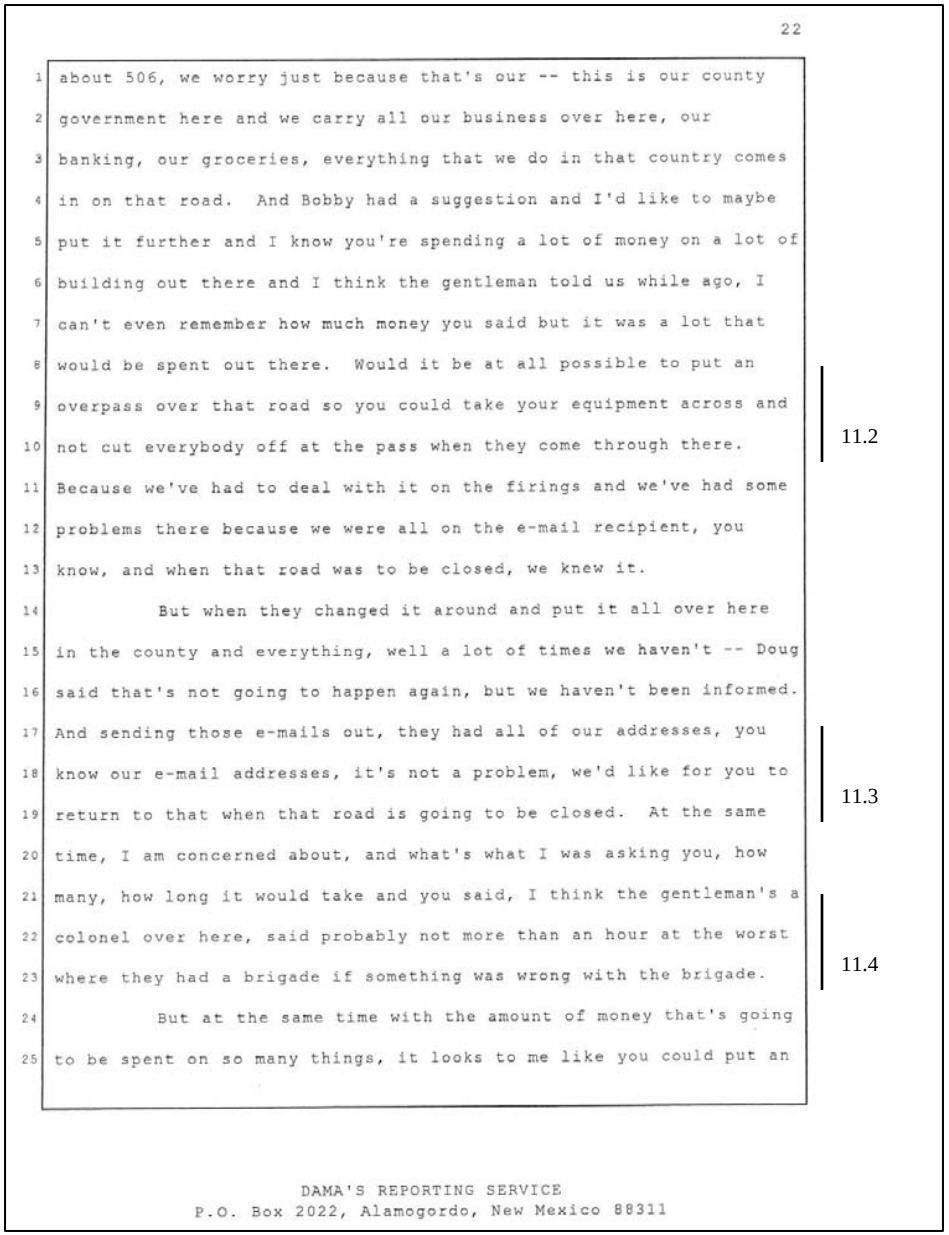
11.1. Additional information and analysis has been added to Sections 4.11 and 5.11 of the Final SEIS to more completely address the risk of wildfires. The highest risk is from live-fire weapons, which will be limited to designated firing ranges in the Doña Ana, south McGregor, and Orogrande Range Complexes in the basin. No live fire would occur in the training areas outside designated areas. Personnel would be present in any areas where live fire or off-road vehicle maneuvers occur, ensuring immediate detection and response to any ignitions. Therefore, the risk of wildfire is not anticipated to increase significantly.

Fort Bliss is working with the Bureau of Land Management in a joint program to reduce fire hazard at the community of Timberon.



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about 506, we worry just because that's our -- this is our county government here and we carry all our business over here, our banking, our groceries, everything that we do in that country comes in on that road. And Bobby had a suggestion and I'd like to maybe put it further and I know you're spending a lot of money on a lot of building out there and I think the gentleman told us while ago, I can't even remember how much money you said but it was a lot that would be spent out there. Would it be at all possible to put an overpass over that road so you could take your equipment across and not cut everybody off at the pass when they come through there. Because we've had to deal with it on the firings and we've had some problems there because we were all on the e-mail recipient, you know, and when that road was to be closed, we knew it.

But when they changed it around and put it all over here in the county and everything, well a lot of times we haven't -- Doug said that's not going to happen again, but we haven't been informed. And sending those e-mails out, they had all of our addresses, you know our e-mail addresses, it's not a problem, we'd like for you to return to that when that road is going to be closed. At the same time, I am concerned about, and what's what I was asking you, how many, how long it would take and you said, I think the gentleman's a colonel over here, said probably not more than an hour at the worst where they had a brigade if something was wrong with the brigade.

But at the same time with the amount of money that's going to be spent on so many things, it looks to me like you could put an

11.2

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11.2. As described in Section 5.3.4 of the SEIS, military vehicle convoys crossing NM Highway 506 would cross in "march units." These march units would be company size and typically take 15 minutes or less to cross. Any unit proposing to cross Highway 506 would be required to coordinate its schedule with the Combined Arm Battalion (Range Control) and provide traffic control at the crossing. Civilian traffic traveling on the highway would be allowed to pass between march units, so delays would be short. Therefore, an overpass is not needed to ensure reasonable access.

11.3. Fort Bliss will notify the Otero County Administrator, BLM, and send emails to two additional addressees chosen by Otero County of any scheduled road closures.

11.4. Crossing will be limited to company-size elements, will include traffic control, and will typically take less than 15 minutes.

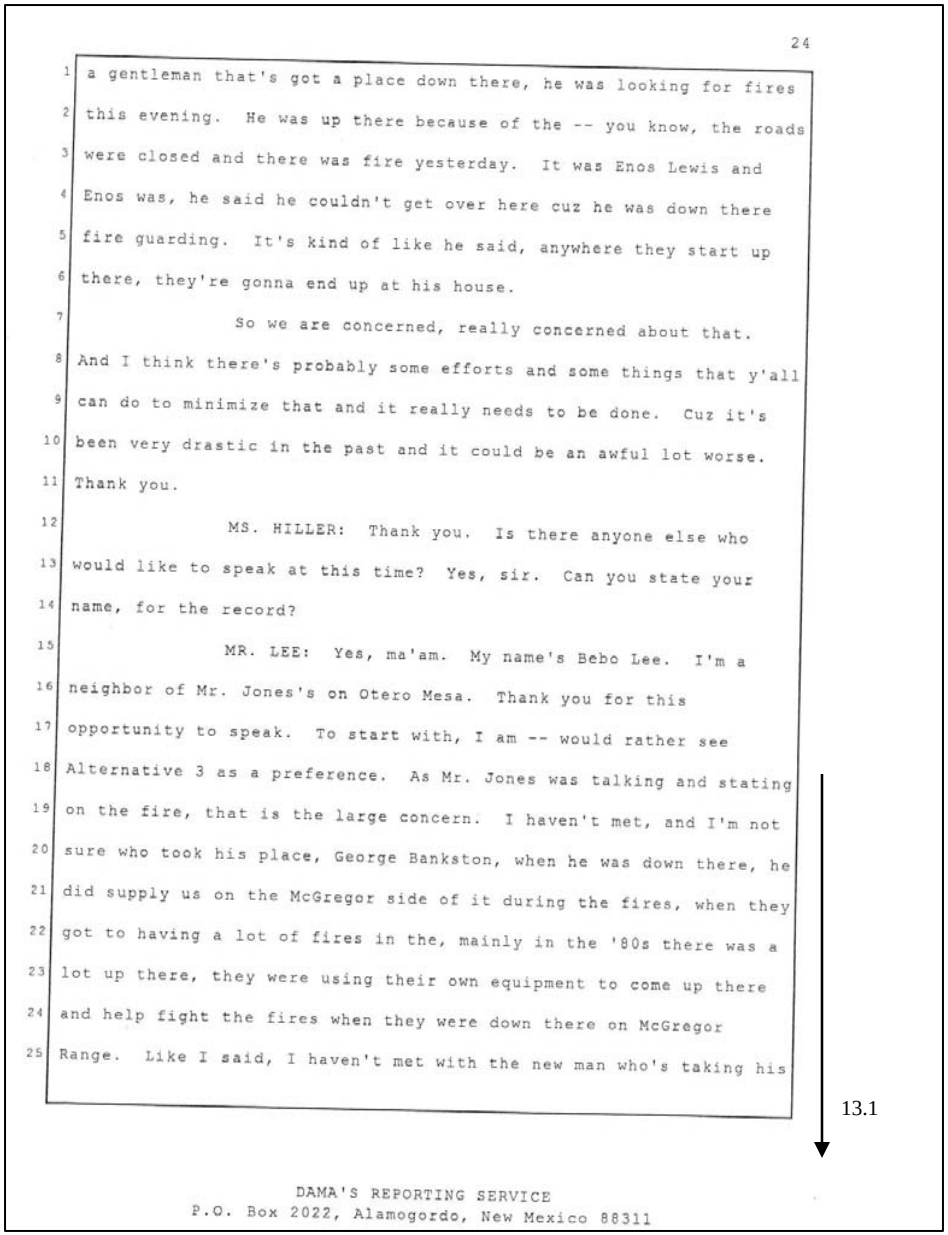
overpass over that, if it does go there. We'd like to keep it all south of 506, we've always thought that, because it's -- for a lot of reasons, and I won't go into it, but if we can't win that argument and everything, you might consider that other one. It'd cost some money to do it, but it would be minor up beside the other expenses you're gonna have, then we would never have -- well, you could make it even better than it is now for that part of it.

I had a question, and I thought I don't think this is the place for 'em, but the comments, when you go north up there and it shows it goes all the way to the extent of McGregor to the north coming this way, there are some BLM units that are in part of that country and I just assumed, maybe Ed might tell me, but that those would be -- they'd do away with those and they wouldn't be let out for lease anymore. They've been pretty valuable to a lot of people, especially during the drought that we've had and all the problems because it's quite an issue in this country what to do with that. So that was mine, that's what I had. 11.5

506 is a real critical aspect to it, but the one that's really staring us in the eye right now is fire. Because when this country all dries up, and it's on its way now and everything, it wouldn't, if you got a little bit of a west wind or a lot of west wind, it doesn't make any difference, if we get a fire you're not gonna be able to stop it, like Doug says, till it gets to the Warloopie Mountains, or the Guadalupes, we call it, that's old country word, Warloopies, it's going to go down there. I talked to 11.6

11.5. It remains to be determined whether training areas that are used for off-road vehicle maneuvers will continue to be leased by BLM for grazing. Several factors need to be considered before that determination can be made. The Army will work with BLM and any affected leaseholders to evaluate the feasibility of continued grazing in Units 1, 2, and 3, should Alternative 2 or 4 be selected.

11.6. Additional information and analysis has been added to Sections 4.11 and 5.11 of the Final SEIS to more completely address the risk of wildfires.



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a gentleman that's got a place down there, he was looking for fires this evening. He was up there because of the -- you know, the roads were closed and there was fire yesterday. It was Enos Lewis and Enos was, he said he couldn't get over here cuz he was down there fire guarding. It's kind of like he said, anywhere they start up there, they're gonna end up at his house.

So we are concerned, really concerned about that. And I think there's probably some efforts and some things that y'all can do to minimize that and it really needs to be done. Cuz it's been very drastic in the past and it could be an awful lot worse. Thank you.

MS. HILLER: Thank you. Is there anyone else who would like to speak at this time? Yes, sir. Can you state your name, for the record?

MR. LEE: Yes, ma'am. My name's Bebo Lee. I'm a neighbor of Mr. Jones's on Otero Mesa. Thank you for this opportunity to speak. To start with, I am -- would rather see Alternative 3 as a preference. As Mr. Jones was talking and stating on the fire, that is the large concern. I haven't met, and I'm not sure who took his place, George Bankston, when he was down there, he did supply us on the McGregor side of it during the fires, when they got to having a lot of fires in the, mainly in the '80s there was a lot up there, they were using their own equipment to come up there and help fight the fires when they were down there on McGregor Range. Like I said, I haven't met with the new man who's taking his

13.1

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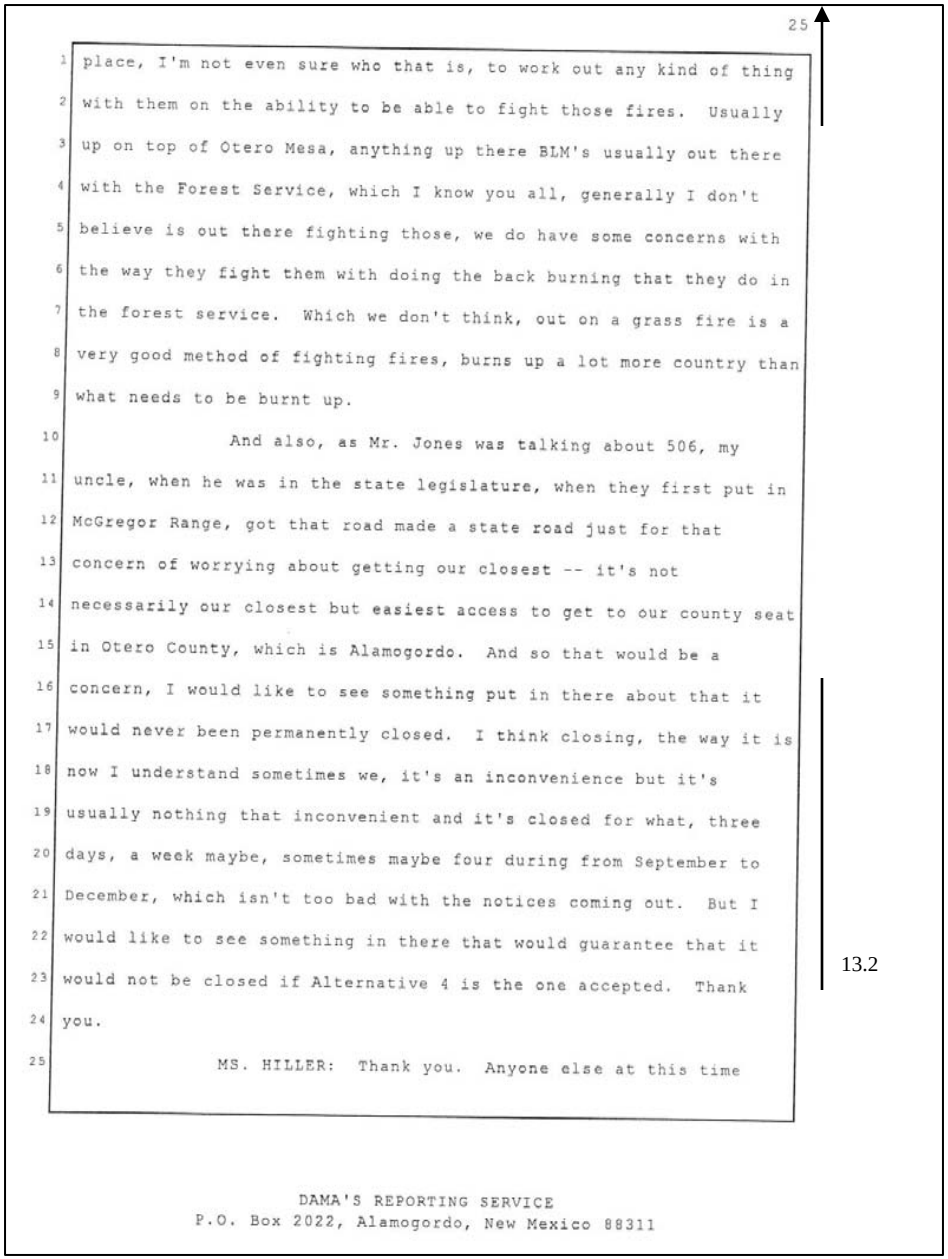
13.1. Additional information and analysis has been added to Sections 4.11 and 5.11 of the Final SEIS to more completely address the risk of wildfires.

Fort Bliss and the Las Cruces District Office of BLM have signed a mutual aid agreement (dated September 29, 2006) to provide firefighting equipment and personnel (when available) as requested by one or the other agency to respond to fires along or within the boundary of McGregor Range.



place, I'm not even sure who that is, to work out any kind of thing with them on the ability to be able to fight those fires. Usually up on top of Otero Mesa, anything up there BLM's usually out there with the Forest Service, which I know you all, generally I don't believe is out there fighting those, we do have some concerns with the way they fight them with doing the back burning that they do in the forest service. Which we don't think, out on a grass fire is a very good method of fighting fires, burns up a lot more country than what needs to be burnt up.

And also, as Mr. Jones was talking about 506, my uncle, when he was in the state legislature, when they first put in McGregor Range, got that road made a state road just for that concern of worrying about getting our closest -- it's not necessarily our closest but easiest access to get to our county seat in Otero County, which is Alamogordo. And so that would be a concern, I would like to see something put in there about that it would never been permanently closed. I think closing, the way it is now I understand sometimes we, it's an inconvenience but it's usually nothing that inconvenient and it's closed for what, three days, a week maybe, sometimes maybe four during from September to December, which isn't too bad with the notices coming out. But I would like to see something in there that would guarantee that it would not be closed if Alternative 4 is the one accepted. Thank you.

MS. HILLER: Thank you. Anyone else at this time

13.2

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13.2. There are no plans to permanently close NM Highway 506, and nothing in the Proposed Action and other alternatives considered in this SEIS would require it to be permanently closed.

wish to speak? I'd like to thank you all for participating in this public meeting on the Fort Bliss Mission and Master Plan Draft Supplemental Programmatic Environmental Impact Statement. If you decided not to provide comments this evening, either verbally or in writing, and you wish to submit comments, there are many ways to do that between now and December 12th. We would like your comments by December 12th so that they can be incorporated into the Final SEIS.

You can do this in several ways, these methods are listed up here, there's also sheets out in the lobby that list these same methods. You can either take a comment form home with you tonight and submit it later. You can also submit a comment in your own format, either a letter or an e-mail, or even faxing your comment in. So this concludes this meeting. I want to thank you all for coming and providing your input into this process. And please drive home safely. We're adjourned.

(Meeting concluded at 7:38 p.m.)

STATE OF NEW MEXICO)
) ss.
COUNTY OF OTERO)

REPORTER'S CERTIFICATE

BE IT KNOWN that the foregoing transcript of proceedings was taken by me; that I was then and there a Certified Court Reporter (and Notary Public) in and for the County of Otero, State of New Mexico, that the foregoing 26 pages contain a true and accurate transcript of the proceedings, all to the best of my skill and ability.

DATED at Alamogordo, New Mexico this 13th day of November, 2006.

Jan Wimberly
NM Certified Court Reporter #13
License Expires: 12/31/06

PUBLIC MEETING

FOR COMMENTS ON SEIS

HELD ON

NOVEMBER 9, 2006

AT

CHAPIN HIGH SCHOOL

7000 DYER STREET

EL PASO, TEXAS

COPY

ORIGINAL

MS. HILLER: So good evening, and welcome to this public meeting to accept your comments on the Fort Bliss Mission and Master Plan Draft Supplemental Programatic Environmental Impact Statement, or what we call an SEIS, which went out for public comment on October 6th of this year.

My name is Deborah Hiller, and I'll be your moderator this evening. With me is Ginger Zachary, who is the court reporter, who will be reporting a verbatim -- she'll be taking a verbatim transcript of this evening's proceedings.

Also with me is Dr. Rafael Corral.

Do you mind standing up?

For those of you who wish to make comments in Spanish, he will be our interpreter this evening.

Dr. Corral, would you ask if anyone in the room would like to have interpretation services?

(Dr. Corral complies.)

MS. HILLER: Okay. Great. Thank you.

Before we get into the presentation, if anyone has a cell phone, please turn them off. Okay. And I'd like to start the proceedings by introducing Colonel Robert Burns, the Fort Bliss Garrison Commander, who will say a few words.

Colonel Burns?

COLONEL BURNS: Thank you. I'd like to thank everybody for coming this evening. This is a very important time for Fort Bliss. For the last few years, most of you in El Paso know that we've had a very active mobilization mission. This prepared thousands of soldiers for deployment to support combat operations in both Iraq and Afghanistan, and then we've also redeployed them back home.

This SEIS is an important part of our partnership with this community, because it helps us both plan for major future changes that are occurring at Fort Bliss, as well as the region.

The land use changes proposed in the draft SEIS are critical to our ability to give our young men and women the most realistic training, so they're prepared for the rigors of combat. We accomplish that by providing high-quality, realistic training, and we need to do that in a manner that replicates what they'll encounter in the theater and how they'll fight.

To do that, we have to increase our on -- excuse me -- our off-road maneuver area to support combat capabilities. That will be organic to the 1st Armored Division and its organic brigade -- brigade combat teams.

In addition, we're proposing to develop

facilities in the main cantonment area of Fort Bliss to support our mission there and provide a suitable quality of life for our soldiers while they're here.

So this SEIS is a part of Fort Bliss's active program to sustain our lands in an environmental, responsible way, and your valuable input will help us do that job better. So I look forward to hearing your comments, and thank you for taking the time to participate in this process.

MS. HILLER: Thank you, Colonel Burns.

So I want to let you-all know a little bit about how this evening will go. This is our agenda up here. We'll first have a short briefing, about a half hour-long, to provide you an overview of what's being proposed, the alternatives being considered, and the draft SEIS process.

We'll then have a 15-minute break, during which time you can examine displays, if you haven't already done so. Those are the displays that are here on the side of the room. We'll have Army representatives here available to you as subject matter experts, if you have any questions. And we'll then, after that break, reconvene for the main purpose of this meeting, which is to accept your comments on the draft SEIS.

So I would now like to introduce Colonel White, the deputy garrison commander, to start the briefing.

COLONEL WHITE: Good evening. We've invited you here tonight to give -- to give us your input on the findings of the Fort Bliss Mission and Master Plan Draft SEIS. The draft SEIS supplements the Fort Bliss Mission and Master Plan Programatic Environmental Impact Statement, or the PEIS, published in December of 2000.

We are preparing the SEIS because changes in the Fort Bliss mission require us to modify how we manage our lands and resources. Not everything needs changing, and the PEIS still remains relevant and in effect for a lot of our activities.

Thus, the SEIS incorporates appropriate parts of the PEIS and focuses on the proposed land use modifications. These modifications are necessitated by a number of recent events that affect the mission of Fort Bliss and the composition of units assigned here.

They include the overall transformation of the Army, which was addressed in the Armywide Programatic EIS published in 2002; the Army campaign plan developed to implement the Army transformation; the integrated global presence and basing strategy that is

bringing units in Europe and other overseas locations back to the United States; and the base realignment and closure process, known as BRAC.

An important component of Army transformation and the Army campaign plan is a move to what is called the modular force. Simply put, this approach changes the way the Army is organized into more self-sufficient units and incorporates elements that fight together, as well as supporting elements, like supply and engineering, as integral parts of the unit. The primary building block of the new organization is called the brigade combat team, or BCT.

The BRAC commission identified both incoming and outgoing units, as shown on this chart. Fort Bliss will receive a total of four BCTs over the next five years, as well as an armored division headquarters. Other incoming units including an artillery brigade, a combat aviation brigade, a sustainment brigade, and other supporting organizations.

The BRAC decisions became law in December 2005, resulting in substantial personnel and other changes at Fort Bliss that will -- that we must respond to and prepare for. At the same time, the artil- -- Air Defense Artillery, or ADA, School, and three ADA brigades have been identified to move out of Fort Bliss,

although the BRAC commission acknowledged that the ADA brigades would need to return to Fort Bliss for missile firings.

As you may know, the first heavy BCT, the 4th Brigade Combat Team of the 1st Cavalry Division, has already come to Fort Bliss, undergone training, and was deployed to Iraq a little over a week ago.

As the previous slide indicated, the BCTs Fort Bliss is receiving is called heavy BCTs. Heavy BCTs are armored units that fight tanks, Bradley fighting vehicles, and artillery, as shown on this slide.

The heavy BCT has several battalions with specific combat roles and pieces of equipment. Each BCT has about 3800 soldiers and includes approximately 360 track vehicles and 900 wheeled vehicles, as well as generators and other pieces of equipment. With four heavy BCTs, Fort Bliss is expecting a net increase of about 1400 track vehicles and 7- to 800 wheeled vehicles.

This chart shows an expected personnel change that will occur over the next five years. In sum, we are expecting a net increase of approximately 20,000 military personnel with many dependents and about 3800 civilians.

The incoming units will have a different mission from the ADA units currently at Fort Bliss, so their training requirements will be different. They will need to become proficient in using their weapons, which requires live fire and qualification ranges.

The combat aviation brigade and its helicopters will need training on air ground targetry. The heavy equipment battalions need off-road vehicle maneuver training. Based on the training requirements, Fort Bliss needs a minimum of approximately 539,000 acres of off-road vehicle maneuver area.

Currently, only about 335,000 acres are approved for off-road vehicle maneuver. The land use changes and construction considered in the draft SEIS are proposed to meet these training needs.

I'll now turn the podium over to Colonel Kirby, who will describe to you the alternatives analyzed in the draft SEIS.

COLONEL KIRBY: Thank you, and good evening. My name is John Kirby, and I am the Fort Bliss Range Commander. My job is to manage the Fort Bliss training complex in a manner that provides the best possible preparation of our soldiers being sent into combat and assures the long-term sustainability of the land.

As Colonel White indicated, the draft SEIS provides information about the environmental consequences associated with bringing in 20,000 new troops and constructing new facilities to support them. The primary decisions being considered in the SEIS, however, are proposed land use changes to accommodate the incoming units and provide the training they need.

One proposal is to expand the main cantonment area and change its land use designation to mixed use. This is needed to accommodate new complexes for the heavy BCTs and the combat aviation brigade. These complexes are self-contained inclobs -- incligs (phonetic) that include a mix of facility types, including barracks, administrative facilities, and maintenance and supply facilities, as well as various community services and amenities.

This mixed-use approach allows soldiers to live near their place of work, enhances efficiency, and reduces resources needed to transport people and equipment.

In order to accommodate these mixed-use complexes, we are proposing to designate the entire main cantonment area for mixed-land use, where the location of individual facilities would conform to Army regulations and guidelines for land use compatibility

and environmental management.

In the Fort Bliss training complex, we will be developing a number of new live fire and qualification ranges, most of which will be located on or adjacent to existing ranges on Dona Ana Range and in the south part of McGregor Range, near the existing Meyer complex, forward area weapon sites, and McGregor Range Camp.

We are proposing to develop a new range complex on McGregor Range in the area of the existing Oro Grande Range and short-range air defense system site. This complex would house a number of new facilities and include a digital air ground integration range primarily for helicopter training by the combat aviation brigade.

The main land use change we are proposing is opening up training areas in the Tularosa Basin portion of McGregor Range for off-road vehicle maneuver. The alternatives considered in this draft SEIS provide for different combinations of training area use for that purpose.

I want to make it clear at the onset that we are not considering off-road vehicle maneuvers or any land use changes on Otero Mesa or the Sacramento Mountains foothills that lie within the Fort Bliss

training complex, nor do we have any plans for future use of Castner Range. Furthermore, all the changes under consideration involve land that is currently within the Fort Bliss boundaries. We are not considering expanding the installation.

Finally, this SEIS is not prepared to support the BRAC decisions. Those decisions became law last December. This SEIS identifies the environmental impacts from the BRAC actions, but the only decisions that will be made pursuant to the SEIS are the land use decisions I've described.

As required by the National Environmental Policy Act regulations, the draft SEIS includes a no-action alternative. Under this alternative, none of the proposed land use changes would be made, and the land use at Fort Bliss would remain as designated in the Mission and Master Plan PEIS published in December 2000, with some minor modifications.

Construction of facilities and ranges would occur, but only in keeping with the land uses currently authorized. Off-road vehicle maneuvers would be limited to the south training areas, north training areas, and one training area, training area eight on McGregor Range, that is already approved for that use.

This alternative includes development of

one BCT complex for the 4th Brigade Combat Team of the 1st Cavalry Division, which was assessed in accordance with procedures and criteria described in the 2000 PEIS.

Although we are required to include it, the no-action alternative is not a reasonable option, because it will not provide adequate training capability for the units that are coming to Fort Bliss as a result of the BRAC decision.

Alternative one in the draft SEIS implements the land use changes I mentioned for the main cantonment area and includes construction of the new facilities needed to support all the incoming units identified in the BRAC decision. It also includes new live fire and qualification ranges at Dona Ana and McGregor Ranges, including the Oro Grande Range complex and the helicopter range I mentioned.

This alternative proposes to open training areas in the south Tularosa Basin portion of McGregor Range south of New Mexico Highway 506, the area shown in brown, to off-road vehicle maneuver. This would add 216,000 acres of off-road vehicle maneuver capability to the 335,000 acres currently available for that use.

Together, these areas would provide the minimum amount of off-road vehicle maneuver capability needed, but it would severely curtail our ability to

continue supporting the training needs of other users, including the air defense artillery missile firings and the mobilization mission.

Alternative two considered in the draft SEIS includes the land use changes and construction of alternative one and further extends the area in the Tularosa Basin portion of McGregor Range that would be available for off-road vehicle maneuver into training areas north of Highway 506. In addition, this alternative examines the environmental effects of bringing a second combat aviation brigade to Fort Bliss.

We are considering that possibility in order to understand the implications of providing the additional infrastructure and training capability at the installation, but I want to clarify that there is currently no plan to station a second combat aviation brigade at Fort Bliss and no decision will be made about that possibility at this time.

This alternative would authorize off-road vehicle maneuver training in a total of 615,000 acres of the Fort Bliss training complex, allowing us to continue providing limited support to mobilization training and missile firings, as well as training incoming units.

Alternative three is similar to alternative two. It includes the same changes and improvements in

the main cantonment area and the firing ranges, but instead of extending off-road vehicle maneuver north of Highway 506, it would extend it into the ridges and valleys of the southeast training areas below Otero Mesa.

This area offers important capabilities not available in other training areas, because it provides different terrain from the flat and sandy, copious dunes of the north and south training areas and southwest training areas of McGregor Range. Providing variety in the training environment is important for preparing our units to operate in different areas of the world.

In addition to authorizing off-road vehicle maneuver in the areas shown in brown, this alternative also expands the training uses allowed in those areas to include mission facilities, weapons firing, and surface danger zones. Many of the training areas already permit some or all of those uses, but this alternative would make the land use designations uniform across all areas used for off-road vehicle maneuver.

This alternative would result in approximately 622,000 acres being available for off-road vehicle maneuver, which is similar to the capability provided in alternative two, just in different parts of the installation.

Finally, alternative four in the draft SEIS includes all of the changes and developments of alternatives one, two, and three. It proposes to extend off-road vehicle maneuver capability to all of the Tularosa Basin portion of McGregor Range, including the training areas north of Highway 506 and in the southeast area of the range.

It would also provide for a uniform land use designation across those training areas, allowing for mission facilities, weapons firing, and surface danger zones, in addition to off-road vehicle maneuver. This would make a total of 687,000 acres available for off-road vehicle maneuvers.

Alternative four is the Army's proposed action and preferred alternative, because it offers the most capability, variety, and flexibility to respond to current and future training needs. In evaluating this alternative, the draft SEIS considers the effects of bringing two additional heavy brigade combat teams to Fort Bliss, as well as a second combat aviation brigade.

There are currently no plans to bring any additional units in, other than those identified through Army transformation and BRAC. The impact associated with additional units have been -- have been included in the analysis to help us understand the potential

implications of further expanding the Fort Bliss mission. Like the combat aviation brigade, no decision concerning the additional BCTs will be made at this time.

That concludes my portion of the briefing. Now I would like to turn the briefing over to Walter Christianson to describe the SEIS process.

MR. CHRISTIANSON: Good evening. I'm Walter Christianson from the Fort Bliss Directorate of Environment. I'll give a very brief overview of the SEIS process and the findings of the draft document. However, because of our limited time tonight, I will not be able to describe the contents of the draft SEIS thoroughly or in any detail. I encourage everyone to read the document for yourselves in order to really understand what it means. If you do not have a copy, we have some available tonight and is also available at local libraries and on the Fort Bliss web site.

The draft SEIS was completed in accordance with the National Environmental Policy Act, or NEBA, as well as both the council on environmental quality and the Army's implementing regulations. The document addresses the environmental and socioeconomic impacts from the five alternatives described by Colonel Kirby in 14 different resource areas.

This document is considered a draft because it reflects the Army's assessment of expected impacts, but we want your input before we finalize our analysis and provide conclusions to the decision maker -- to the decision maker for consideration. All comments received during the public comment period, including any comments made tonight, will be addressed in the final SEIS and provided to the decision maker. Tonight is an important step in this process.

The SEIS process began with the publication of a notice of intent in the Federal Register on November 15 of last year. This initiated a scoping period, during which we asked for public input on topics to be addressed in the SEIS. We held public meetings last December as part of the scoping process.

The draft SEIS was distributed for public review and comment on October 6 of this year. NEBA regulations require a minimum of 45 days of public review and comment, but we provided for an extended comment period, which ends December 12, 2006. Anyone wishing to make comments on the draft SEIS needs to submit those comments by the deadline of December 12 in order for them to be included in the final SEIS. The comments you offer tonight will be included and addressed in the final document.

Under our current schedule, we aim to complete and distribute the final SEIS next spring. After the notice of availability is published in the Federal Register, we will wait at least 30 days before issuing a record of decision. The record of decision will specify which alternative the Army has selected and list any mitigation measures that will be adopted to reduce environmental impacts. Both the final SEIS, notice of availability, and the record of decision will be publicly announced and posted at the Fort Bliss web site.

These next few slides summarize the main findings of the draft SEIS. I realize this is a lot to absorb, especially during a briefing, but there are fact sheets at the display tables with this information, and you're welcome to take home the fact sheets. Again, to get a thorough understanding of this document is to read it.

Many of the expected effects are related to the influx of new military and civilian personnel at Fort Bliss. With their dependents, these personnel would increase the regional population by over 60,000 people. The additional income and expenditures generated by this population increase are projected to attract almost 60,000 additional people to the region,

for a total population impact of about 120,000 people.

The proposed land use changes in the Fort Bliss training complex, specifically, the increase in off-road vehicle maneuver, will result in some changes in the local vegetation and ecology. The soils in the area are susceptible to wind erosion, so the maneuvers can be expected to generate more dust. However, expert modeling indicates the levels of particulate matter will not exceed air quality standards outside the installation.

There will be more training at the large caliber weapons ranges in Dona Ana and McGregor ranges, so noise levels will increase, especially in communities adjacent to those areas. Safety and hazardous materials and waste issues are not expected to increase significantly because of management processes already in place.

Finally, increased population means more houses and community services will be needed.

I would now like to turn the podium over to Ms. Hiller for the next phase of the meeting. Thank you.

MS. HILLER: Thank you, Mr. Christianson.

So we're now going to take a 15-minute break. During this time, please -- please feel free to

look over the displays and ask questions of Army representatives. This is your opportunity, during the break, to ask questions. The next phase of the hearing, when we reconvene, will be for receiving your comments. It won't be a question and answer period.

So while we've got the displays over here and the subject matter experts, that's where I encourage you-all to take advantage of the opportunity and ask those questions. Now, when you ask your questions, the Army representatives will try to answer those to the best of their ability. However, they may not have the answers readily available, and they may need to get back to you or defer their answers to the SEIS, where the answers will be available to everyone.

So, again, Dr. Corral is here available. He's from the Fort Bliss Directorate of Environment, and he's available if anyone would like assistance in Spanish.

After the 15-minute break, we'll reconvene, take public comments, which will be recorded by Ginger Zachary. And I think we just have a few people speaking tonight. If you didn't sign up to speak, but would like to speak, please go back up to the sign-in table and retrieve your sign-in card and check the little box on there that indicates that you wish to speak.

So we do have rest rooms right here in this facility. They are back here. They lock if you shut the door, which is fine if you're in the rest room, but if you leave the rest room, we just ask that you leave the door open. Or there are rest rooms across the breezeway to your left.

So we'll adjourn for now and reconvene in 15 minutes. Thank you.

(Break taken, 7:02 p.m. to 7:03 p.m.)

MS. HILLER: One other thing I would like to mention, that is, if any of you would like to make verbal comments in private, one on one, Ginger Zachary is available right now during this break where she will transcribe your comments, if you just want to make them in private. Thank you.

(Break taken, 7:03 p.m. to 7:19 p.m.)

MS. HILLER: Okay. We're going to get started, if you-all would take a seat. Thank you.

We've now come to the main purpose of this meeting, and that is, to accept your comments on the draft SEIS. So we have four people that have signed up to speak, and in order to give everyone a chance to have input, we are asking that you limit your comments to five to seven minutes. I do have Beth Ferrell Hale sitting here, who will just kind of give a little wave

if we're getting close to the seven-minute mark.

And as a courtesy to the government officials, I'm going to call on them first. We have one. And then on everyone else in the order that you signed in. When I call your name, please step up to the microphone, speak clearly, so that the court reporter can hear you. If she has trouble hearing or understanding you, I will interrupt and ask you to speak up.

We're committed that we have an accurate record of your comments. And please be aware that your comments will be on the record and printed verbatim in the final SEIS, so don't include any personal information you don't want to have published in the document.

So are there any questions about the public comment process? When you come up, you can step up to the microphone, or if you have a voice that projects, just please come on up so that everyone can hear you.

So we'll go ahead and get started with the first speaker, and that is Bill Hutchison with the El Paso Water Utilities.

MR. HUTCHISON: Oh, that microphone?

My name is Bill Hutchison. I'm the water resources manager for El Paso Water Utilities.

Obviously, there's been some -- there's plenty of information in the EIS regarding water supply and the impacts of this possible decision on water supply, and I'd like to highlight a few things from our perspective.

In 1997, the State adopted a regional planning process for water, and there have been now two regional plans developed. The most recent one was adopted by the State earlier this year. We're in what's known as region E, the far west Texas region. And that plan covered -- has -- has extensive information on the water supply for El Paso County.

Based on that plan, the current supply is -- in the current infrastructure is adequate to meet all demands until the year 2020. At that point, the plan calls for an increase in surface water -- surface water development. In other words, a surface water treatment plant would be built sometime before 2020; and by 2030, there would be the need for importation of groundwater from other parts of West Texas. This plan takes us through the year 2060.

The current capacity of our system, surface water and groundwater, we can deliver 305,000,000 gallons a day. That works out -- based on the availability of surface water and the reasonable

operation of the wells, we can supply something on the order of 230,000 acre-feet a year. A peak demand last year was 162,000,000 gallons a day. So, basically, we have almost twice the capacity for what our peak demand is currently.

In terms of the recent past, ten years ago, when there were about 662,000 people in our service area, our demand was about 130,000 acre-feet. Last year, our demand was 113,000 acre-feet. It's gone down, even though about 80,000 additional people are in the service area.

Our per capita demand has gone down dramatically since the 1970s. This is largely due to a number of conservation measures that have been implemented. Our most recent per capita demand last year was about 137 gallons per person per day. This regional plan that was adopted assumed per capita demand would be 140 and would stay at 140 until the year 2060.

It's obviously built in some conservatism to the plan, because the natural tendency -- or the tendency that we've seen over the last several years, the last couple of decades, is that the per capita demand has gone down.

The PSB will be developing a new goal for per capita demand. Currently, it's 140. That was the

goal set for 2010. We've already exceeded that. And so over the next couple of years, in anticipation of the next regional update, our board will be looking at the data and -- and adopting a new goal that will obviously be lower than the 140.

The rapid population increase that's expected as a result of Fort Bliss will result in a lot of new houses. That's the main water user in this area is from -- from houses, from residential areas.

New houses use less water than older houses. The indoor fixtures are better. The xeriscaping is now required, and most of the new houses are being put in with refrigerated air and not evaporative coolers. So there's plenty of opportunity for this per capita demand trend to continue, if not accelerate.

So in summary, our supplies are adequate through 2020. Our demands have been steadily declining -- or have been steady or declining over the last ten years, despite a population increase that's already been observed.

A plan is in place to meet demands through 2060. The plan will be updated and revised around 2010, because these plans are updated every five years, and that will provide an opportunity to update and revise

these per capita estimates and goals and revisit the timing of additional resource addition in 2020 and the importation schedule in 2030.

Now, the lead time to expand existing facilities, like a surface water plant, is about three years. The lead time for importation, to implement an importation project, is somewhere around seven years. So, in other words, there's adequate time to respond to any unexpected changes.

Our expectation is, is that the demand will continue to stay level or decrease a little bit, possibly start increasing as more troops start coming in and more residents start coming in, but we're in -- we're in -- we're in very good shape waterwise.

Thank you.

MS. HILLER: Thank you.

And I have Bill Addington with the El Paso Regional Sierra Club Group.

MR. ADDINGTON: Thank you, ma'am.

I was asked to read a statement by Kevin Von Finger, who used to work for the department of the environment here at Fort Bliss. He wasn't able to attend today. He's working at Keystone Heritage Park. I'll go ahead and read that, and then if there's time, hopefully, I'll be able to read my short, short

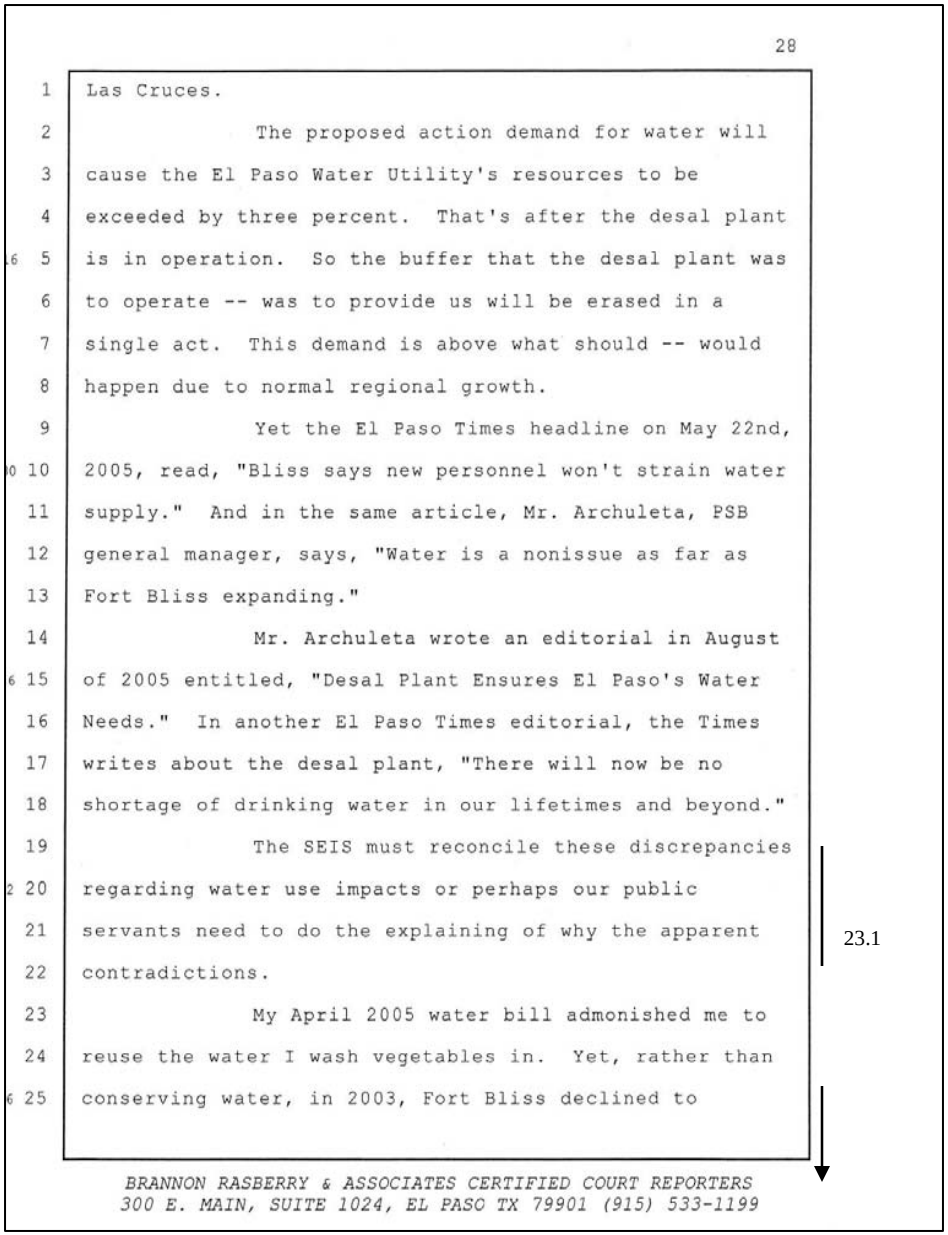
comments.

(Reading) The EIS relates some staggering -- this is Kevin's. The SEIS relates some staggering statistics that should be of concern to all El Pasoans. Speaking just about the proposed effects on people, there will be some winners and some losers.

The winners, especially the developers and retail folks, will make money off the construction activities and increase sales in economic multiplier effects. Their quality of life will increase, since they can afford to purchase it. That is no doubt why the El Paso Chamber of Commerce sent out an e-mail to members yesterday to attend this meeting in support of Fort Bliss. Some jobs will, of course, be created by this action. This is good.

The losers will be the majority of we, the public, especially those on fixed incomes, the elderly and the retirees. Our quality of life will decrease. In fact, the SEIS notes that the quality of life will be affected, and there will -- there probably will be cost-of-living increases.

Here's a list of the quality-of-life and pocketbook issues that will affect most of us in a direct result of this action: We will see an increase in population the city -- the size of the city of



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Las Cruces.

The proposed action demand for water will cause the El Paso Water Utility's resources to be exceeded by three percent. That's after the desal plant is in operation. So the buffer that the desal plant was to operate -- was to provide us will be erased in a single act. This demand is above what should -- would happen due to normal regional growth.

Yet the El Paso Times headline on May 22nd, 2005, read, "Bliss says new personnel won't strain water supply." And in the same article, Mr. Archuleta, PSB general manager, says, "Water is a nonissue as far as Fort Bliss expanding."

Mr. Archuleta wrote an editorial in August of 2005 entitled, "Desal Plant Ensures El Paso's Water Needs." In another El Paso Times editorial, the Times writes about the desal plant, "There will now be no shortage of drinking water in our lifetimes and beyond."

The SEIS must reconcile these discrepancies regarding water use impacts or perhaps our public servants need to do the explaining of why the apparent contradictions.

My April 2005 water bill admonished me to reuse the water I wash vegetables in. Yet, rather than conserving water, in 2003, Fort Bliss declined to

23.1

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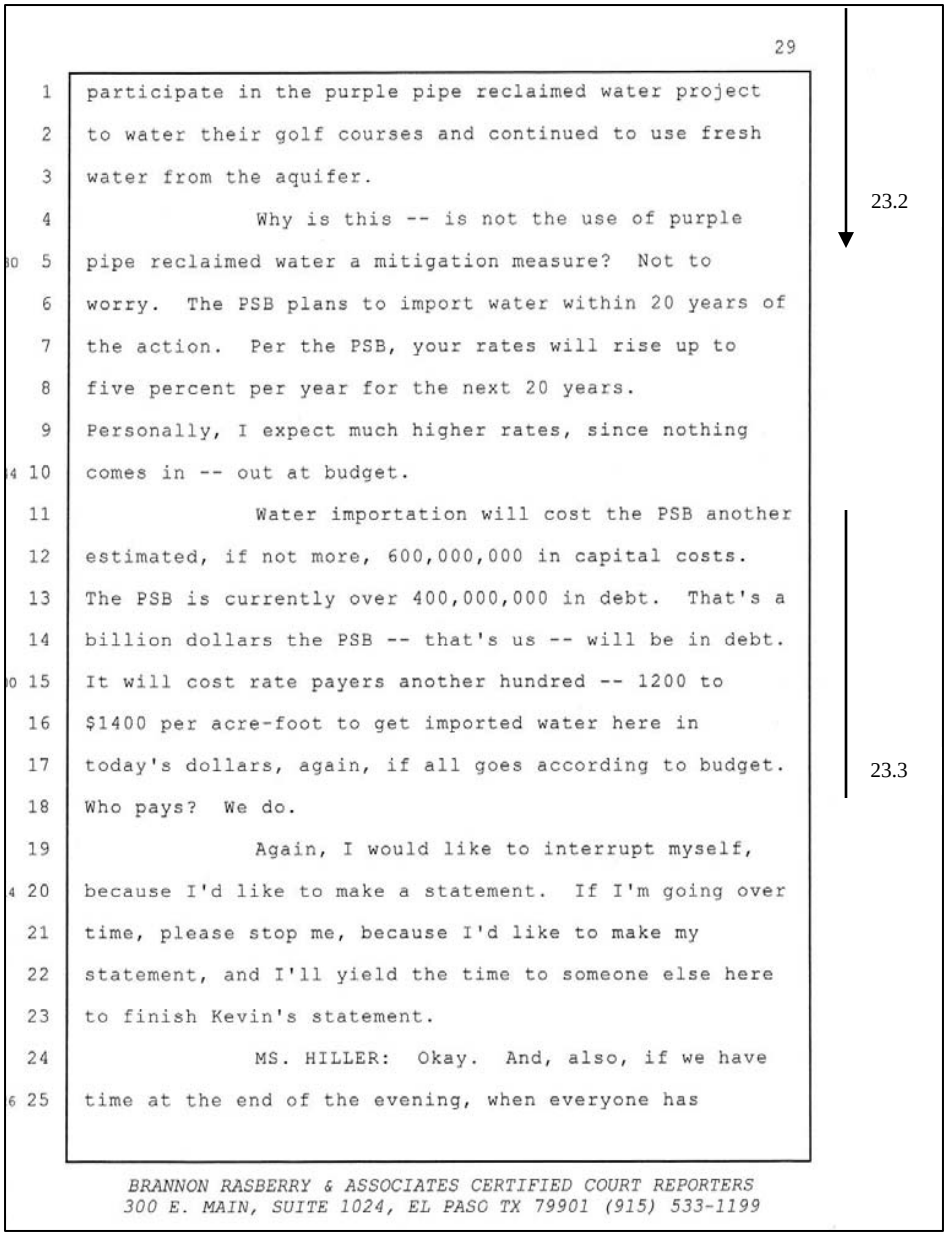
23.1. The SEIS provides a quantitative analysis of expected impacts from the Proposed Action and other alternatives on water resources, considering all existing and planned sources of water. It is not the Army's responsibility to reconcile differing opinions.



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participate in the purple pipe reclaimed water project to water their golf courses and continued to use fresh water from the aquifer.

Why is this -- is not the use of purple pipe reclaimed water a mitigation measure? Not to worry. The PSB plans to import water within 20 years of the action. Per the PSB, your rates will rise up to five percent per year for the next 20 years. Personally, I expect much higher rates, since nothing comes in -- out at budget.

Water importation will cost the PSB another estimated, if not more, 600,000,000 in capital costs. The PSB is currently over 400,000,000 in debt. That's a billion dollars the PSB -- that's us -- will be in debt. It will cost rate payers another hundred -- 1200 to $1400 per acre-foot to get imported water here in today's dollars, again, if all goes according to budget. Who pays? We do.

Again, I would like to interrupt myself, because I'd like to make a statement. If I'm going over time, please stop me, because I'd like to make my statement, and I'll yield the time to someone else here to finish Kevin's statement.

MS. HILLER: Okay. And, also, if we have time at the end of the evening, when everyone has

23.2

23.3

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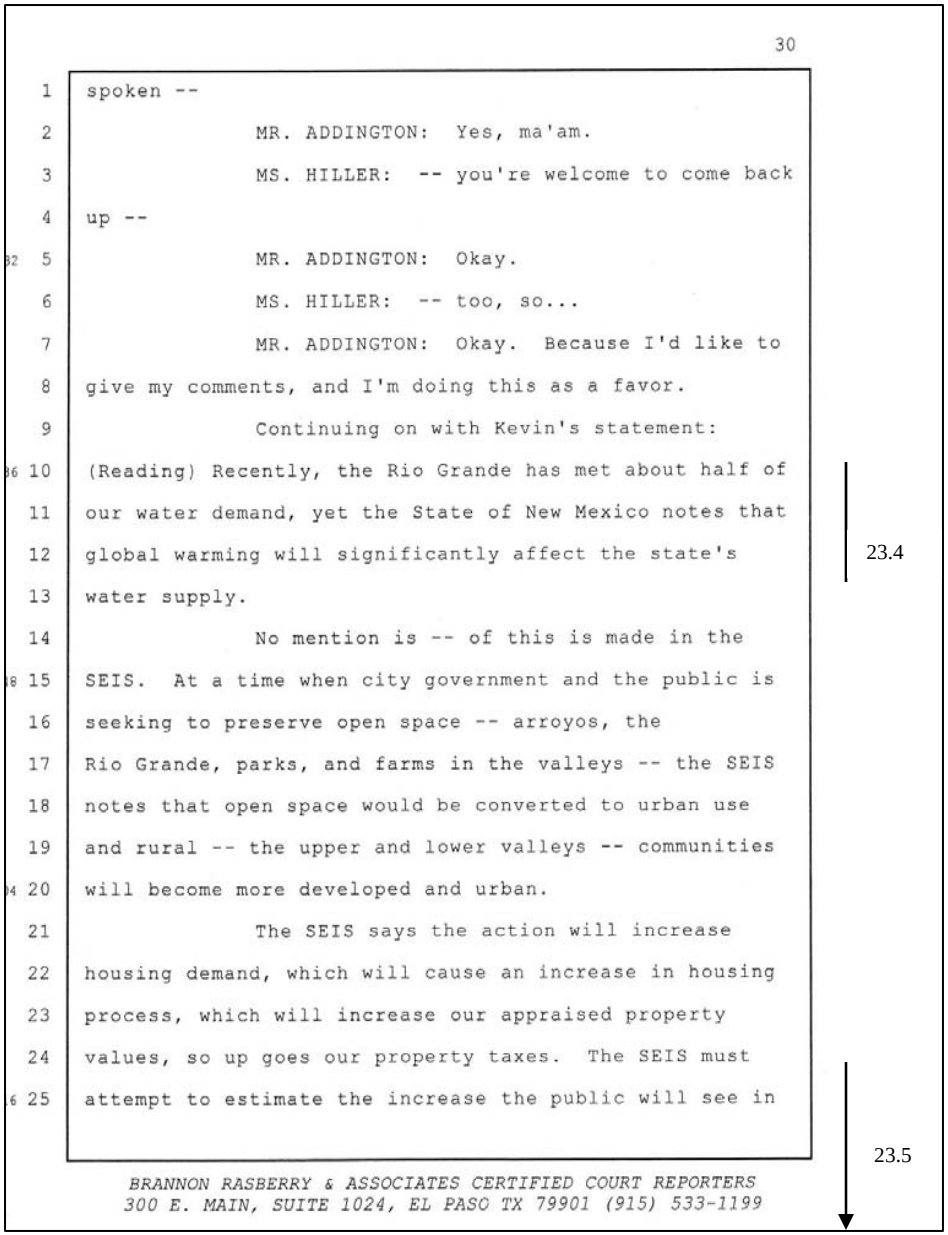
23.2. Fort Bliss is investigating cooperative plans with EPWU for the provision of reclaimed wastewater for use on the installation.

23.3. EPWU expects its current debt load of $400 million to be fully retired by 2026, and much of it before that. As currently planned, EPWU would not be expending any significant funds related to construction of importation facilities until the mid-2020s. The expected importation capital cost of $600 million would be funded by 20-25 percent in cash and the remainder from bonds and grants. The cash funding would come from funds set aside for the next 25 years as part or the 2004 rate increase.



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spoken --

MR. ADDINGTON: Yes, ma'am.

MS. HILLER: -- you're welcome to come back up --

MR. ADDINGTON: Okay.

MS. HILLER: -- too, so...

MR. ADDINGTON: Okay. Because I'd like to give my comments, and I'm doing this as a favor.

Continuing on with Kevin's statement: (Reading) Recently, the Rio Grande has met about half of our water demand, yet the State of New Mexico notes that global warming will significantly affect the state's water supply.

No mention is -- of this is made in the SEIS. At a time when city government and the public is seeking to preserve open space -- arroyos, the Rio Grande, parks, and farms in the valleys -- the SEIS notes that open space would be converted to urban use and rural -- the upper and lower valleys -- communities will become more developed and urban.

The SEIS says the action will increase housing demand, which will cause an increase in housing process, which will increase our appraised property values, so up goes our property taxes. The SEIS must attempt to estimate the increase the public will see in

23.4

23.5

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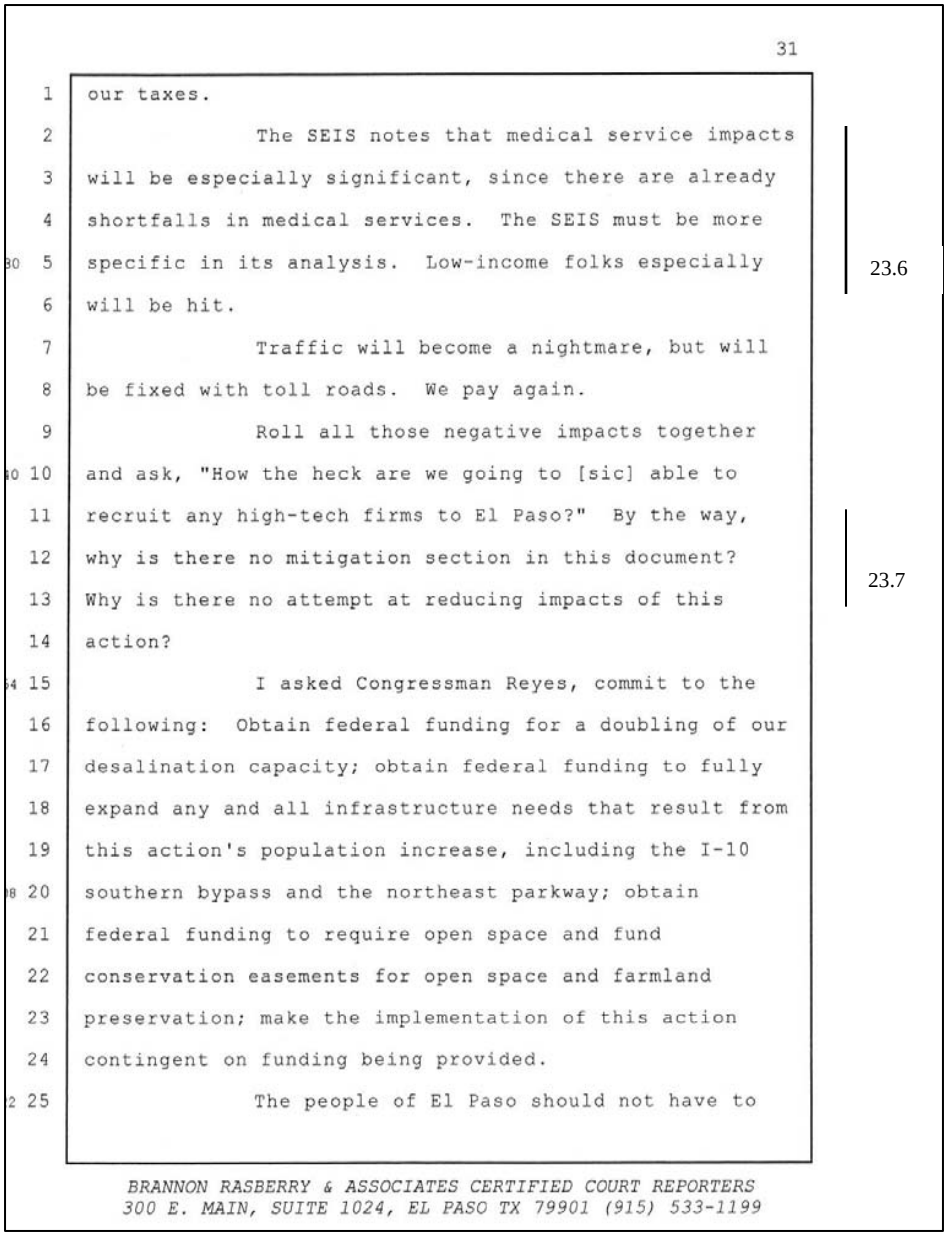
23.4. The report, *The Impact of Climate Change on New Mexico's Water Supply and Ability to Manage Water Resources*, published by the New Mexico Office of the State Engineer/Interstate Stream Commission in July 2006, recognized that "significant uncertainties remain concerning many aspects and predicted aspects of current climate change." It also acknowledged effects of shorter term weather and climate variability. Significant impacts of climate change are predicted "by the end of the century," which is beyond the analytical horizon of this SEIS. More imminent variations are more likely to affect water resources in the near term. Those variations, specifically the drought cycles, have been taken into consideration in water planning in the region of influence.

Additional information about this report has been added to Section 5.15 of the Final SEIS.

23.5. More information on revenues and costs for public services has been added to Section 5.13 of the Final SEIS. This does not account for increased earnings, however. It is not possible to determine whether property taxes will increase relative to earnings.



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our taxes.

The SEIS notes that medical service impacts will be especially significant, since there are already shortfalls in medical services. The SEIS must be more specific in its analysis. Low-income folks especially will be hit. 23.6

Traffic will become a nightmare, but will be fixed with toll roads. We pay again.

Roll all those negative impacts together and ask, "How the heck are we going to [sic] able to recruit any high-tech firms to El Paso?" By the way, why is there no mitigation section in this document? Why is there no attempt at reducing impacts of this action? 23.7

I asked Congressman Reyes, commit to the following: Obtain federal funding for a doubling of our desalination capacity; obtain federal funding to fully expand any and all infrastructure needs that result from this action's population increase, including the I-10 southern bypass and the northeast parkway; obtain federal funding to require open space and fund conservation easements for open space and farmland preservation; make the implementation of this action contingent on funding being provided.

The people of El Paso should not have to

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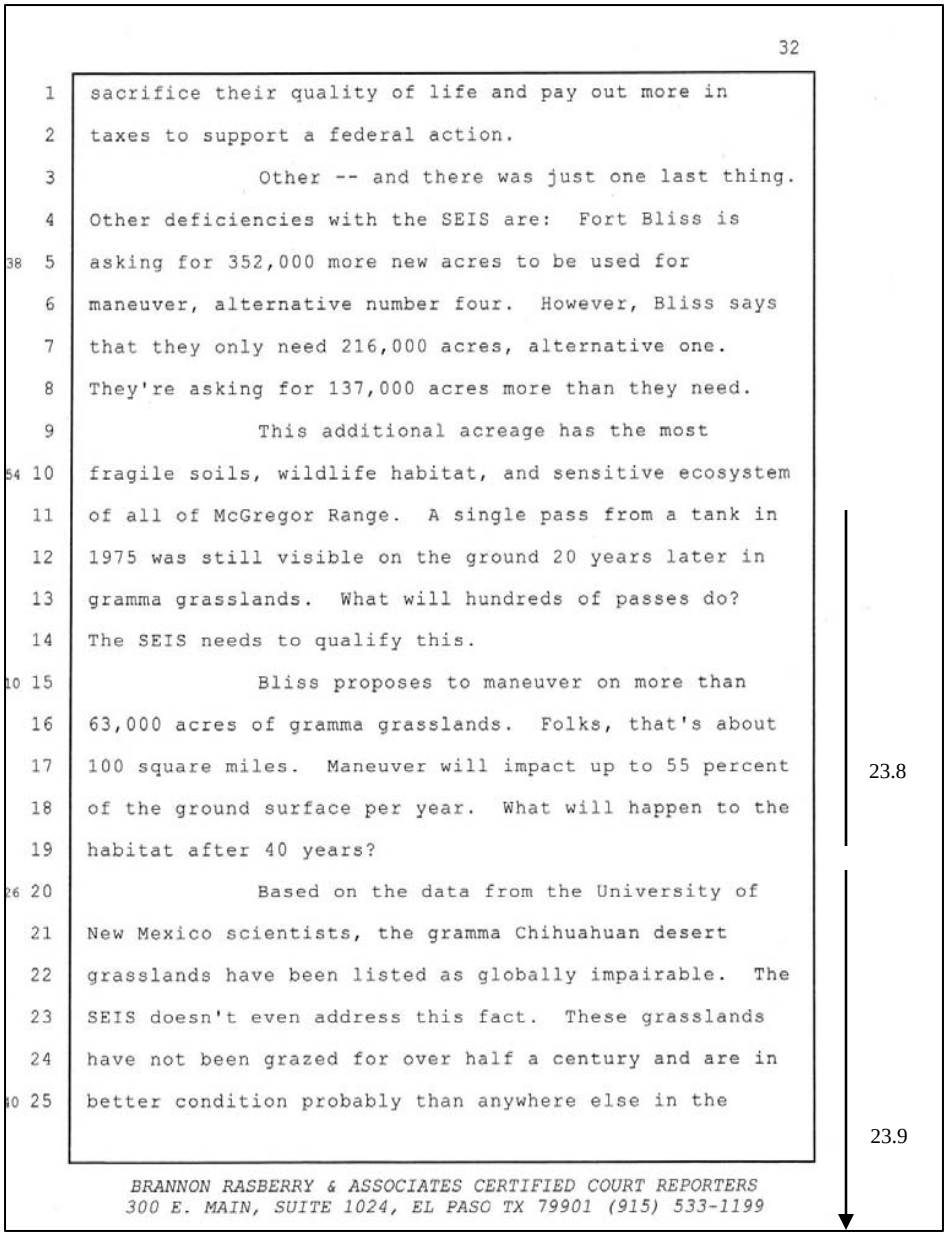
23.6. The SEIS specifically and quantitatively estimates the number of additional medical professionals and hospital beds that would be needed, based both on existing ratios and on more common Rau and Wooten ratios. The difference between the two reflects the additional needs created by the existing shortfalls.

23.7. The Draft SEIS included numerous measures to reduce impacts. The fact that they were not in a single section does not mean they were absent. A new Chapter 6.0 has been added to the Final SEIS to consolidate the discussion of mitigation measures.



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sacrifice their quality of life and pay out more in taxes to support a federal action.

Other -- and there was just one last thing. Other deficiencies with the SEIS are: Fort Bliss is asking for 352,000 more new acres to be used for maneuver, alternative number four. However, Bliss says that they only need 216,000 acres, alternative one. They're asking for 137,000 acres more than they need.

This additional acreage has the most fragile soils, wildlife habitat, and sensitive ecosystem of all of McGregor Range. A single pass from a tank in 1975 was still visible on the ground 20 years later in gramma grasslands. What will hundreds of passes do? The SEIS needs to qualify this.

Bliss proposes to maneuver on more than 63,000 acres of gramma grasslands. Folks, that's about 100 square miles. Maneuver will impact up to 55 percent of the ground surface per year. What will happen to the habitat after 40 years?

Based on the data from the University of New Mexico scientists, the gramma Chihuahuan desert grasslands have been listed as globally impairable. The SEIS doesn't even address this fact. These grasslands have not been grazed for over half a century and are in better condition probably than anywhere else in the

23.8

23.9

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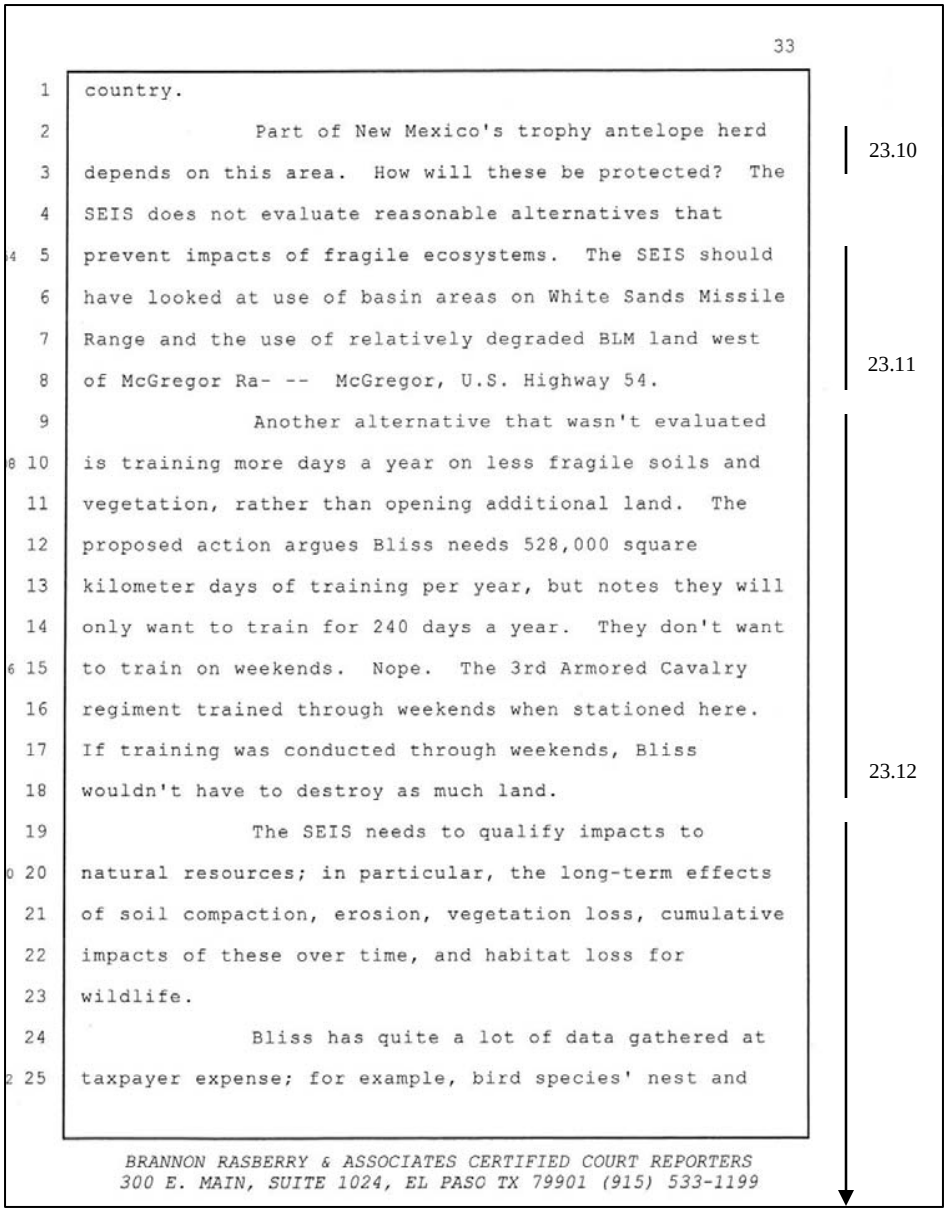
23.8. The SEIS describes the expected effects of repeated off-road vehicle maneuvering, including loss of vegetation, reduction in wildlife density, transition in ecosystem stage, increased erosion, and other impacts.

23.9. The Army recognized the global importance of the black grama grasslands in the Fort Bliss INRMP (2001), which is incorporated in the SEIS by reference. The specific grassland alliance is the black grama-blue grama alliance, which comprises a portion of the mesa grassland vegetation shown in Section 4.8 of the SEIS. Approximately 18 percent of all the mesa grasslands on Fort Bliss are within the areas proposed for off-road vehicle maneuvers. Therefore, something less than 18 percent of the alliance is at risk by the Proposed Action, and the impact analysis points out that most of the mesa grasslands will continue to exist. This Alliance also occurs elsewhere in the Chihuahuan Desert.



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country.

Part of New Mexico's trophy antelope herd depends on this area. How will these be protected? The SEIS does not evaluate reasonable alternatives that prevent impacts of fragile ecosystems. The SEIS should have looked at use of basin areas on White Sands Missile Range and the use of relatively degraded BLM land west of McGregor Ra- -- McGregor, U.S. Highway 54.

Another alternative that wasn't evaluated is training more days a year on less fragile soils and vegetation, rather than opening additional land. The proposed action argues Bliss needs 528,000 square kilometer days of training per year, but notes they will only want to train for 240 days a year. They don't want to train on weekends. Nope. The 3rd Armored Cavalry regiment trained through weekends when stationed here. If training was conducted through weekends, Bliss wouldn't have to destroy as much land.

The SEIS needs to qualify impacts to natural resources; in particular, the long-term effects of soil compaction, erosion, vegetation loss, cumulative impacts of these over time, and habitat loss for wildlife.

Bliss has quite a lot of data gathered at taxpayer expense; for example, bird species' nest and

23.10

23.11

23.12

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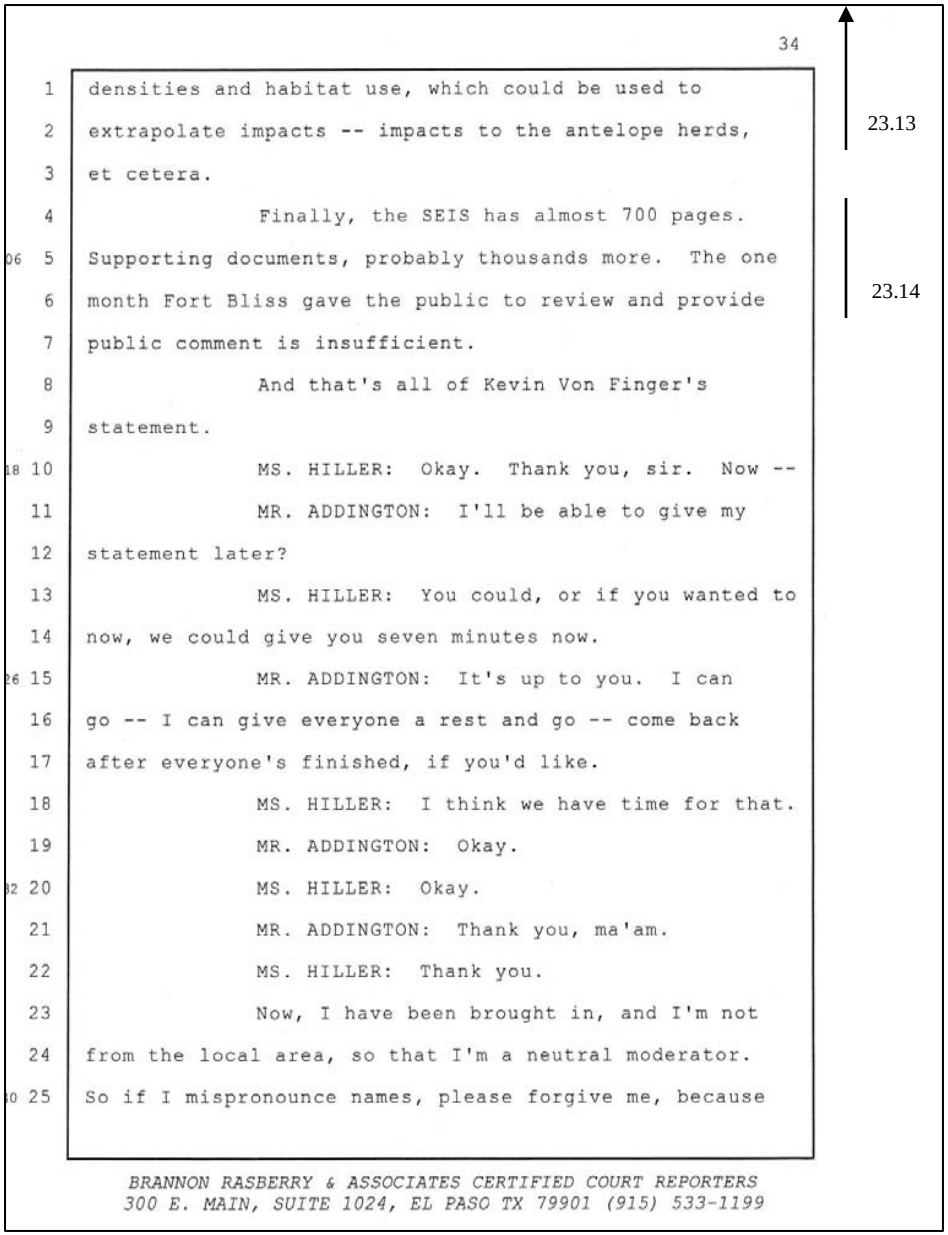
23.10. Most of the pronghorn at Fort Bliss are on Otero Mesa. No land use changes are proposed for Otero Mesa. Large numbers of pronghorn are not found in the Tularosa Basin below Otero Mesa, though some are regularly found in the mesa grasslands below the mesa. Off-road vehicle maneuvers may reduce the number of pronghorn in the area below Otero Mesa, but antelope are expected to continue to use this area. The Proposed Action is not expected to significantly affect pronghorn.

23.11. White Sands Missile Range does not currently provide adequate off-road vehicle maneuver capability to meet the needs of units that will be stationed at Fort Bliss. Expanding off-road vehicle maneuver capability at White Sands for training was eliminated from further consideration because that installation's primary mission is to support Research, Development, Test and Evaluation and it would not be able to sustain its primary mission and support the intensity of training needed by Fort Bliss units. Section 3.8 of the Final SEIS has been expanded to include this explanation.

Using public land for off-road vehicle maneuver training requires a withdrawal under the Engle Act. As noted in Section 3.8.3, the time required to acquire this land would not support the schedule imposed by the Base Realignment and Closure decisions.

23.12. It is expected that some training would occur over weekends, but 242 training days per year is considered a reasonable level of use for sustaining the training lands. Weather conditions, maintenance requirements, and environmental management activities are some of the practical factors that affect the percentage of time that a training area can be used. In addition, a higher level of use, which would be required under some of the alternatives analyzed, would affect public access to Fort Bliss lands for recreation and hunting. As noted in Section 3.3.2, even if the training areas currently authorized for off-road vehicle maneuver were used 365 days per year, there would be insufficient capability to meet Fort Bliss' training requirements.



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densities and habitat use, which could be used to extrapolate impacts -- impacts to the antelope herds, et cetera.

Finally, the SEIS has almost 700 pages. Supporting documents, probably thousands more. The one month Fort Bliss gave the public to review and provide public comment is insufficient.

And that's all of Kevin Von Finger's statement.

MS. HILLER: Okay. Thank you, sir. Now --

MR. ADDINGTON: I'll be able to give my statement later?

MS. HILLER: You could, or if you wanted to now, we could give you seven minutes now.

MR. ADDINGTON: It's up to you. I can go -- I can give everyone a rest and go -- come back after everyone's finished, if you'd like.

MS. HILLER: I think we have time for that.

MR. ADDINGTON: Okay.

MS. HILLER: Okay.

MR. ADDINGTON: Thank you, ma'am.

MS. HILLER: Thank you.

Now, I have been brought in, and I'm not from the local area, so that I'm a neutral moderator. So if I mispronounce names, please forgive me, because

23.13

23.14

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23.13. All of these impacts were discussed in the Draft SEIS, specifically in Sections 5.5, 5.8, and 5.15. To the extent foreseeable, the Draft SEIS estimated effects quantitatively and described the context and intensity of the impacts, considering the factors listed in Council on Environmental Quality Regulations at 40 CFR 1508.27.

23.14. The Draft SEIS was available for public review for 60 days. The supporting documents were made available in local libraries, and everyone on the mailing list was sent a notice of their availability several months in advance to give the public more time to understand the information and review the Draft SEIS within the 60-day public review period.

I'm from the north.

So I'd like to now call on -- I think it's Richard Dayoub?

MR. DAYOUB: That was pretty close. You did fine.

Good evening. For the record, I am Richard Dayoub, or Dayoub, and I am the president of the El Paso Chamber of Commerce. I will try to keep my comments extremely brief, but I took some notes on Mr. -- I'm sorry.

MR. ADDINGTON: Addington.

MR. DAYOUB: -- Addington was speaking, and I just would like to point out a few things.

I have no idea how long you've been in El Paso. I've been here for 36 years plus.

MR. ADDINGTON: I've lived here all my life.

MR. DAYOUB: And I was among the many people in this room who were here when we lost the 3rd ACR, and I can tell you that was, as it should have been, a wake-up call for El Paso, and it was.

And fortunately for us, General Costello was here at the time, and Congressman Reyes had just taken office. And together with them, we worked as a community to commit to ourselves, we would never allow

something of that magnitude to impact our economy again.

And for those of you who don't know the real numbers, we lost, at a minimum, 5,000 soldiers. That's not counting their families and other dependents that left El Paso. And we lost them. That impact to our economy was in the billions of dollars.

Granted, there are challenges, and you pointed out some of those challenges with regard to an increased usage and a modified usage of the ranges from what we're currently experiencing with the PATRIOT program, as an example.

But the realities are -- and I speak to this from experience -- that the other alternative would have been for Fort Bliss to shrink again. And I can tell you, because the chamber was actively engaged, along with our congressman and others in the community, our city, Red Coat Development Group joined us in the process, and we worked diligently over the last several years in the last round of BRAC.

And I can tell you that we were very close to losing the current missions that we have here. And I can tell you that in a meeting with General Lust at the Pentagon, the message finally rang true when we delivered the message regarding our availability of water supply. And it wasn't until that decision was

made and until that information was available for that decision, that we were recognizing that we had the opportunity to grow our installation and grow our economy.

The -- excuse me. The chamber sent out the message, by the way, to our membership not to come out here necessarily to speak to the issue, but to inform our members, because that's our primary mission. We have 1400 business members, which exceeds 11 percent of the business population in El Paso, and it's our responsibility to inform them of what's going on and how that may or may not impact their business.

As I mentioned, we were a primary participant in the BRAC process. We were also a partner with our congressman in working in Washington to make sure that the funding that came together with the Public Service Board's investment from the Pentagon, so that we could have the desalination plan that we have now under construction, hopefully to open in the -- in the fall of 2007, with 26 and a half million gallons of fresh water produced daily, which not only improve our water supply, but will also help minimize the current dissipation, if you will, of our current fresh water supply that's in the bolson, along with the brackish water, a key component, I might add.

There was a comment made with regard to increasing our taxes and our cost of living and challenging the quality of life. I would argue that it, in fact, is the opposite. We have a challenge in this community today, as many communities do, particularly on the border complexes; and that is, we don't have a tax base to support the needs of this community.

Without Fort Bliss, we are still a growing population. And with that growing population, we have a need for more schools, such as the one we're in tonight; a need for more highways; a need for better infrastructure in our community to support the growth of our community.

And what we've been doing in the past has been putting it on the backs -- exclusively almost -- we are an imbalance in El Paso versus the rest of the state. We are -- approximately 60 percent of our residential tax base supports our operations in this community and 40 percent business. It needs to be the reverse of that.

And we have companies who are relocating to El Paso all the time now, including ADP. And with that group of those businesses coming to El Paso, we're going to start seeing the proper shift and a bigger base of the business community supporting the tax infrastructure

and a smaller base of the homeowners.

If we don't have more homes and we don't have more taxpayers in those homes, then we are destined to support from a small base a bigger burden. I mean, it's just simply basic mathematics. So I need to point that out to all those that are concerned about the infrastructure.

Tonight is not the time to get into a debate with regard to toll roads and other issues. Those are issues that we face irrespective of what happens at Fort Bliss.

But the economy today in El Paso depends on Fort Bliss, somewhere around 15 percent of our domestic annual product. With the growth of Fort Bliss, that number will easily reach the 18 to 19 percentile. And I can promise you that without Fort Bliss, our tax base and our -- and our domestic product, our gross annual domestic product, would diminish dramatically, and then we'd have a lot more people out of work and a lot more people who can't afford to make house payments, and then the rest of the community would be burdened with the support of all public services as a result of that.

I think, with my closing comment, I would just simply say that Fort Bliss -- and I know this because across the country, I'm being called by people

asking me what the secret to our success has been. I will tell you that Fort Bliss will impact this community at a greater level -- and I might add, without a -- any tax incentives provided to them -- a greater impact to our economy than Toyota's plant in San Antonio.

I want to restate that for you. It is a greater economic impact to this community on an annual basis than the new Toyota plant will be to San Antonio. And I can promise you, the tax incentives that were provided in San Antonio to Toyota were in the hundreds of millions of dollars that that community will be paying for for the next 50 years.

So we need to embrace this environment and recognize that with plan four, Fort Bliss needs that space to work with. Their mission has changed. No matter what you feel or how you feel about the war going on in Iraq and Afghanistan, the reality of it is, we face challenges across the world today, and we must be prepared for that. We cannot prepare for that magically.

And I will add one last closing statement: If we're not prepared to service the needs of Fort Bliss, I can promise you, there are communities across this state and across this country that are literally licking their chops, hoping that we fail, so they can be

the recipients of all these missions.

Thank you so much.

MS. HILLER: Thank you. Lawrence Gibson?

MR. GIBSON: I'll do written comments.

MS. HILLER: Okay. Thank you, Mr. Gibson.

Bob Geyer? Would you like me to adjust that?

MR. GEYER: No, that's all right.

MS. HILLER: Thank you very much.

MR. GEYER: Hopefully, I won't be driving the tanks.

Just a word, Mr. Dayoub. You and I go back a ways, but --

And he's representing the chamber of commerce. I just want everybody to know, I respect Mr. Dayoub, but the chamber of commerce voted -- their board of directors, 100 percent, for the reopening of ASARCO, too. And I think --

MR. DAYOUB: That's incorrect, by the way.

MR. GEYER: Oh, excuse me?

MR. DAYOUB: That is incorrect.

MR. GEYER: What is correct, then?

MR. DAYOUB: The chamber did not support the reopening or closing of ASARCO.

MR. GEYER: That is what I read in the

paper.

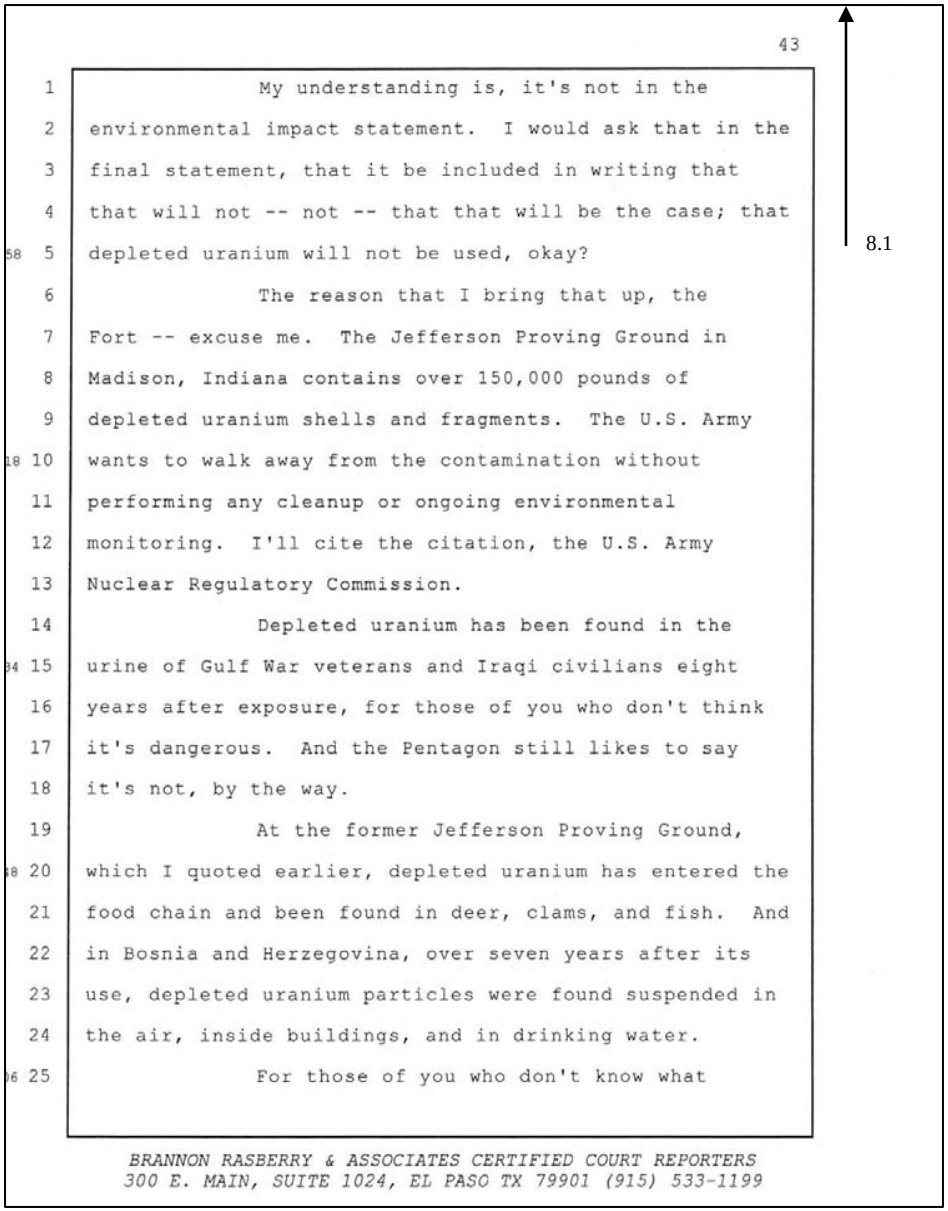
MR. DAYOUB: That is not true.

MR. GEYER: Okay. Well, I'm glad to hear that. I hope you-all come out and close it. But, anyway, a lot of the business community is for the reopening of ASARCO. I think I can say that safely. I've seen that, particularly with our last senatorial election.

Anyway, one thing that I'm concerned about -- and I asked this question of some of the experts here -- of whether or not depleted uranium would be used. And the reason I ask that question, because I know that M-1 tanks are -- will be used in this area. In fact, I think they're already currently used out there, my understanding.

And M-1 tanks, I can read that the most -- the most common depleted uranium weapons in the U.S. arsenal are 120-millimeter shells fired by M-1 tanks and 30-millimeter shells fired by A-10 aircraft.

I did ask the question whether or not the M-1 tanks were -- had the completed uranium. I was told that that's something that's put on out in the battlefield; that they're not used here. And I was also told that the shells are not tipped with depleted uranium.



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My understanding is, it's not in the environmental impact statement. I would ask that in the final statement, that it be included in writing that that will not -- not -- that that will be the case; that depleted uranium will not be used, okay?

The reason that I bring that up, the Fort -- excuse me. The Jefferson Proving Ground in Madison, Indiana contains over 150,000 pounds of depleted uranium shells and fragments. The U.S. Army wants to walk away from the contamination without performing any cleanup or ongoing environmental monitoring. I'll cite the citation, the U.S. Army Nuclear Regulatory Commission.

Depleted uranium has been found in the urine of Gulf War veterans and Iraqi civilians eight years after exposure, for those of you who don't think it's dangerous. And the Pentagon still likes to say it's not, by the way.

At the former Jefferson Proving Ground, which I quoted earlier, depleted uranium has entered the food chain and been found in deer, clams, and fish. And in Bosnia and Herzegovina, over seven years after its use, depleted uranium particles were found suspended in the air, inside buildings, and in drinking water.

For those of you who don't know what

8.1

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8.1. U.S. Army Regulation 385-63, paragraph 2-5A (3), prohibits the firing of depleted uranium ammunition in the continental United States unless approved by the Chief of Staff of the Army or the Commandant of the Marine Corps. No exception has been provided to Fort Bliss nor is one anticipated. This regulation applies to tanks and A-10 aircraft. Furthermore, no live ammunition (rounds that explode) will be fired by M1 tanks on the live-fire and qualification ranges or anywhere on Fort Bliss. When using the ranges to qualify and train crews, tanks fire a 120 millimeter training round that consists of an inert steel dart. Targets are typically composed of wood, cardboard, or other synthetic materials. "Hits" are registered and scored electronically.

A discussion of depleted uranium has been added in Section 5.12 of the Final SEIS.

depleted uranium is, it's -- you know, when uranium is broken down, there's always got to be some waste, and depleted uranium is one of those. And it can be -- obviously, what it does, when a shell hits a tank, it causes a mild explosion, and what -- this helps penetrate the metal, and there is dust particles that are -- fly into the air, and this is depleted uranium that is exposed to the air.

Well, we all know about our wind around here, and our water supply, the Hueco Bolson, my understanding, is right underneath the McGregor Range site or certainly close by, and it's something that we should be concerned about.

You know, there are jobs with Fort Bliss. We all know that. There were jobs with ASARCO, but that doesn't mean the jobs are necessarily good for a community. And so it's something we need to watch, and hopefully I was told the truth tonight, but I would like that verified in the plan.

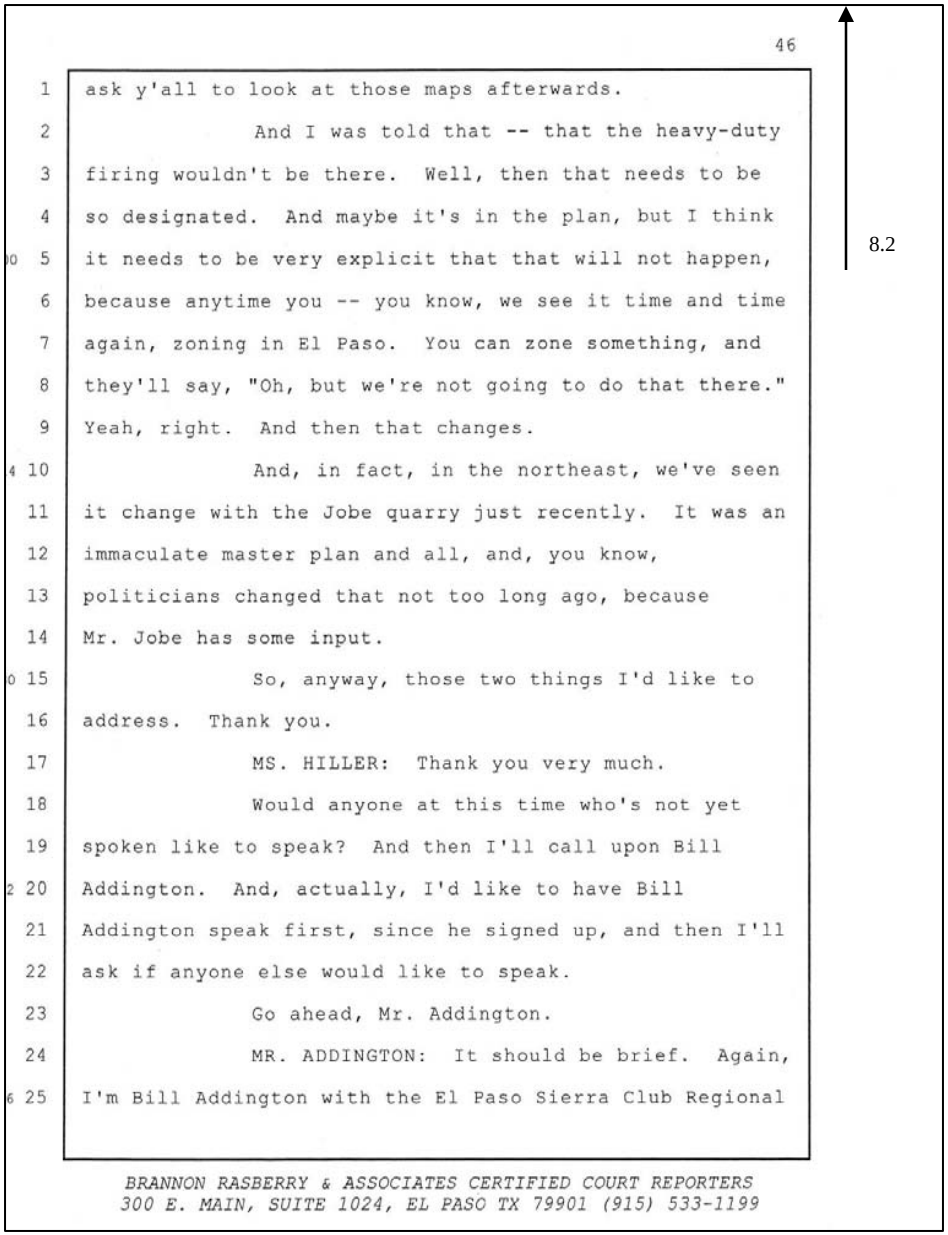
Depleted uranium contains uranium isotope 238, 234, and 235. It has a half-life -- and that's how long until it turns into another substance -- of 4.5 billion years. And the thing here is, you know, you're not just going in once. You're going to be using these weapons over and over and over again, like what

was done in Indiana. So I hope I'm being told the truth.

Depleted uranium emits about 60 percent as much alpha radiation as natural-occurring uranium that has been processed and concentrated, about 85 percent as much gamma radiation, and essentially the same amount of beta radiation. Depleted uranium's chemical toxicity is the same as that of natural uranium. Anyway, I probably beat that horse long enough, but I hope it doesn't come up.

Anyway, second thing is, looking at the maps, I don't know if y'all looked there, but the one in the middle of the brown area dips way down lower than -- than it presently does. And if you look at the maps, the brown area allows what's called mission -- mission action, or whatever, mission.

Well, I ask the question -- mission allows live firing, okay? Well, that's all to the south, and it dips way down, real close to the city limits of El Paso, and that's in alternative three and four, where that brown area dips way down. So I'm concerned about that, particularly depending on what type of weapons are used. But if you look at the other ones, the brown does not go down into -- into the tip, alternative one, two, and the existing situation up on the far right. I would



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ask y'all to look at those maps afterwards.

And I was told that -- that the heavy-duty firing wouldn't be there. Well, then that needs to be so designated. And maybe it's in the plan, but I think it needs to be very explicit that that will not happen, because anytime you -- you know, we see it time and time again, zoning in El Paso. You can zone something, and they'll say, "Oh, but we're not going to do that there." Yeah, right. And then that changes.

And, in fact, in the northeast, we've seen it change with the Jobe quarry just recently. It was an immaculate master plan and all, and, you know, politicians changed that not too long ago, because Mr. Jobe has some input.

So, anyway, those two things I'd like to address. Thank you.

MS. HILLER: Thank you very much.

Would anyone at this time who's not yet spoken like to speak? And then I'll call upon Bill Addington. And, actually, I'd like to have Bill Addington speak first, since he signed up, and then I'll ask if anyone else would like to speak.

Go ahead, Mr. Addington.

MR. ADDINGTON: It should be brief. Again, I'm Bill Addington with the El Paso Sierra Club Regional

8.2

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8.2. The Army proposes to add the training categories of Mission Support Facility, Weapons Firing, and Surface Danger Zone to all of the South Training Areas under Alternatives 3 and 4 in order to provide flexibility for siting facilities and firing ranges in those areas in the future. There are no plans to conduct heavy weapons firing in the South Training Areas, but there may be a future need for additional small-arms ranges there.

Weapons firing only occurs at designated live-fire ranges that are located and designed to ensure the associated Surface Danger Zones are wholly contained within the installation boundaries, following specific safety criteria. There will be no uncontained, general firing of live weapons in the training areas.

Group here in El Paso, Texas. I'm a fifth-generation west Texan. I live in Sierra Blanca, Texas. I've lived here all my life. We have a farm in Sierra Blanca, just to qualify Mr. Dayoub's statements if I have lived here very long.

I made some notes. These are impromptu. I have not examined the SES [sic] document or the preceding document, which I intend to. I am familiar with NEBA law, having addressed it on previous occasions. I do have some impromptu observations and comments, which I'll keep brief.

This is Chihuahuan Desert, high-desert ranch land. It's very fragile. I know that. We've been ranching and farming in this region, like I said, for about five generations.

I believe, as I know of all of Chihuahuan high-desert rangeland, the grasses and desert is sensitive to off-road vehicle use, whether it be track vehicles or off-road vehicles of any kind, tanks, fighting vehicles, Jeeps, whatever. It is sensitive to it and takes a long time to recover, sometimes more than a hundred years.

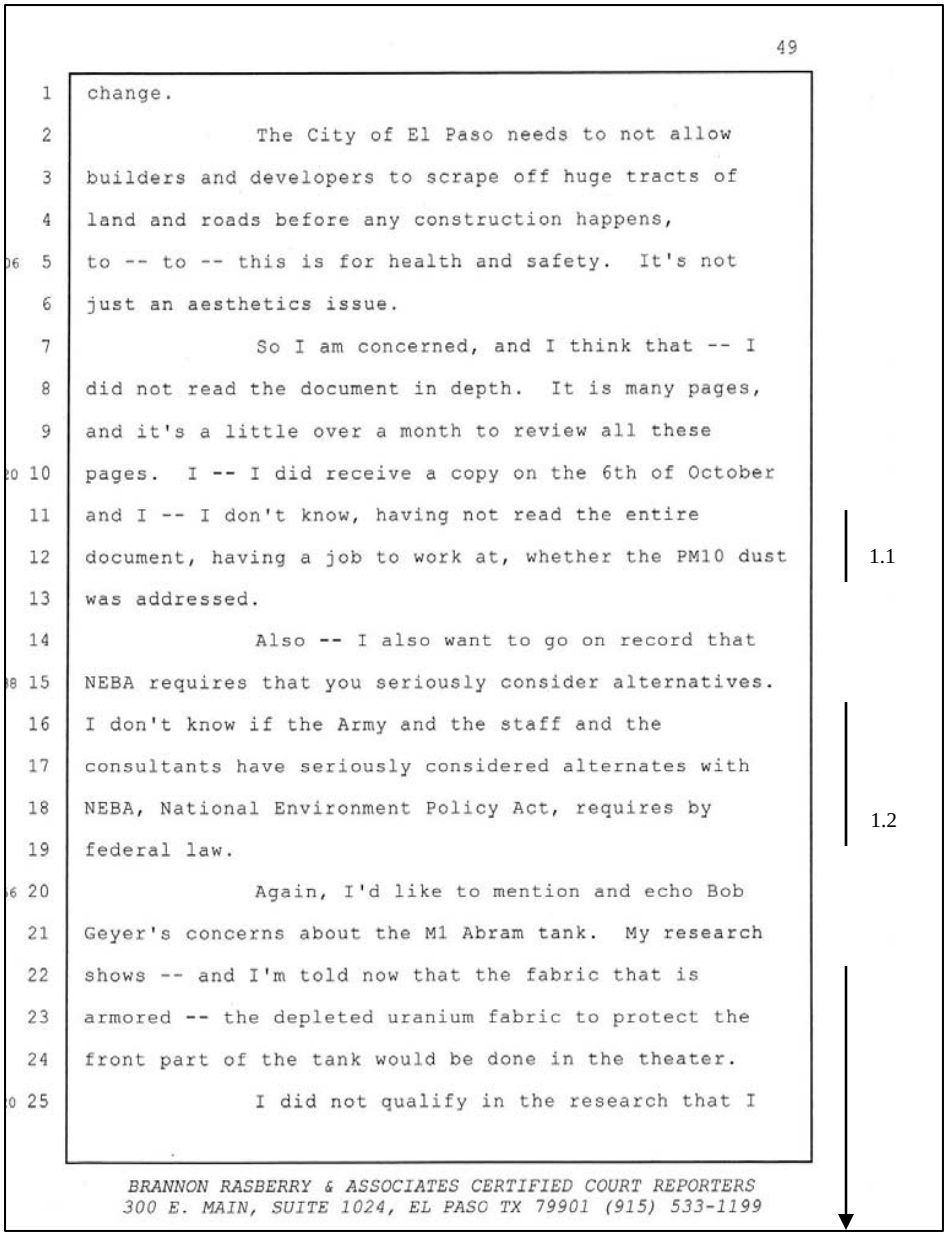
The new mission which -- here at Fort Bliss, which I supported whole heartedly, was air defense, the main mission. Unfortunately, El Pasoans

and the chamber of commerce -- I don't know if the chamber did or not. I shouldn't mention that -- but some of the leaders, I don't think, fought hard enough to retain that mission.

To me, that's where all the high-tech jobs were, where we got the best -- best economic benefit at the least impact for the city. I don't know how much Raytheon will be leaving, but I have friends working at Raytheon that were experts in the field of air defense.

Now we're moving to a new mission of tanks coming from Germany and elsewhere, track vehicles, not so high tech, maybe, and I know there will be an economic impact of sales and whatnot. There will also be impacts on -- I agree with Mr. Von Finger -- of quality of life, traffic, impacts to our water system, and demands on our water.

The dust problem. There will be a PM10 and PM2.5 hearing by TCEQ coming up recently at the state office on Franklin Avenue soon. The tanks -- I will be commenting about that. Tanks and vehicles will contribute to the PM10 dust problem and maybe the P- -- the finer dust problem here in our region, which is already a problem, because the City right now, and has historically, allowed development, scraping of the land years before any buildings come on it. That needs to



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change.

The City of El Paso needs to not allow builders and developers to scrape off huge tracts of land and roads before any construction happens, to -- to -- this is for health and safety. It's not just an aesthetics issue.

So I am concerned, and I think that -- I did not read the document in depth. It is many pages, and it's a little over a month to review all these pages. I -- I did receive a copy on the 6th of October and I -- I don't know, having not read the entire document, having a job to work at, whether the PM10 dust was addressed. 1.1

Also -- I also want to go on record that NEBA requires that you seriously consider alternatives. I don't know if the Army and the staff and the consultants have seriously considered alternates with NEBA, National Environment Policy Act, requires by federal law. 1.2

Again, I'd like to mention and echo Bob Geyer's concerns about the M1 Abram tank. My research shows -- and I'm told now that the fabric that is armored -- the depleted uranium fabric to protect the front part of the tank would be done in the theater.

I did not qualify in the research that I

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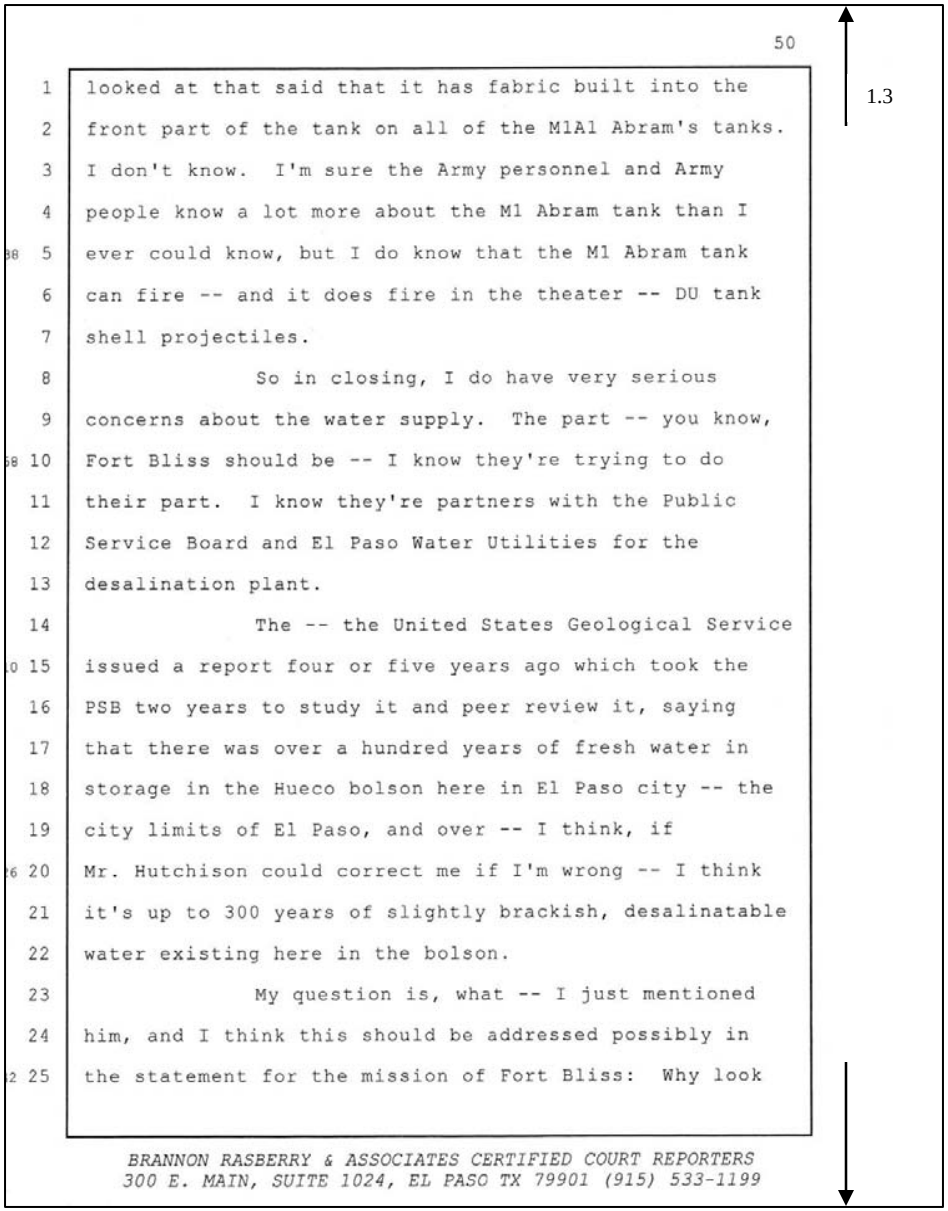
1.1. PM_{10} from fugitive dust associated with the Proposed Action and other alternatives was addressed in Section 5.6 of the Draft SEIS.

1.2. The Draft SEIS examined five land use alternatives in detail, including the No Action Alternative.



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looked at that said that it has fabric built into the front part of the tank on all of the M1A1 Abram's tanks. I don't know. I'm sure the Army personnel and Army people know a lot more about the M1 Abram tank than I ever could know, but I do know that the M1 Abram tank can fire -- and it does fire in the theater -- DU tank shell projectiles.

So in closing, I do have very serious concerns about the water supply. The part -- you know, Fort Bliss should be -- I know they're trying to do their part. I know they're partners with the Public Service Board and El Paso Water Utilities for the desalination plant.

The -- the United States Geological Service issued a report four or five years ago which took the PSB two years to study it and peer review it, saying that there was over a hundred years of fresh water in storage in the Hueco bolson here in El Paso city -- the city limits of El Paso, and over -- I think, if Mr. Hutchison could correct me if I'm wrong -- I think it's up to 300 years of slightly brackish, desalinatable water existing here in the bolson.

My question is, what -- I just mentioned him, and I think this should be addressed possibly in the statement for the mission of Fort Bliss: Why look

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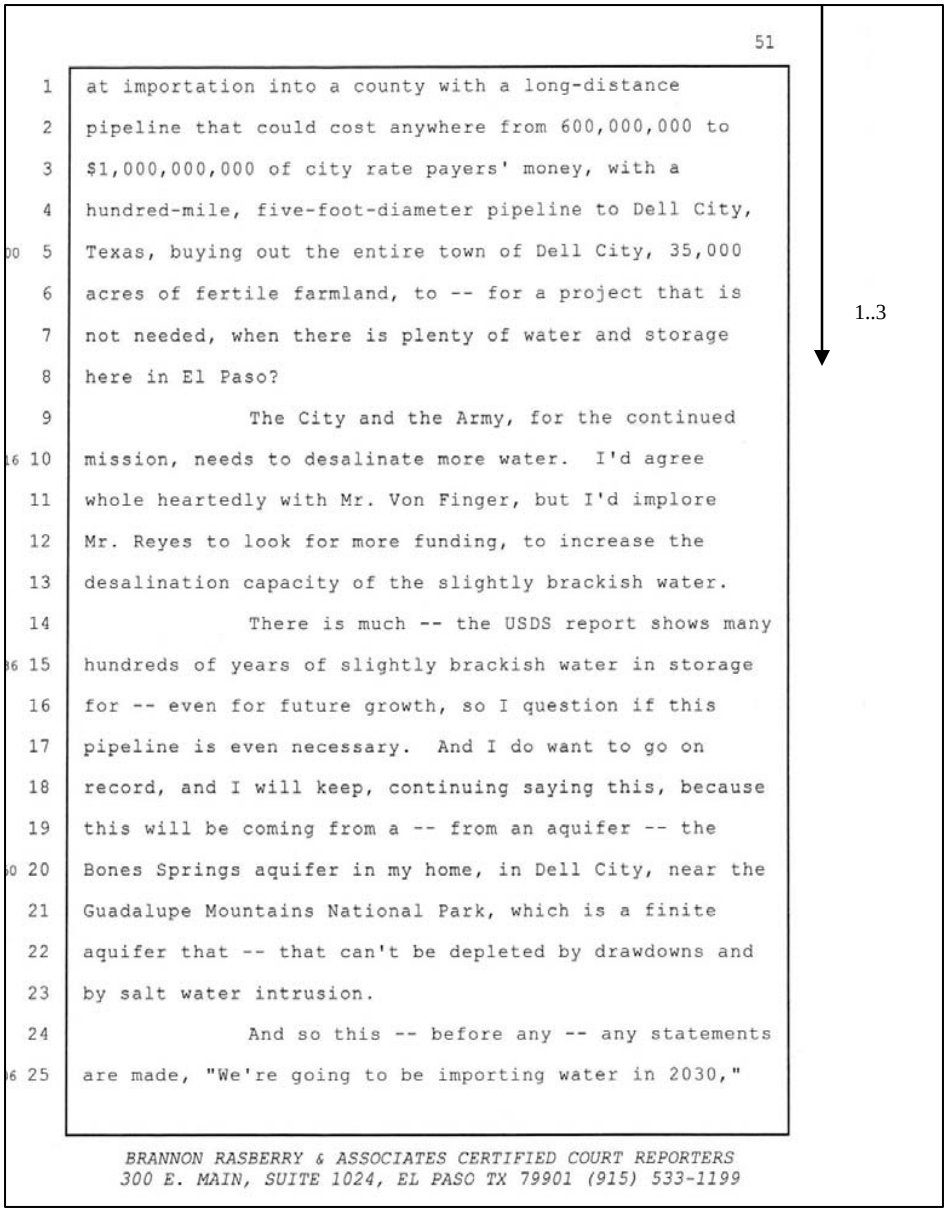
1.3

1.3. Beginning in 1985, "heavy" versions of M1A1 and M1A2 tanks were produced using steel encased depleted uranium (DU) in the turret. The Army has also been upgrading a limited number of M1A1s to M1A2s. It is reasonable to assume that most of the M1 tanks used on Fort Bliss will be A1s or A2s. Radiation exposure from the DU armor is substantially reduced because the DU is encased and therefore not directly exposed to the environment.

U.S. Army Regulation 385-63, paragraph 2-5A (3), prohibits the firing of DU ammunition in the continental United States.

A discussion of depleted uranium has been added to Section 5.12 of the Final SEIS.



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at importation into a county with a long-distance pipeline that could cost anywhere from 600,000,000 to $1,000,000,000 of city rate payers' money, with a hundred-mile, five-foot-diameter pipeline to Dell City, Texas, buying out the entire town of Dell City, 35,000 acres of fertile farmland, to -- for a project that is not needed, when there is plenty of water and storage here in El Paso?

The City and the Army, for the continued mission, needs to desalinate more water. I'd agree whole heartedly with Mr. Von Finger, but I'd implore Mr. Reyes to look for more funding, to increase the desalination capacity of the slightly brackish water.

There is much -- the USDS report shows many hundreds of years of slightly brackish water in storage for -- even for future growth, so I question if this pipeline is even necessary. And I do want to go on record, and I will keep, continuing saying this, because this will be coming from a -- from an aquifer -- the Bones Springs aquifer in my home, in Dell City, near the Guadalupe Mountains National Park, which is a finite aquifer that -- that can't be depleted by drawdowns and by salt water intrusion.

And so this -- before any -- any statements are made, "We're going to be importing water in 2030,"

BRANNON RASBERRY & ASSOCIATES CERTIFIED COURT REPORTERS
300 E. MAIN, SUITE 1024, EL PASO TX 79901 (915) 533-1199

1..3

1.3. These measures are in the Far West Texas Water Plan, prepared by a group of stakeholders and experts and reviewed by the Texas Water Development Board and the general public. This plan indicates that the current availability of high quality potable water is limited in the El Paso area.

there needs to be alternatives looked at by the El Paso Water Utilities, and, of course, the USGS study shows that they need to be looking at these studies.

So, in closing, I thank you for the opportunity to speak here at the SEIS public comment portion tonight, and I look forward to commenting and completely participating in the NEBA process regarding this issue. Thank you.

MS. HILLER: Thank you.

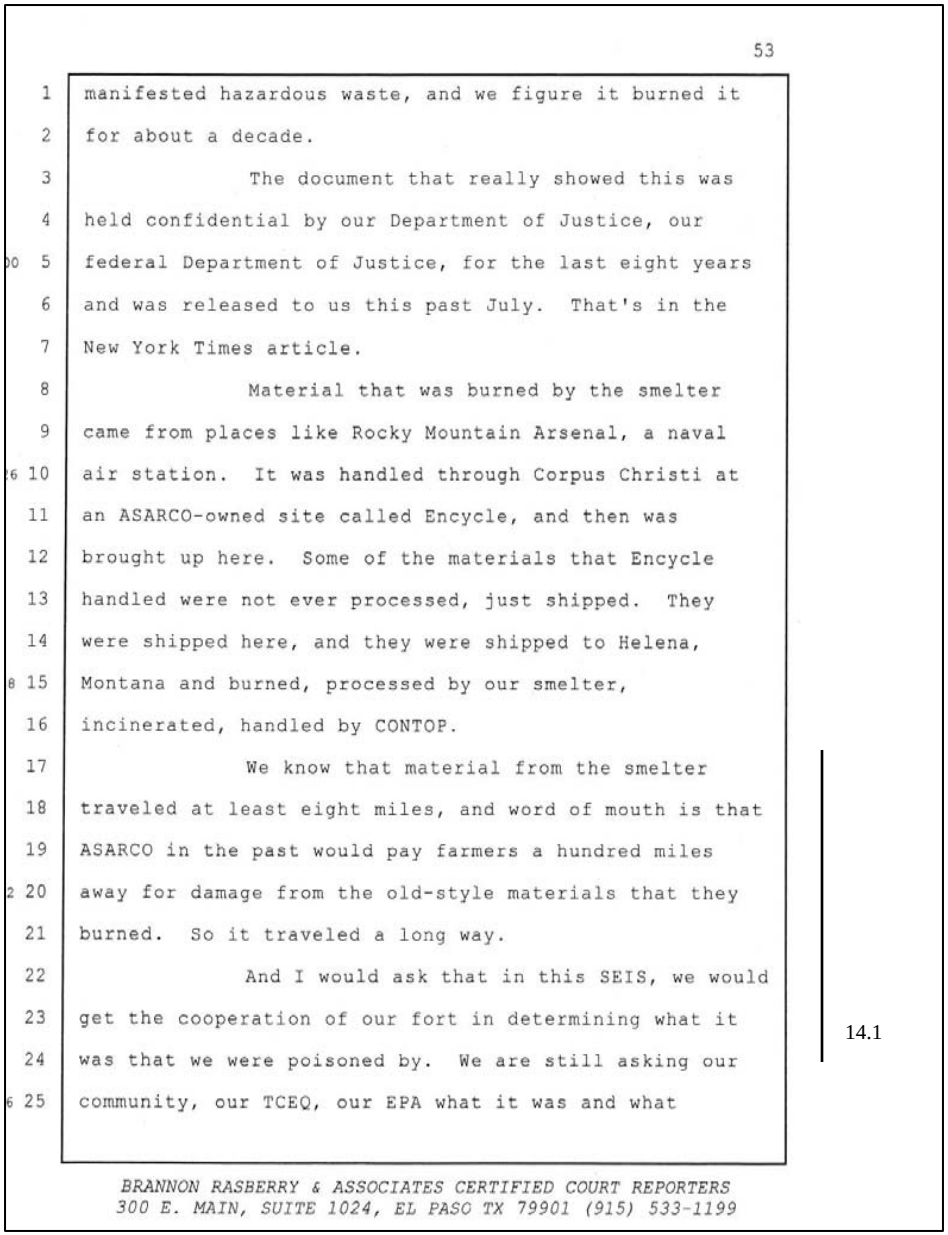
I do want to acknowledge that it's just a few minutes before 8:00. We have one additional speaker, yes?

Do you still -- when you come up, would you please just state your name clearly for the record? Thank you.

And are there others who wish to speak tonight at this point?

(No response.)

MS. MCMURRAY: My name is Heather McMurray, and the SEIS is an impressive document, very thick. I wanted to go on record to say that we found out a few months back and announced last month -- also in a New York Times article -- that the -- our smelter here, the largest custom smelter in the world for a long time, about a hundred years old, 120 years old, burned and



53

manifested hazardous waste, and we figure it burned it for about a decade.

The document that really showed this was held confidential by our Department of Justice, our federal Department of Justice, for the last eight years and was released to us this past July. That's in the New York Times article.

Material that was burned by the smelter came from places like Rocky Mountain Arsenal, a naval air station. It was handled through Corpus Christi at an ASARCO-owned site called Encycle, and then was brought up here. Some of the materials that Encycle handled were not ever processed, just shipped. They were shipped here, and they were shipped to Helena, Montana and burned, processed by our smelter, incinerated, handled by CONTOP.

We know that material from the smelter traveled at least eight miles, and word of mouth is that ASARCO in the past would pay farmers a hundred miles away for damage from the old-style materials that they burned. So it traveled a long way.

And I would ask that in this SEIS, we would get the cooperation of our fort in determining what it was that we were poisoned by. We are still asking our community, our TCEQ, our EPA what it was and what

14.1

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14.1. The ASARCO plant is not related to or affected by any action being contemplated in this SEIS. The SEIS is being prepared to assist the Army in making land use decisions on Fort Bliss. The requested information is outside the scope of this decision and the SEIS analysis.

they're hiding from us, because we have a memo that shows that they are very concerned that we find out what it was.

And it would have impacted probably Bliss, also. There -- at least part of it is within air particulate range of the smelter. And the materials that they handled went -- were hundreds of feet, actually, from our water supply, which recently we -- because of the drought, we have to get water from about March through October from the Rio Grande.

And the American's share of that water starts at the American dam by ASARCO, and then branches into a canal that handles about 70, 80 miles of irrigation canal and city water. Presently, that canal has failed. The concrete -- concrete has uplifted and is exposing the water running through it to the ASARCO contamination underneath it.

So ASARCO impacted us quite a bit, and I think that the SEIS would not necessarily have to address the water issue, because they're getting their water from other sources, perhaps, than this desal plant.

But if we could get some help finding out what it was that fell on us from the air and that apparently is still being monitored by ASARCO in the

northeast corner of their property, when the rain travels down through the arroyo there and enters their property, we'd really appreciate it.

Thank you.

MS. HILLER: Thank you.

Okay. I want to thank you-all for participating in this public meeting for the Fort Bliss Mission and Master Plan Draft Supplemental Programatic Environmental Impact Statement. If you decided not to provide comments this evening, either in writing or with public testimony, we do have public comment forms available at the back, written, "Comment table." These forms look like this.

You can -- you can deliver these to us in several formats: Either by mailing this form in, or in your own format, which can be a letter or an e-mail. There are forms in the back of the room that also give you this information, which includes the e-mail address and mailing address for comments, as well as a fax number.

We do request that these comments be submitted between now and December 12th. That way, they will be able to be considered into the final Environmental -- SEIS.

So this concludes the meeting. I want to

thank you-all for being here and thanking -- and thank you-all for providing input into the SEIS process.

We're adjourned.

(Deposition concluded at 8:06 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 Public Meeting for Comments of SEIS, and that said transcription is done to the best of my ability.

Given under my hand and seal of office on this 17th day of November, 2006.

Ginger G. Zachary, RPR, CRR, CSR Texas #5710
Expiration Date: 12/31/07
Firm Registration #384
300 E. Main, Suite 1024
El Paso, Texas 79901
(915) 533-1199

INTERNATIONAL BOUNDARY AND WATER COMMISSION
UNITED STATES AND MEXICO

NOV 0 3 2006

Mr. John F. Barrera
Attn: IMSW-BLS-Z
1733 Pleasonton Road
Fort Bliss, TX 79916-6812

Dear Mr. Barrera:

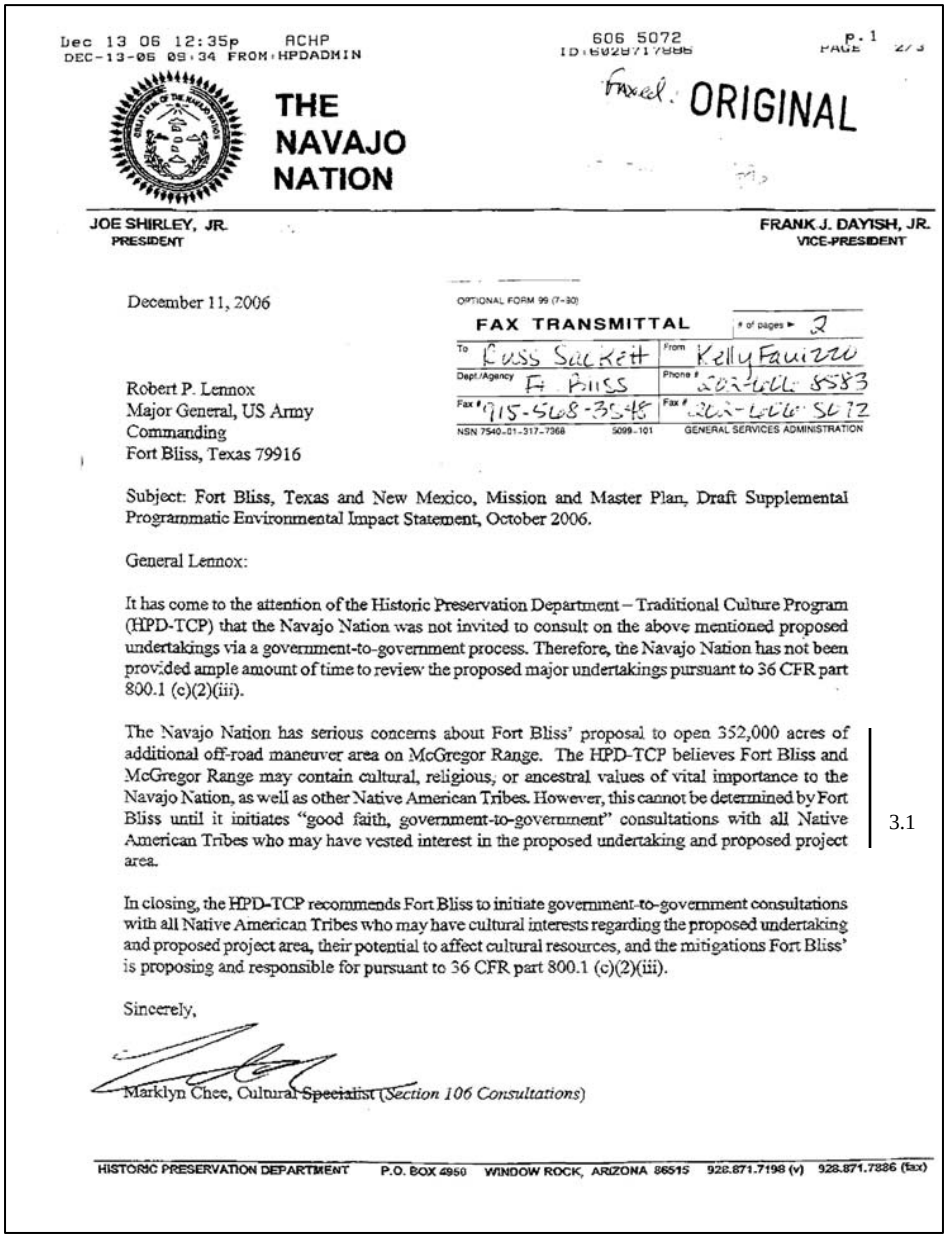
Thank you for the opportunity to review and comment on the Draft Supplemental Environmental Impact Statement (DSEIS) for the "Final Fort Bliss, Texas and New Mexico, Mission and Master Plan Programmatic Environmental Impact Statement" dated October 2006.

The proposed action would change the land use in the Main Cantonment area and in the Fort Bliss Training Complex, specifically the Tularosa Basin portion of McGregor Range. The United States Section of the International Boundary and Water Commission (USIBWC) has reviewed the DSEIS 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. If you have any questions, please feel free to contact me at (915) 832-4702.

Sincerely,

Gilbert G. Anaya
Supervisory Environmental Protection Specialist
Environmental Management Division

The Commons, Building C, Suite 100 • 4171 N. Mesa Street • El Paso, Texas 79902
(915) 832-4100 • (FAX) (915) 832-4190 • http://www.ibwc.state.gov



Dec 13 06 12:35p ACHP 606 5072 P.1
DEC-13-06 09:34 FROM:HPDADMIN ID:6028717886 PAGE 2/3

Faxed. ORIGINAL

THE NAVAJO NATION

JOE SHIRLEY, JR. PRESIDENT — FRANK J. DAYISH, JR. VICE-PRESIDENT

December 11, 2006

OPTIONAL FORM 99 (7-90)
FAX TRANSMITTAL # of pages ▶ 2
To Russ Sackett From Kelly Fauizzo
Dept./Agency Ft Bliss Phone # 202-646 8583
Fax # 915-568-3545 Fax # 202-646 5872
NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Robert P. Lennox
Major General, US Army
Commanding
Fort Bliss, Texas 79916

Subject: Fort Bliss, Texas and New Mexico, Mission and Master Plan, Draft Supplemental Programmatic Environmental Impact Statement, October 2006.

General Lennox:

It has come to the attention of the Historic Preservation Department – Traditional Culture Program (HPD-TCP) that the Navajo Nation was not invited to consult on the above mentioned proposed undertakings via a government-to-government process. Therefore, the Navajo Nation has not been provided ample amount of time to review the proposed major undertakings pursuant to 36 CFR part 800.1 (c)(2)(iii).

The Navajo Nation has serious concerns about Fort Bliss' proposal to open 352,000 acres of additional off-road maneuver area on McGregor Range. The HPD-TCP believes Fort Bliss and McGregor Range may contain cultural, religious, or ancestral values of vital importance to the Navajo Nation, as well as other Native American Tribes. However, this cannot be determined by Fort Bliss until it initiates "good faith, government-to-government" consultations with all Native American Tribes who may have vested interest in the proposed undertaking and proposed project area. 3.1

In closing, the HPD-TCP recommends Fort Bliss to initiate government-to-government consultations with all Native American Tribes who may have cultural interests regarding the proposed undertaking and proposed project area, their potential to affect cultural resources, and the mitigations Fort Bliss' is proposing and responsible for pursuant to 36 CFR part 800.1 (c)(2)(iii).

Sincerely,

Marklyn Chee, Cultural ~~Specialist~~ (*Section 106 Consultations*)

HISTORIC PRESERVATION DEPARTMENT P.O. BOX 4950 WINDOW ROCK, ARIZONA 86515 928.871.7198 (v) 928.871.7886 (fax)

3.1. The Mescalero Apache Tribe and the Ysleta del Sur Pueblo were invited to consult but chose not to. Consultation has been initiated with The Navajo Nation as well as reinitiated with the Mescalero Apache Tribe and the Ysleta del Sur Pueblo. The Comanche Tribe has also been contacted to initiate consultation. The Tribe has indicated it may have an interest in Fort Bliss lands but does not have specific interests in the SEIS. The Hopi Tribal Council has indicated that they do not have interests in lands managed by Fort Bliss. They recognize the Mescalero Apache Tribe and the Ysleta del Sur Pueblo as the Tribes that have traditional interests and that Fort Bliss should be consulting with. Tribal concerns are addressed in the Programmatic Agreement for historic properties, which can be amended at any time during its life upon request by the Tribe(s).

Navajo Nation Division of Natural Resources
Historic Preservation Department – Traditional Culture Program
P.O. 4950
Window Rock, Arizona 86515

928.871.7143 (v) 928.871.7886 (f)

Primary E-mail: marklynchee@navajo.org
Alternate E-mail: az86515@yahoo.com

TCP 07-010
cc: Katherine Slick, Director, New Mexico State Historic Preservation Officer.
Valerie Hauser, Advisory Council on Historic Preservation, Washington, DC.
Monique Fordham, Advisory Council on Historic Preservation, Washington, DC.
File: Fort Bliss, TX.

TEXAS HISTORICAL COMMISSION
The State Agency for Historic Preservation

RICK PERRY, GOVERNOR
JOHN L. NAU, III, CHAIRMAN
F. LAWERENCE OAKS, EXECUTIVE DIRECTOR

December 6, 2006

Mr. John Barrera, NEPA Manager
Directorate of Environment
Bldg. 624, Pleasonton Road
Fort Bliss, TX 79916-6812

12-

Re: *Project review under Section 106 of the National Historic Preservation Act of 1966*
Fort Bliss, Texas and New Mexico Mission and Master Plan Draft Supplemental Environmental Impact Statement, Fort Bliss, El Paso County (Army/106)

Dear Mr. Barrera;

Thank you for this opportunity to comment on the above referenced project. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission.

The review staff, led by Quana Childs, has completed its review of the *Fort Bliss, Texas and New Mexico Mission and Master Plan Draft Supplemental Environmental Impact Statement*. As stated in the Draft SEIS, the treatment of historic resources is set forth in the *Programmatic Agreement Among the Fort Bliss Garrison Command and the New Mexico State Historic Preservation Officer and the Texas Historic Preservation Officer and the Advisory Council on Historic Preservation for the Management of Historic Properties on Fort Bliss Fort Bliss, Texas, Under Sections 106 and 110 of the National Historic Preservation Act of 1966 (As Amended)*. The implementation of the preferred alternative has the potential to significantly impact historic and cultural resources. At this time not enough information is known about the action to determine the impacts. We look forward to reviewing the projects under the Programmatic Agreement. The Army and installation's strict adherence to the Standard Operating Procedures for the implementation should serve to avoid, minimize, or mitigate any adverse effects.

We look forward to further consultation with your office and hope to maintain a partnership that will foster effective historic preservation. Thank you for your cooperation in this federal review process, and for your efforts to preserve the irreplaceable heritage of Texas. **If you have any questions concerning our review or if we can be of further assistance, please contact Quana Childs at 512/463-9122.**

Yours truly,

Quana Childs, Architect
for: F. Lawerence Oaks, State Historic Preservation Officer

cc: El Paso County Historical Commission
FLO/QC

P.O. BOX 12276 · AUSTIN, TX 78711-2276 · 512/463-6100 · FAX 512/475-4872 · TDD 1-800/735-2989
www.thc.state.tx.us

ORIGINAL

State of New Mexico
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Office of the Secretary
Harold Runnels Building
1190 St. Francis Drive, P.O. Box 26110
Santa Fe, New Mexico 87502-6110
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Fax: (505) 827-2836

BILL RICHARDSON
GOVERNOR

RON CURRY
SECRETARY

DERRITH WATCHMAN-MOORE
DEPUTY SECRETARY

December 4, 2006

John Barrera
NEPA Manager
Directorate of Environment
Bldg. 624, Pleasonton Road
Fort Bliss, TX 79916-6812

Fax: 915.568.3548

Dear Mr. Barrera:

RE: DRAFT SUPPLEMENTAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT (DSEIS) FOR CHANGES TO THE FORT BLISS, TEXAS AND NEW MEXICO, MISSION AND MASTER PLAN (OCTOBER 2006)

This transmits New Mexico Environment Department (NMED) comments concerning the above- referenced Draft Supplemental Programmatic Environmental Impact Statement (DSEIS).

Surface Water Quality

The U.S. Environmental Protection Agency (USEPA) requires National Pollutant Discharge Elimination System (NPDES) Construction General Permit (CGP) coverage for storm water discharges from construction projects (common plans of development) that will result in the disturbance (or re-disturbance) of one or more acres, including expansions, of total land area. According to the project information submitted, this project appears to involve several construction projects in New Mexico.

Among other things, this permit requires that a Storm Water Pollution Prevention Plan (SWPPP) be prepared for the site and that appropriate Best Management Practices (BMPs) be installed and maintained both during and after construction to prevent, to the extent practicable, pollutants (primarily sediment, oil & grease and construction materials from construction sites) in storm water runoff from entering waters of the U.S. This permit also requires that permanent stabilization measures (revegetation, paving, etc.), and permanent storm water management measures (storm water detention/retention structures, velocity dissipation devices, etc.) be implemented post construction to minimize, in the long term, pollutants in storm water runoff from entering these waters. In addition, permittees must ensure that there is no increase in sediment yield and flow velocity from the construction site (both during and after construction) compared to pre-construction, undisturbed conditions (see Subpart 9.C.1)

John Barrera
December 4, 2006
Page 2

You should also be aware that EPA requires that all "operators" (see Appendix A) obtain NPDES permit coverage for construction projects. Generally, this means that at least two parties will require permit coverage. The owner/developer of this construction project who has operational control over project specifications (probably Ft. Bliss in this case), the general contractor who has day-to-day operational control of those activities at the site, which are necessary to ensure compliance with the storm water pollution plan and other permit conditions, and possibly other "operators" will require appropriate NPDES permit coverage for this project.

In addition, operation of many of the types of activities, existing and proposed, at this facility require Storm Water Multi-sector General Permit (see Federal Register/Vol. 65, No. 210/Monday, October 30, 2000) coverage. This permit also requires preparation of a SWPPP, and installation of appropriate storm water runoff control practices (per the SWPPP).

Fort Bliss has NPDES Storm Water Multi-sector General Permit coverage (NMR05B091) for various industrial activities at this facility. The permittee should amend the existing Storm Water Pollution Prevention Plan to incorporate any additional activities and pollutant controls dictated by this proposed action. 5.1

Ground Water Quality

The DSEIS describes potential environmental impacts and mitigation actions associated with land use and management decisions regarding installation assets, capabilities, and infrastructure to support current and future missions. Four alternatives were identified for analysis in the document: the no-action alternative plus three other alternatives that consider the implementation of various projects and new land use scenarios.

The analyses of the various alternatives considered impacts to ground water only from the perspective of effects on water quantity due to potential increases in ground water withdrawals for potable use. Although it is not anticipated that activities performed pursuant to any of the four alternatives would have a substantial likelihood of causing ground water contamination, the DSEIS should nonetheless address the potential for impacts to ground water quality, in addition to effects on ground water quantity. 5.2

The DSEIS notes that domestic wastewater generated at the Dona Ana Range-North Training Area and McGregor Range (both areas are located in New Mexico) is discharged to wastewater lagoon systems. It is likely that these discharges require Discharge Permits issued by the NMED-GWQB in accordance with the New Mexico Water Quality Control Commission Regulations. Fort Bliss is advised to submit a Notice of Intent to Discharge for each area, as required by 20.6.2.1201 NMAC, to the Ground Water Quality Bureau. NMED-GWQB will review the submittals and inform Fort Bliss if Discharge Permits are required for the domestic waste discharges. 5.3

The DSEIS indicates that hazardous wastes generated at Fort Bliss are regulated by TNRCC (now TCEQ) and NMED, depending upon the location of the specific area within Fort Bliss where the wastes are generated. Any changes in types or volumes of hazardous wastes resulting from implantation of any of the alternatives will continue to be addressed by the hazardous waste programs of TCEQ and NMED.

5.1. Fort Bliss terminated this permit on 10 September 2002.

5.2. Potable groundwater in the Tularosa Basin is found at depths generally greater than 200 feet. Because of this depth, surface spills are unlikely to have an appreciable impact on groundwater quality. Additional information has been added to Section 5.7 of the Final SEIS to address this issue.

5.3. The Army position is that groundwater as situated in New Mexico on Fort Bliss is not amenable to state regulation. (Reference letter dated March 15, 2002 from Mr. Landreth, Director of Environment at Fort Bliss, to Mr. Bearzi, NMED Hazardous Waste Division Chief.) The oxidation ponds at Doña Ana and McGregor Ranges are fully lined receptacles designed to receive and contain pond influent. They are not designed to discharge influent into the ground. Further, the periodic sampling results of pond influent, provided to the NMED Hazardous Waste Division, evidences that the ponds are not receiving contaminants that could affect any potable water supply or compromise public health.

John Barrera
December 4, 2006
Page 3

Implementation of new projects at Fort Bliss may involve the use of heavy equipment, thereby leading to the possibility of contaminant releases (e.g., fuel, hydraulic fluid, etc.) associated with equipment malfunctions. We advise all parties involved in the project to be aware of discharge notification requirements contained in Section 20.6.2.1203 NMAC. Compliance with the notification and response requirements will ensure the protection of ground water quality in the vicinity of the project. 5.4

Hazardous Waste

We want to stress a number of items in this section:

- The US Army's' Installation Hazardous Waste Management Plan and Standard Operation Procedures (SOPs) for handling and storage of hazardous waste must be adequate
- The United States Army (US Army) states in Section 5.12.6 that approximately 12, 000 pounds per year of additional hazardous waste may be generated under proposed Alternative 4. If the US Army plans on storing hazardous waste in New Mexico for more than 90 days, then a Resource Conservation and Recovery Act (RCRA) permit would be required.
- When ordnance impacts on-site during training and testing exercises, the US Army is exempt from RCRA. However, if the US Army manages impact sites and contaminated soil, then the US Army's remediation and recovery efforts may be subject to RCRA Subtitle C and/or D. Management of contaminated media and newly created waste associated with training exercises and contaminated soil is potentially subject to RCRA.
- If ordnance impacts off-site during training and testing exercises, then the US Army is subject to the Military Munitions Rule (see Subpart M to 40 CFR 266). This scenario is not addressed in the DSEIS. 5.5
- If training activities impact on-site in an aquifer recharge zone in the Tularosa, Mesilla, Salt, and/or Hueco Basins, then the US Army may be subject to the New Mexico's Water Quality Control Commission (WQCC) and/or Drinking Water Regulations.

Air Quality

Fort Bliss is in part located in New Mexico's Doña Ana and Otero Counties, which are currently considered to be in attainment with New Mexico and National Ambient Air Quality Standards (NAAQS); however, the Department's Air Quality Bureau (AQB) has recorded exceedances of the standard for particulate matter (PM10) in Doña Ana County. In response to the recorded exceedances of the standard for PM10, a Natural Events Action Plan (NEAP) for Doña Ana County has been prepared and submitted to the U.S. Environmental Protection Agency for approval. As part of the NEAP, a dust control ordinance (Doña Ana County Ordinance No. 194-2000; Erosion Control Regulation) was adopted by Doña Ana County. To ensure air quality standards are met, applicable local or county regulations requiring noise and/or dust control must be followed; if none are in effect for as specific project area, controlling construction-related air quality impacts during 5.6

5.4. Notification requirements for contaminant releases were described in Section 2.1.6.4 of the Draft SEIS. Additional information has also been added to Section 5.7 the Final SEIS to clarify this requirement.

5.5. Firing ranges and impact areas on Fort Bliss are designed and located so that the associated surface danger zones are completely contained within the installation boundaries. Therefore, ordnance is not expected to impact off site. However, the Army recognizes that any off-site impacts would be subject to the Military Munitions Rule, and a comment to that effect has been added in Section 5.12 of the Final SEIS.

5.6. The NEAP for Doña Ana County was referenced in Section 4.6.3.2 of the Draft SEIS. Fort Bliss supports the Doña Ana County NEAP and will abide by its provisions, although it is unlikely to be a prime source of windblown dust for most of the county's populated areas. Fort Bliss is currently controlling fugitive dust by limiting access and vehicle speed on its property.

John Barrera
December 4, 2006
Page 4

projects should be considered to reduce the impact of fugitive dust and/or noise on community members. The NEAP for Doña Ana County, and County Ordinance 194-2000 if applicable, should be referenced in the final environmental impact statement.

Please be advised that older buildings may contain asbestos. Rehabilitation, renovation, or demolition of these buildings are regulated through the National Emission Standards for Hazardous Air Pollutants (NESHAP), 40 CFR Part 61, Subpart M.

One of our concerns regarding rehabilitation, renovation, or demolition projects is that asbestos-containing material may be present and could be disturbed during the course of the project. If asbestos containing materials are disturbed without insuring that proper and safe procedures are used, then there is a risk of asbestos contamination to the environment as well as a risk of asbestos exposure by the public. If you have any questions concerning asbestos please call (505) 827-1494 and ask for Royce Wyrick or visit the New Mexico Environment Department website at http://www.nmenv.state.nm.us/aqb/index.html and click on the Asbestos link for more information.

Please note that an Environmental Assessment does not meet the requirements for a thorough asbestos inspection.

Compliance with New Mexico's smoke management regulation may be required for any prescribed burning activities that may take place. Emission reduction techniques for smoke should be developed and used. The use of at least one emission reduction technique is required for prescribed burns of more than 23 acres or 5000 cubic feet of pile volume per day. Additional requirements of the smoke management program include documentation on non-use of alternatives to fire, public notification, registration, and tracking. Information on all requirements is available on the Department's web site at http://www.nmenv.state.nm.us/aqb/SMP/smp_index.html.

Potential exists for temporary increases in dust and emissions from earthmoving, construction equipment, and other vehicles; however, the increases should not result in non-attainment of air quality standards. Dust control measures should be taken to minimize the release of particulates due to vehicular traffic and construction. Areas disturbed by the construction activities, within and adjacent to the project area should be reclaimed to avoid long-term problems with erosion and fugitive dust

All asphalt, concrete, quarrying, crushing and screening facilities contracted in conjunction with the proposed project must have current and proper air quality permits. For more information on air quality permitting and modeling requirements, please refer to 20.2.72 NMAC.

If a back up generator is used at the facility, be advised that records should be kept of the hours of operation of the generator. An application for construction permit must be submitted for standby generators used 500 hours per year or more. 5.7

There should not be any long-term significant impacts to ambient air quality from activities as proposed in the DSEIS,.

We appreciate the opportunity to comment on this document. Please let us know if you have any questions.

5.7. Records are kept of the hours of operation of each generator. No generator is used more than 500 hours per year.

Sincerely,

Ron Curry
Secretary

NMED File No. 2369ER

Comments Submitted December 11, 2006 by Glen DeGarmo in Response to:
Fort Bliss, Texas and New Mexico, Mission and Master Plan.
Draft Supplemental Programmatic Environmental Impact Statement, October 2006

Abstract: The following several comments are organized around two principal topics: (1) Based upon the Department of Defense (DoD) standard for Heavy Brigade Combat Teams (HBCT), it is argued that the draft SEIS fails to justify its claim that additional off-road maneuver area is required on the McGregor Range of Fort Bliss. In fact, the argument presented in the SEIS is vague in its logic, its quantitative analysis lacks detail, and it is unsubstantiated. (2) The SEIS also is woefully deficient in its disclosure of data and information about the historic resources on Fort Bliss, particularly archaeological resources. The SEIS does not inform even a casual archaeologist about the characteristics of the historic resources on Fort Bliss, the irreplaceable scientific values inherent in those resources, or the probable severe adverse effect to those values expected to be caused by HBCTs' off-road maneuver in one of the most undisturbed areas of Fort Bliss. The proposed mitigation of those adverse effects merely consists of narratives describing several SOPs whose past and future effectiveness cannot be evaluated.

To the Fort Bliss Command: It would be a mistake to interpret the following several, critical comments as based upon a desire to completely eliminate the option of ever opening McGregor Range for off-road maneuver. And, the following strategy is suggested as a means to respond to the needs of the military mission of Fort Bliss while at the same time professionally respecting and preserving the scientific values in the archaeological record on Fort Bliss.

A. The probable severity of the adverse effects to the archaeological record is such that good management responding to the needs of the military mission and to the scientific values of the archaeological record requires that opening any area on McGregor Range for off-road maneuver be preceded by (1) disclosures permitting well founded understandings of the complexity of the archaeological record on the Range, (2) a thorough disclosure of the adverse effects expected to be caused to that record by the proposed use of the Range for off-road maneuvers by HBCTs, and (3) development and implementation of an appropriate, well designed mitigation program responsive to those effects.

B. Fort Bliss' military mission and the scientific values of the archaeological record on Fort Bliss would be well served if the elements of Paragraph A, above, could be accomplished with participation and oversight by independent archaeologists having the professional and academic archaeological knowledge and interests necessary to help develop and then to support the overall design and implementation of the archaeological component of the historic resources program. The irreplaceable scientific importance of the archaeological record on the Range demands no less. Therefore, I propose the following: 7.1

C. Proposed Strategy for Opening additional off-Road maneuver area: The near term (next several years) need for additional off-road maneuver area has not been justified by data and information in the draft SEIS, or by DoD standards. DoD standards indicate the existing off-road maneuver area on Fort Bliss is more than adequate to train the HCBTs currently scheduled to be stationed there. It then is reasonable to propose confining off-road maneuver to the existing maneuver areas until the historic resources program (cf. Paragraphs A and B above) is completed and mitigations enacted for sequentially selected areas on McGregor Range, at which time off-road maneuver in such areas could begin. The areas sequentially selected as having priority for this strategy could be those identified as contributing most meaningfully to training requirements. Assuming such priority areas would be closest to and bordering on existing maneuver areas, then the available maneuver area could be gradually expanded to accommodate those training requirements. 7.2

Received 12 Dec 2006

Comments; Glen DeGarmo, Draft SEIS ---- *GD-1*

7.1. Fort Bliss has professional staff that meets the Secretary of the Interior's professional standards for archaeologists. There are contractors with some of the most knowledgeable Jornada Mogollon archaeologists working on projects for Fort Bliss. The revised Significance Standards are a collaborative effort with all of these professionals working on Fort Bliss, both Texas and New Mexico State Historic Preservation Officers, and the Tribes. Oversight by independent archaeologists having the professional academic knowledge and interests is provided through regular consultation with the two SHPOs and the Advisory Council on Historic Preservation.

7.2. Surveys and evaluations planned in accordance with the Programmatic Agreement for historic resources on Fort Bliss will be completed before new training areas are opened to off-road vehicle maneuvers, and appropriate mitigation measures will be in place before these areas are used for those maneuvers. The required surveys, evaluations, and mitigations will be completed in an expeditious manner in order to make as much maneuver area as possible available, consistent with the selected alternative. This approach will allow unit commanders to decide which areas best provide the training needed, based on various factors. This may not necessarily always be the closest-in areas, as one of the requirements is to provide variety in the training environment.

COMMENTS

Comment 1: The SEIS fails to justify that the Heavy Brigade Combat Teams (HBCT) to be stationed at Fort Bliss require 216,000 to 352,000 acres (Alternatives 1-4) more off-road maneuver area than the 335.000 acres already available there. This conclusion is based upon several factors: (1) the much smaller amounts of maneuver area available at other installations where the number of HBCTs to be stationed is equal to or larger than at Fort Bliss, (2) the number of HBCTs typically to be in residence at Fort Bliss, and (3) The Department of Defense (DoD) standard for HBCT maneuver area compared the Fort Bliss' existing off-road maneuver area.

A. Four or more HBCTs will home station at five Army posts. Fort Bliss and one other post have roughly the same amounts of off-road maneuver area. The other three have significantly less. The five posts are: Fort Bliss, TX, 4 HBCTs, 335,00 acres; Fort Bragg, NC, 4 HBCTs, 105,733 acres; Fort Campbell, KY, 4 HBCTs, 66,424 acres; Fort Carson, CO, 4 HBCTs, 351,124 acres; and Fort Hood TX, 5 HBCTs, 136,912 acres (Army News, 2005. BRAC 2004. DoD May 2005, Table 7-5, page 57. SEIS, page S-6, lines 204-208 and Figure S-1, page S-3).

B. Typically only three of the four HBCTs home stationed at Fort Bliss will be in residence at one time. The four brigades will sequentially deploy to another station according to the Army's planned rotational cycle (DoD, May 2005, page A-37; SEIS, page S-5, lines 169-172).

C. The SEIS (page S-4, lines 121-137) shows calculations that 7,000 km^2days are needed for two battalion (one component of a HBCT) exercises per year. Then 528,000 km^2d are said to be required for four HBCTs (cf. Paragraph B, above) and for other unidentified users whose requirements are not disclosed. The SEIS provides no data justifying the 528,000 km^2d requirement for off-road maneuver area. A recent DoD standard is used below to evaluate Fort Bliss' existing off-road maneuver area capability compared to foreseeable need.

(I) The SEIS states that Army Training Circular TC-25-1 is the source of information about HBCTs' requirement for training area. But, DoD says that TC-25-1, last updated 15 March 2004, does not identify the training area required to train HBCTs (DoD, May 2005, page A-31. Doctrine and Training Publications 2006). DoD then evaluates that need and concludes the requirement is 39,056,875 annual acre days or 158,125 annual km^2d for one HBCT to train to standard (calculated from DoD, May 2005, Table 22, page A-32. cf. Footnote 1). 7.3

(II) Fort Bliss has 335,000 acres (1,356 km^2) of existing off-road maneuver area (SEIS, page S-6). Assuming 351 training days annually (cf. Footnote 2), there are 475,956 annual km^2d now available on Fort Bliss. If two HBCTs are continuously in the field they require 316,250 annual km^2d, and there is an excess of 159,706 km^2d available. When three HBCTs are in residence in FY2010, they require 474,375 km^2days if they train continuously. The existing off-road maneuver areas still have an excess of 1,581 annual km^2days (cf. SEIS Figure 3.2-1, page 3.2-3 and Footnote 3). 7.4

Footnotes:

1. Other data in the referenced DoD document confuse the issue, for without explanation of its derivation 51,738 km^2d also are stated as necessary to train a "Heavy Maneuver Brigade" conducting "mounted" exercises and 896 km^2d for "dismounted" exercises (DoD, May 2005, Table 7, page A-17). The analysis in Comment 1 C (1) uses the larger km^2d requirement.

2. This calculation uses 351 days (365 days - 14 days for Xmas holidays) instead of the Army's 242 annual training days. The 242 day standard apparently is the time an individual soldier is expected to spend on duty each year. However, the availability of off-maneuver areas for training is neither determined by nor limited by weekends and holidays. They can have virtually continuous usage as different units (platoon, company, battalion, brigade) rotate into and out of the maneuver area.

3. Realistically, the HBCTs' equipment and personnel cannot be in the field continuously. Using as a model the rotational cycle of the three line squadrons of the 3rd ACR when it was home stationed at Fort Bliss, each brigade will be in the field only one month in every three. During two months in the three month rotational cycle, a brigade having just completed one continuous month in the field will provide "training holidays" and leave time, perform equipment maintenance and repair, post support, live fire gunnery, and preparation for its next rotation into the maneuver area. There probably will be two brigades in the field only for short periods (perhaps 14-21 days annually) if they conduct brigade-on-brigade exercises.

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7.3. An expanded discussion in Section 1.3.5 of the Final SEIS provides more detail on how TC 25-1 was used to calculate the total training requirement. Because training doctrine is being refined in response to the move to a modular force, the 4th BCT, 1st Cavalry Division was consulted to adapt relevant portions of TC 25-1 to more accurately reflect the needs of the Heavy BCTs.

This information resulted in an estimated annual requirement of approximately 109,000 km^2d per Heavy BCT, which is somewhat less than the 158,125 km^2d noted in this comment. If, based on FORSCOM rotation policy, three of the four Heavy BCTs are training at Fort Bliss at any give time, the requirement is 327,000 km^2d/year for the 1st Armor Division alone. Other units identified through Base Realignment and Closure for stationing at Fort Bliss include an Artillery Brigade, a Sustainment Brigade, and a Combat Aviation Brigade, as well as Echelons Above Brigade, all of which also require training. In addition, Fort Bliss continues to support a mobilization mission with an estimated off-road vehicle maneuver requirement of approximately 55,000 km^2d/year. As Section 1.3.5 of the Final SEIS shows, together, all the requirements sum to approximately 528,000 km^2d/year.

7.4. As the SEIS also indicates, it would be difficult and impractical to provide 351 off-road vehicle training days annually for a number of reasons. First, this would leave no time for other types of training, including missile firings that are still part of the Fort Bliss mission. Second, this would eliminate any public access to installation lands for recreation and hunting. Third, it would leave inadequate time for maintenance and environmental management activities needed to sustain the land and training base.

Comment 2. The SEIS fails to disclose data and information needed by archaeologists to evaluate the characteristics and importance of the archaeological record on Fort Bliss. The SEIS also does not disclose that (1) the thousands of archaeological resources on Fort Bliss document several thousand years of human prehistory, (2) the resources on McGregor Range are some of the best preserved on the installation, and (3) the substantial environmental variability encompassed by Fort Bliss provides opportunities for identification and study of the processes by which prehistoric human populations developed different technologies, organizational features, and land use strategies to adapt to and use, and to adjust to long term changes in, that variability.

A. The SEIS does not disclose quantitative data about either the numbers of sites or the functional variability of sites within and between the different cultural periods and phases represented in the archaeological record on Fort Bliss. The principal information provided is in one table (Table 4.9-1, page 4.9-5) reporting the total archaeological sites recorded in different real estate management areas of Fort Bliss and the number of sites in each area with different National Register of Historic Places (NRHP) status. These generalized data do not disclose quantitative data and fundamental interpretative information required even for primitive archaeological descriptive purposes (cf. pages 4.9-6 to 4.9-9 and Footnote 3). 7.5

B. The SEIS does not disclose the level of confidence associated with the reported densities of 2.5 - 30 archaeological sites/km^2 in different land management units of the installation (cf. Table 4.9-2, page 4.9-7). There is no disclosure about how these data were calculated, whether the raw data resulting from different projects' survey techniques were lumped together, or if the different surveys' results were standardized using some unreported procedure. Note: experiments testing survey techniques have recorded 20-60 sites/km^2 on the desert floor of the Tularosa Basin (cf. Footnote 4).

C. The SEIS does not disclose how distributions of different kinds of sites correlate to Fort Bliss' substantial environmental variability (cf. Affected Environment, 4.0; subsections 4.5, 4.7, and 4.8. and Footnote 5). 7.6

D. Given that the SEIS does not disclose the kinds of data and information identified in the three paragraphs above, it impossible for archaeologists to understand the analytic and scientific characteristics of the archaeological record on Fort Bliss, or to identify the kinds of data thought to be "important in prehistory" (NRHP) contained in that record. Many of these raw data may be in Fort Bliss' data base (page 4.9-9, lines 331-333), but that does make them available to archaeologists unassociated with Fort Bliss. Since these data have not regularly been made easily available to the archaeological community in accordance with recognized professional standards, it is Fort Bliss responsibility to describe, synthesize, interpret, and disclose those data in EIS documents. **Note**, Incorporating by reference documents not previously available is inadequate disclosure (Footnote 3). 7.7

Footnotes:

3. Historically, lack of access to Fort Bliss' archaeological reports since 1994 has made it difficult for archaeologists to independently study and synthesize data and information about the archaeological record on Fort Bliss. Fort Bliss recently has commenced a flurry of effort to make reports and data available, but it has not been sufficiently timely for meaningful access by the archaeological community. For example, copies of over 100 archaeological project reports finally were provided to three libraries in the vicinity of Fort Bliss at the end of August 2006. However, none were made available to the libraries in other parts of New Mexico, (e.g., Albuquerque and Santa Fe) where there are substantial numbers of practicing and academic archaeologists. A large volume of site and project reports also was sent to the archaeological records division of the SHPO's office in Santa Fe, NM about the same time. The volume is so large that Fort Bliss is funding a full, two year position for the SHPO's staff to help organize and enter those data into the state's computerized archaeological data base. The CRM SOP #12 (paragraph 12.5.2) also states that Fort Bliss will begin to make archeological reports with "research value" available to universities and others sometime in the future.

4. There were major differences in contracted archaeological surveys performed on the installation prior to about 1982. Some crew member spacings of 2-300 meters were later unofficially reported. Subsequent projects standardized crew member spacing at a nominal 33 meters. The different spacings resulted in significant differences in both densities and sizes of recorded sites. These differences can easily be seen by comparing the known site density in 1986 between Maneuver Areas 1 and 2 and between McGregor Range and Maneuver Areas 3-7. The SEIS does not disclose these differences. Note: experimental survey projects were conducted prior to 1994 to test results of various crew member spacing. One 2 km^2 block was repeatedly surveyed with different crews with different spacings (1, 16, 33, and 46 meters) with surprising differences in results; another project "piece plotted" a 14 km^2 block in Maneuver Area 2. Site densities of 20-60 sites per km^2 were recorded.

5. Archaeologists have long known that different kinds of sites have different densities in different environmental zones as a result of different land use and residential patterns characteristic of the human populations in different prehistoric time periods.

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7.5. Quantitative data on total number of sites by management area is disclosed in Table 4.9-1 of the Draft SEIS, which also reports the NRHP eligibility recommendations of the Fort Bliss Directorate of Environment. Archaeological data and fundamental interpretive data can be found in the numerous reports made available at the libraries in El Paso, Las Cruces, and Alamogordo prior to and during the review period for the Draft SEIS.

7.6. For the experiment mentioned in which results were yielding 20-60 sites per km^2, this is likely the result of the site definition criteria employed. During that period, sites were defined as any three "data types" and often consisted of only a handful of artifacts (for example, a single flake, one ceramic sherd, and one piece of fire-cracked rock would qualify as a "site").

The new criteria for sites are outlined in Section 4.4.1.2.3.2 of the PA, which essentially eliminates many of the very low density sites that are better treated as Isolated Occurrences. This was done in consultation with the ACHP, and Texas and New Mexico SHPOs.

Information on the distribution of different kinds of sites in different environmental zones can be found in a number of the publications that are available publicly. Information is also available in the Significance Standards (Abbott et al. 1996), also in the local libraries.

Known site data are broadly summarized for the range areas in the SEIS at a level of detail appropriate for the analysis and decisions being made pursuant to the SEIS. More detailed data correlating site type with landform and resource distribution are found in the reports available in local libraries.

7.7. The data considered important to prehistory are outlined in the Significance Standards (Abbott et al. 1996), which were consulted on by both the Texas and New Mexico SHPOs and which are available at local libraries. Much of this raw data is also available to the archaeological community through the various published reports describing these projects. This information is also currently available in the libraries, through the New Mexico ARMS, and directly to professional archaeologists who contact the Fort Bliss Directorate of Environment. Every effort has been made to provide either a paper or digital copy of any report that is requested, and it is usually mailed at no expense to the researcher. In addition, the Fort Bliss Directorate of Environment keeps a mailing list of interested people who receive a copy of the brochure that summarizes each project in which the final deliverables are accepted.

Comment 3: **The SEIS' disclosure of probable adverse effects (loss of scientific data) to the thousands of historic resources on Fort Bliss is superficial at best. Off-road maneuver is not identified as the principal source of expected impact. There is no disclosure that off-road maneuver can result in irreplaceable loss of untold amounts of data with the potential to provide understandings of the prehistory of the entire Tularosa Basin and to form the bases for new understandings of the prehistory of south central New Mexico. There is no disclosure that maneuver will cause different levels of adverse effect to sites of different sizes, cultural periods and phases, depositional characteristics, and locations. The relevant text in the SEIS is superficial and merely states the obvious.** 7.8

A. "Ground disturbing activities that occur on Fort Bliss can potentially impact historic properties through destruction of the resource or through damaging the resource's integrity .."(page 5.9-2, lines 80-82. cf. page 5.15-12, lines 497-498).

B. In "Cumulative Impacts" it is stated that "The primary cultural resources cumulative impact issue is the potential loss of historic resources and the scientific information they may offer due to increased ground disturbance and increased exposure to vandalism with the population growth ..." (page 5.15-12, lines 493-496).

C. In "Summary of Irreversible and Irretrievable Commitments of Resources" there is the bland statement that "It would be considered an irretrievable commitment if historic properties [sic] that may be eligible for listing in the National Register of Historic Places were inadvertently lost or damaged during ground disturbing activities or training or due to vandalism" (page 5.16-1, lines 17-19).

D. The SEIS' lack of disclosure of adverse effects is illustrated in "Summary of Probable Adverse Effects That Cannot be Avoided" in which adverse effects to historic resources are not even mentioned (page 5.18-1. cf. Footnote 6). 7.9

Comment 4: **The SEIS' disclosure of the proposed mitigation principally consists of narratives (SOPs) in a Programmatic Agreement (Table 3.9-2, page 3.9-5; Appendix B; cf. Footnote 7). But, the SEIS does not disclose how effective these procedures have been even though much of their language is drawn from Fort Bliss' Integrated Cultural Resources Management Plan (ICRMP) drafted in 1998 (cf. Footnote 8). There is no disclosure describing if these procedures result in adverse effects being effectively "reduced or mitigated in accordance with the Programmatic Agreement and the ICRMP" (Cultural Resources, Table 3.9-1, page 3.9-5), and there are no bases for evaluating if continuing the same procedures will be effective.** 7.10

A. The SEIS does not disclose if the red zones (page 5.9-4, lines 180-181. page 5.9-5, lines 218-220) are an effective element of the mitigation strategy (cf. Footnote 9). Whether or not their probable future content will adequately represent the archaeological record also cannot be evaluated, for the SEIS states that "Fort Bliss is in the process of redefining Red and Green zones throughout [Fort Bliss], including McGregor Range, based on resurveys and NRHP eligibility" (page 4.9-5, lines 194-196). The SEIS does not disclose what data or new interpretations justify the redefinitions; titles of some reports suggest that such information may exist (cf. Footnote 3). There also is no disclosure of how new translations of NRHP criteria will be operationalized for redefinition of existing and for additional red or green zones (cf. Comment 6 A.). 7.11

B. The SEIS does not disclose, and it is not possible to evaluate the possible future effectiveness of mitigations being proposed in the revised Programmatic Agreement being negotiated "... with the Advisory Council on Historic Preservation and the cognizant State historic Preservation Officers ... ", (page 5.13-12, lines 500-502). Further, the SEIS also does not disclose, and it is impossible to evaluate planned revisions to the ICRMP (page 4.9-4, lines 159-161). 7.12

C. The SEIS does not disclose if maps always prepared for off-road FTXs routinely receive a REC (page A-11, lines 284-287) or if maps are reviewed and planned concentrations of ground disturbing activities (e.g., assembly areas, anti-tank ditches, field fortifications, FARPs, phase lines with hull-down positions) are identified and their locations adjusted to reduce adverse effect to known historic resources with undetermined eligibility for the NRHP (cf. Appendix B, page 80). 7.13

Footnotes:

6. It is naive, if not dishonest, to imply that all adverse effects to historic resources will be avoided.
7. The effectiveness, or lack thereof, of any procedure is as effective as its implementation.
8. The 1982 Historic Preservation Plan and the ICRMP are not identified in the list of Fort Bliss' reports (Footnote 3).
9. This information was requested in scoping comments for the SEIS (DeGarmo 2006, Paragraph VI).

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Upon receipt of this brochure, if there is interest in having the report, the recipient may contact Fort Bliss and a paper or digital copy will be provided when available. These documents have been readily available to any archaeologist who has contacted Fort Bliss since 1995. The reports are also available through the appropriate SHPO office**.**

7.8. Loss of data can occur due to impacts from off-road vehicles as noted in Section 5.9 of the Draft SEIS. Any effects would only be adverse effects if they occur to NRHP-eligible properties per the National Historic Preservation Act. Mitigation measures will be put in place per the Programmatic Agreement to minimize or avoid those impacts. Properties of undetermined eligibility are treated as eligible until a determination has been made and concurred in by the SHPO.

There are at present no data to suggest that off-road vehicle maneuvers will cause different levels of adverse effects to different cultural periods and phases. However, the potential to cause differing effects to different depositional characteristics, sizes, and locations will have to be studied over time through careful archaeological monitoring and continued site evaluations on McGregor Range. If the signatories of the PA determine the measures are not effective, new measures will be developed in consultation with all parties to the PA, and the PA will be amended as needed.

7.9. Section 5.18 of the Draft SEIS did not list impacts to historic resources as unavoidable because measures exist to mitigate effects to historic properties. However, it is acknowledged that some loss of cultural resources is likely unavoidable, as is noted in Section 5.9 of the Draft SEIS, and a statement to this effect has been added in Section 5.18 of the Final SEIS.

7.10. The procedures for managing these properties incorporate some of the aspects of the ICRMP, but otherwise are new procedures that will have to be evaluated as they are implemented. In the event that these procedures do not provide adequate management as determined by one or more of the signatories of the PA, new procedures will need to be developed through consultation with the SHPOs and the ACHP, and the PA will be amended as needed.

7.11. Restricted areas have been minimally impacted and still contain sufficient integrity and data to be considered significant under the NHPA; Fort Bliss believes these restricted areas have been successful in preserving archaeological sites. Complete data for defining restricted areas are not yet available and data collection is currently in progress.

Comment 5: **The SEIS does not disclose the analytical rationale for using environmental variables defined for Fort Bliss' GIS, ITAM data base to identify environmental areas with high priority archaeological survey (page 5.9-1, lines 13-17. PA, pages 35-36).** The SEIS does not disclose if the variables will be used only to try to identify areas with high densities of sites or if the intent is also to test the utility of those variables for predictions about the distributional characteristics of different kinds of sites (cf. Comment 2, Paragraph C and Footnote 10). Given the cautionary "Concluding Comments" of Judge and Sebastian (1988: 638-641), it is troubling that the SEIS fails to disclose that confidence in the GIS data base has been established by previous tests of site distributions using Tularosa Basin archaeological data. 7.14

Comment 6. There is inadequate disclosure of criteria that have been, and will be, used to evaluate archaeological resources ... a fundamental analytical and resource management issue. Determination of the actual and potential eligibility of archaeological resources for inclusion in the NRHP determines whether or not adverse effects to sites and areas will be mitigated. Some statements in the SEIS are cause for concern about this issue.

A. The SEIS does not disclose the operational translations of the generalized NRHP eligibility criteria developed by Abbott et al. (1996) and used by Fort Bliss to determine eligibility, or lack thereof, for different sites. Further, the SEIS states that "A contract is currently underway to revise and update these [translations] incorporating what we have learned about the nature and extent of archaeology in this region in the last ten years" (Appendix B, Section 4.4.2, pages 28-29). However, the SEIS does not disclose the justification(s) for why or how these translations need to be changed. The lack of disclosures prevents archaeologists from independently evaluating if Fort Bliss' implementation of the NRHP's criteria has demonstrated a high probability of identifying scientifically important values of the archaeological record or if future evaluations will have a high probability of identifying those values. 7.15

B. The SEIS contains statements implying the paradigm (Kuhn 1996) underlying planned translations of NRHP criteria and the implementation of the ICRMP may not represent the best interests of both the military mission and the scientific values inherent in the archaeological record. Detailed disclosure of the statements' meanings is needed for clarification of their intent, for they could be interpreted to mean: (1) Hundreds of sites with minor loss of integrity from off-road maneuver can be evaluated as not being eligible for the NRHP and requiring no further consideration by the ICRMP; (2) A statement about the red zones implies there may be no statistical bases for concern with other sites on Fort Bliss; (3) A statement about "acceptable loss" combined with the planned changed translations of the NRHP can have various meanings, some disastrous. For example, all sites on Fort Bliss deemed to be "repetitive" with a Mesilla Phase pithouse village or a burned rock midden either on or off post could be evaluated as ineligible for the NRHP and their loss "acceptable" with no testing, data recovery, or interpretation. I frequently heard this point of view expressed by Fort Bliss personnel between 1977 and 1994. These statements include (a) Resource integrity is "a key criterion for determining historic resources' eligibility to the NRHP" (page 5.9-2, lines 80-82). (b) The SEIS states that red zones "contain representative samples of the type of sites present on Fort Bliss" (page 4.9-5, lines 189-191. cf. Footnote *11*). (c) "Acceptable Loss" of archaeological sites is defined in CRM SOP #8 as those " ... cases of repetitive site types that offer no new information available at other sites or already obtained ..." (Appendix B, page 45 and Section 4.4.2, pages 28-29). 7.16

Footnotes:

10. If the GIS model is used only to try to identify areas of high site density, then there is the distinct danger of not locating sites essential for developing interpretations of significant elements of the archaeological record. Some simple examples of the issue (cf. Cordell 1984; Cordell and Gumerman 1989; Stuart and Gauthier 1981): (1) Different sites of both the Mesilla and El Paso Phases probable have different densities correlated with different environmental variables important to their use. (2) Both PaleoIndian and Archaic sites probably have low densities with a different environmental distributions than Formative Period sites. This general issue is of extreme importance given that archaeological sites on McGregor Range have greater integrity than those in most other parts of the installation and that these sites probably have greater informational potential that will suffer extensive adverse effect from off-road maneuvering by hundreds of tanks, APCs, and wheeled vehicles.

11. The statement is false. The original red zones were never intended to contain, and were never described as containing, valid statistical samples of well analyzed and interpreted, chronological and functional variability in sites comprising the archaeological record on Fort Bliss (cf. Fort Bliss 1982: 8-10). The red zones contained sites parsed by cultural phase. Intra-phase samples of sites then were defined using the Binomial Distribution on the distribution of intra-phase counts of the different artifact types on individual sites recorded during field surveys conducted prior to 1982. The cumulative sum of all sites in all samples then were grouped into red zones distributed throughout the existing maneuver area. The sites in the red zones never had been tested, excavated, analyzed, interpreted, and synthesized as required for the SEIS' statement to be applicable even to the existing maneuver areas.

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The new translations of the NRHP criteria will be well defined in the revised Significance Standards, currently being prepared, and will be done in consultation with the New Mexico and Texas SHPOs. Once these are agreed upon by all parties to the Programmatic Agreement, they will become a document incorporated in the PA.

7.12. Revisions to the ICRMP will be done in consultation with the SHPOs and an environmental assessment will be prepared, which will allow public comment on the document. The ICRMP will be revised to reflect the Programmatic Agreement and will include Standard Operating Procedures for complying with NAGPRA and ARPA.

7.13. All training exercises with the potential to affect historic properties are reviewed through the Range Facility Management Support System (RFMSS) or Form 88 system described in Appendix A of the SEIS and analyzed by the Fort Bliss Directorate of Environment before approval is sent to Range Scheduling. Coordinates are provided and planned concentrations of ground disturbing activities are identified and their locations adjusted to reduce adverse effects to NRHP-eligible and undetermined properties. In addition, Range Liaisons periodically check the units in the field to ensure they are set up in the proper locations.

7.14. The model adopted methods from practices and findings of Predictive Locational Modeling of Archaeological Resources in McGregor Range, Southern Tularosa Basin, New Mexico (Zeidler, Hargrave, and Haag 2002) and Significance Standards for Prehistoric Archaeological Site at Fort Bliss: A Design for Further Research and the Management of Cultural Resources (Abbott et. al 1996). Parameters include: unsurveyed areas west of Otero Mesa on McGregor Range, distance/proximity of water sources (playas, depressions, alluvial fans, intermittent drainages, streams), soils/geomorphology appropriate for survey including surface visibility and depositional/erosional environment, and slope (1-10 percent optimal). This was done through a variety of environmental layers and tools available in ArcGIS. The intent is to identify areas with high potential for archaeological sites for survey unit placement. At present, it is not being used to test the utility of those variables for predictions about distributional characteristics of different types of sites. Fort Bliss is using this as a way of selecting survey locations with the good-faith intent of identifying historic properties within the 30 percent sample parcels to increase understanding of the archaeological record on McGregor Range.

Miscellaneous Comments: The comments in this section are concerned with several topics, all of which are relevant to how the Programmatic Agreement and the ICRMP have been and will be implemented.

Comment 7: Ref: Appendix B, SOP #8, page 45: "Justification to conduct data recovery is typically found in a research design or data recovery plan related to a specific archaeological site." A difficult but significant question: What was the paradigm (Kuhn 1996) that characterized the ICRMP's and PA's formulators' views about the value of the archaeological record and its component sites, the specific kinds of questions incorporated into research designs, revisions of red zones and the establishment of new ones, translation of criteria for inclusion in the NRHP, the value of scientific study of the archaeological record, and indeed the anticipated product of the ICRMP and the PA (cf. Fort Bliss 1982: 2-7)? Potential answers to this question are highly variable, but they disclose the intellectual underpinning for the entire historic resources program on Fort Bliss. A response that translates into "compliance with applicable law and regulation" does not answer this question, for potentially there are many philosophies that can underlie strategies for some kinds of compliance. 7.17 7.18

Comment 8: Ref: Figures 4.1-1 and 4.1-2 show locations, configurations, and apparent sizes of red zones to be the same as originally defined. Question: Have the red zones not already been effectively redefined for CX and REC purposes using the results of the several studies conducted on sites they contain? 7.19

Comment 9: Ref: Appendix B, SOP #1, section 1.4.1: Questions: What method is used to identify red zones to personnel conducting a military field training exercise (FTX)? Are red zones monitored to evaluate their "no activity" designation? If red zones are monitored, then how often are they monitored and by whom? What procedures are followed and what remedial actions are taken if violations of red zones are identified (cf. Footnote 9)? 7.20

Comment 10: Ref: page 5.9-5, lines 219-220, et al.: "Management ... would include defining Red and Green zones within [additional off-road maneuver area on McGregor Range]." Question: Will the strategy to define new red zones be an "individual site" strategy where individual sites will be defined as red zones, or will it be a populational strategy whose results are represented by the cumulative sum of samples of all the several kinds of sites contained in the red zones (Ref. Comment 2 and Comment 7)? If the latter, then how will suitable "samples" be identified? 7.21

Comment 11: Ref Comment 7: Many possible sampling and funding strategies might be used to design data recovery projects. Questions: (1) What sampling philosophy (cf. Footnote 12) underlies Fort Bliss staff's evaluations that data recovery projects submitted by archaeological contractors do or do not include appropriate, representative sampling criteria? (2) What provisions are made to ensure funding is available to respond to surprise findings requiring more extensive excavation, analysis, and funding than initially provided for data recovery projects (cf. Footnotes 9 and 13)? 7.22

Comment 12: Ref. Appendix B, SOP #10, page 52: "In the event of accidental discovery of archaeological material during a ... field training exercise in the maneuver areas, all [training] affecting the materials must cease immediately." Question: What evidence exists that military personnel will adjust FTX activity if archaeological materials are seen? This requirement is merely a "paper tiger," for given the quantity of unprotected (non red zone) materials/sites that will exist on McGregor Range, FTX personnel will not know what is, or is not, already discovered. Moreover, given the intensity of FTXs, FTX personnel have recognizing, reporting, and avoiding archaeological materials at the bottom of their priorities.

Footnotes:

12. A data recovery project may provide data for well grounded or seriously flawed interpretations. Some excavation projects can be concerned principally with chronological questions for which limited sampling might be sufficient. Excavation only inside pueblo or pithouse structures may provide information about chronology, construction techniques, variation in interior features, and activities conducted inside the structures. But, there would be no data or information about outside storage facilities, activity areas, or middens that were significant components of residential locations. Modern excavation projects are concerned with answering questions about seasonality, land use strategy and resource utilization, technology, social organization, inter- and intra-regional trade, and other questions for which well grounded sampling strategies are required.

13. Test excavations, even if very extensive, only provide hints about a site's characteristics and its data content. But, estimates of the amount of excavation and analysis needed for data recovery projects are grounded upon the results of test excavations. Therefore, data recovery projects frequently encounter surprises, sometimes major, requiring more extensive excavation, analysis, and funding responsive to a site's unexpected complexity.

Glen DeGarmo: Comments, Draft SEIS ---- *GD-6*

7.15. Abbott et al. 1996 is available for review at public libraries in El Paso, Alamogordo, and Las Cruces. This document was done in consultation with the Texas and New Mexico SHPOs. The revised Significance Standards will address the body of knowledge available and what translations may need to be changed. This will be done in consultation with the SHPOs and the ACHP.

7.16. Minor loss of integrity is unlikely to be sufficient to find a site ineligible for the NRHP and cannot be taken out of context without an evaluation of the data potential and its significance on that site.

At present, new restricted areas are being defined with regard to their potential to provide significant data as outlined in the Significance Standards. This procedure is subjective and conducted in consultation with the appropriate SHPO. In the future, a statistical procedure may be developed.

As the PA indicates, (Section 8.2), loss cannot be considered acceptable until the requirements of 36 CFR 800 and other SOPs in the PA are met. Any mitigation sampling strategy in which redundant site data is being considered would be done in consultation with the signatories of the PA. If they are agreed upon, then they would satisfy the requirements of Section 106 of the NHPA.

7.17. Fort Bliss no longer limits itself to the previous, strict paradigm of Julian Steward Cultural Ecology. Currently, a variety of theoretical perspectives is incorporated, depending on the project, questions being asked, and researchers conducting the work. These perspectives may include Processualism/Cultural Ecology, Behavioral Archaeology, Human Behavioral Ecology, and others. A discussion of paradigms and theoretical perspectives will be included in the revised Significance Standards but will not be strictly limited as previously to Cultural Ecology and Systems Theory.

All Research Designs are submitted to the Texas and New Mexico SHPOs and the Tribes for review. Their input is incorporated into those documents to produce a professional and scientific program for data collection, analysis, and interpretation.

7.18. No, the restricted areas have not been redefined for CX and REC purposes.

7.19. Restricted areas are clearly marked on all range maps. They are uploaded for training purposes into the GIS section of RFMSS for training planners, they are considered when RFMSS and Form 88 requests are provided, and if any training locations are requested in restricted areas, the requester is told to move the locations out of the restricted areas.

Comment 13: The Department of Defense (DoD) reported to BRAC that Fort Bliss has 992,303 acres of "maneuver area." (DoD 2005: Table 30, page A-30). The text in DoD (2005) clearly shows this acreage was one of the major factors contributing to DoD's recommendation to convert Fort Bliss into a "major mounted maneuver post," BRAC's subsequent approval for stationing 4 HBCTs at Fort Bliss, and Fort Bliss' subsequent development of this SEIS. Without clarification, the acreage reported by DoD is subject to significant differences in interpretation. Question: Who reported the acreage to DoD that was in turn reported to BRAC as available "maneuver area" on Fort Bliss and why was that submission not clarified to report that only 335,000 acres of existing off-road maneuver were available? 7.23

Comment 14: Ref: Briefing slide produced by Team Bliss reportedly for DoD's briefing to BRAC (personal communication) contains the bullet point "**Largest Maneuver Area in the Army - One Million acres of training space - --- *with no environmental limitations*!**" [Emphasis in the original], and the SEIS' statement (page S-1, lines 26-29) that Fort Bliss' proposes to "Modify current land use on Fort Bliss ... without compromising the commitment to stewardship of natural and cultural resources." The messages of the bullet point and the SEIS statement are significantly contradictory. Question: Given these contradictory statements and the many issues raised by the comments provided in this submission, what is Fort Bliss' commitment to high quality, professional stewardship of natural and cultural resources ? 7.24

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Glen DeGarmo: Comments, Draft SEIS ---- *GD-7*

In the field, restricted areas have been marked around the perimeter with siber stakes (t-post with reflector tubes) and "Off Limits" signs. This is briefed to all incoming units, the Commanders Training Course, and the Environmental Compliance Officers course.

There are signs near the restricted areas that describe what a siber stake is and that they must be avoided. Restricted areas are periodically monitored by the Range Liaisons as well as the Combined Arms Battalion during routine patrols of the ranges. In addition, specific restricted areas are identified for monitoring when units have requested training areas nearby.

7.20. Both population and individual sites will be used. For example, McGregor Pueblo and Escondido Pueblo will be single site restricted areas. Large groups of high density sites representing different site types, as defined in the revised Significance Standards, with different cultural temporal affiliations will be assigned as restricted areas in consultation with the appropriate SHPOs. No statistical method has been developed at present.

7.21. The data recovery plan, reports, and results are all reviewed by qualified on-staff professional archaeologists and then submitted for consultation with the appropriate SHPOs, ACHP, and Tribes to ensure their adequacy.

In the event of surprise findings, the Fort Bliss Directorate of Environment obtains additional funding and modifies an existing contract or issues a new contract to complete the work.

7.22. Periodic monitoring by the Range Liaisons checks the units to ensure their locations match that of the range request. If they do not, they are notified and will move locations. Extensive training is made available to the units concerning their responsibilities in the event cultural materials are found. Each unit is assigned a trained Environmental Compliance Officer (ECO) whose responsibility is to notify the Directorate of Environment in the case of accidental discovery. Not all accidental discoveries will be reported, but Fort Bliss will continue to educate and reinforce the importance of doing so.

7.23. The Army accurately reported Fort Bliss' capabilities to the BRAC Commission. Fort Bliss includes a total of approximately 1,116,539 acres (see Section 4.1 of the Draft SEIS). Subtracting the Main Cantonment Area, Castner Range, the portion of McGregor Range leased from the U.S. Forest Service, Culp Canyon Wilderness Study Area, and the impact area of Doña Ana Range, which are not suitable for off-road vehicle maneuvers, leaves approximately 992,000 acres, including lands withdrawn under Public Law (PL) 106-65 for "military

maneuvering, training, and equipment development and testing…" [emphasis added]. The information provided to the BRAC Commission included a land use map of Fort Bliss similar to Figure 3.1-2 in the Draft SEIS, which clearly shows where off-road vehicle maneuvers are permitted.

It should be noted that "maneuvers" include on-road vehicle and dismounted (on-foot) training, in addition to off-road vehicle maneuvers. As Figure 3.1-2 shows, dismounted maneuvers were authorized in all training areas on Fort Bliss, and on-road vehicle maneuvers were authorized in all training areas except Culp Canyon Wilderness Study Area in the Record of Decision for the 2000 Mission and Master Plan PEIS.

7.24. Fort Bliss' extensive environmental stewardship program is detailed in Chapter 2 and further in Appendix A of the Draft SEIS. Stewardship plans, including the Integrated Natural Resources Management Plan and the Integrated Cultural Resources Management Plan, were in place when the BRAC Commission conducted its deliberations and are an integral part of the management of Fort Bliss lands and resources. They have been designed specifically to ensure both high quality military training and resource sustainability, as well as compliance with applicable environmental laws and regulations. These programs have been successful in providing environmental stewardship because they are integrated into land management in such a way that training is not degraded by environmental limitations. This is accomplished through a partnership between Fort Bliss land managers and units training on the installation, which allows, for example, restricted areas that are off-limits to be incorporated as part of the training scenario.

Mr. John Barrera, NEPA Manager
Directorate of Environment
Bldg. 624, Pleasonton Road
Ft Bliss, TX 79916-6812
(915) 568-3908

Postmarked 12 Dec 2006

Dear Sir,

12 December 2006

As an Alamogordo resident, retired USAF officer and member of the Alamogordo Forum, I have followed this issue for over a decade. I recently attended the public meeting held at the Alamogordo City Hall. My recommendation is for Ft Bliss to go for everything but at the expense of providing a few reasonable concessions to the ranchers.

These concessions are as follows:

1) Whenever there is a higher level of fires due to weather and training/test conditions, one of the Ft Bliss stationed helicopters should be equipped with fire fighting equipment, a trained crew, stationed at the appropriate location and put on 5 minute alert. Although it can be argued that this gets in the way of "normal" training, combat requires adaptation. This should be considered part of training for real world combat conditions. 9.1
2) The ranchers should not be put into conditions where they can not get access to Alamogordo along 506. This can be accomplished through a variety of techniques including the building of one or more overpasses, the building of temporary bridges (part of combat training) or a very elaborate communications system between the Army and the ranchers (also something that compares to a real combat situation). 9.2
3) Ranchers should be allowed to maintain access to the mentioned BLM land used for grazing. 9.3

I was impressed by the general "reasonableness" displayed by the ranchers who expressed their opinions at the meeting. These people need to be recognized, accommodated and made full partners in how the increased use of McGreggor Ranch is accomplished. Their support can be achieved and maintained for generations by providing the above concessions, now.

Sincerely,

Lance C. Grace

Lance C. Grace
Lt Col, USAF, Retired
44 Marble Canyon Estates
Alamogordo, NM 88310
(505) 437-5499
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9.1. Procedures for minimizing fire risk and responding to wildfires are included in the Range Standard Operating Procedures. More information on fire hazard in the Fort Bliss Training Complex and the Range SOP has been added to Sections 4.11 and 5.11 of the Final SEIS.

9.2. Crossings will be limited to company-size elements, will include traffic control, and will typically take less than 15 minutes. No additional mitigation should be needed.

9.3. Access will continue to be provided to all areas that are leased for grazing. It remains to be determined whether training areas that are used for off-road vehicle maneuvers will continue to be leased by BLM for grazing. Several factors need to be considered before that determination can be made. The Army will work with BLM and any affected leaseholders to evaluate the feasibility of continued grazing in Units 1, 2, and 3, should Alternative 2 or 4 be selected. Access will continue to be available to all other grazing units under all alternatives.

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GOVERNOR
Bill Richardson

DIRECTOR AND SECRETARY
TO THE COMMISSION
Bruce C. Thompson, Ph.D.

Tod Stevenson, Deputy Director

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Silver City, NM

December 12, 2006

Mr. John F. Barrera
IMSW-BLS-Z
Fort Bliss, TX 79916-6812

OFFICIAL

Re: Fort Bliss Mission and Master Plan Supplemental Programmatic EIS
NMGF Doc. No. 11107

Dear Mr. Barrera:

The New Mexico Department of Game and Fish (Department) has reviewed the Fort Bliss Mission and Master Plan Supplemental Programmatic Environmental Impact Statement (SPEIS).

As a result of BRAC (Base Realignment and Closure) and Army Transformation, Fort Bliss will receive a Heavy Armor Division comprised of four Heavy Brigade Combat Teams (BCTs), a Combat Aviation Brigade, an Artillery Brigade, and various other supporting units. The net effect of these changes will be an increase of approximately 20,000 military personnel assigned to Fort Bliss by 2011. The stationing of an Armor Division and Heavy BCTs at Fort Bliss will change training requirements to more off-road vehicle maneuvers, involving both tracked and wheeled vehicles such as M1A tanks, Bradley fighting vehicles, and High Mobility Multipurpose Wheeled Vehicles (HMMWVs).

With the relocation of Heavy BCTs to Fort Bliss, the number of tracked vehicles will increase substantially. Typically, a Heavy BCT includes approximately 360 tracked vehicles (e.g., M1 tanks, Bradley fighting vehicles) and 900 wheeled vehicles, (such as HMMWVs). The Air Defense Artillery (ADA) training that has dominated range use in the recent past primarily involved wheeled ADA units driving on existing roads to set locations, setting up equipment, and performing their training in a largely static position. There was relatively little movement of personnel or equipment. The heavy BCTs will train in a vastly more dynamic fashion, moving relatively constantly cross-country in tanks and other tracked vehicles.

The Army is considering four action alternatives for meeting the additional infrastructure and training needs of the new units. Each action alternative involves expanding the Main Cantonment Area and providing the capability to conduct off-road vehicle maneuver training on portions of McGregor Range in the Tularosa Basin. Off-road vehicle maneuvers are already conducted on

approximately 335,000 acres in the North Training Areas, South Training Areas, and a small portion of McGregor Range.

Alternative 1 would provide approximately 216,000 additional acres of off-road vehicle maneuver space in the Tularosa Basin portion of McGregor Range, south of New Mexico Highway 506. Alternative 2 would include land in the Tularosa Basin portion of McGregor Range north of Highway 506, increasing the amount of available off-road maneuver space by approximately 280,000 acres. Alternative 3 would provide approximately 287,000 acres of additional off-road vehicle maneuver space in the south and southeast Tularosa Basin portions of McGregor Range. Alternative 4 (the Proposed Action), would include all of the changes considered in the other three alternatives, providing approximately 352,000 acres of additional off-road vehicle maneuver space which, when combined with the existing maneuver areas, would provide a total of 687,000 acres of off-road vehicle maneuver training capability at the installation. None of the alternatives would involve off-road vehicle maneuvers on Otero Mesa or in the Sacramento Mountain foothills on McGregor Range.

The Department understands the magnitude of the importance of expanding overland training maneuvers on Fort Bliss for troop training, and recognizes that ecological sacrifices will be made to achieve this goal. The Department also recognizes that multiple alternatives outlined in the SPEIS meet the primary components of the purpose and need for the new mission (e.g., overland maneuvers), while differing in potential additive and cumulative ecological effects that may be irreversible over time. Page 5.16-1 of the SPEIS states:

> "While damage to land in the Tularosa Basin portion of McGregor Range from off-road vehicle maneuvers may not be completely irreversible, the time required to recover from significant damage to the biological crust and to vegetation and soil could be sufficiently long to render the impacts nearly irreversible. This would especially be the case if long-term use of the land for off-road vehicle maneuvers resulted in change in landform due to erosion and/or change in the vegetative community and habitat."

The Department has identified Chihuahuan Semi-desert Grasslands as a key habitat type of primary importance for conservation in New Mexico in our 2006 Comprehensive Wildlife Conservation Strategy, which seeks to work with private, military and other federal and state land management agencies to protect habitats critical for the perpetuation of Species of Greatest Conservation Need in New Mexico. Because of the relatively pristine Chihuahuan Desert grasslands of TAs 24, 26 and 27 in the McGregor Range Southeast Training Areas, the Department supports the implementation of Alternative 2. Alternative 2 enables off-road vehicle maneuvers in the north Tularosa Basin portion of McGregor Range (north of New Mexico Highway 506), which would provide the capability to perform battalion-level movement-to-contact, force-on-force training not otherwise available on the Fort Bliss Training Complex, in addition to increasing maneuver capacity. Selection of Alternative 2 adds approximately 280,000 acres (1,135 sq. km) of area designated for Off-Road Vehicle Maneuvers to land in the Fort Bliss Training Complex currently approved for that use, for a total of over 615,000 acres (2,491 sq. km.). This alternative would not authorize overland maneuvers in TAs 24, 26 and 27 in McGregor Range Southeast Training Areas, but still allows current military activities to continue in these TAs (SPEIS p. 3.5-1).

We provide the following discussion in support of our position.

Grassland plant communities account for over 32 percent of the land on Fort Bliss (SPEIS p. 4.8-7). McGregor Range Southeast TAs 24, 26, and 27 have the highest percentage of grasslands on Fort Bliss (15% of Piedmont; 24% of Mesa, and 23% of Foothill Desert grasslands) relative to any other TAs proposed for overland maneuvers (SPEIS Table 4.8-2). The October 2001 Fort Bliss Integrated Natural Resources Management Plan (INRMP) (page 8-12, figures 6-10 and 7-2) identifies high quality grama grasslands in McGregor Range Southeast TAs 24, 26, and 27, which are part of the Southeast portions of the Foothill Bajada Ecosystem Management Unit. These TAs are dominated by grasslands with the highest total plant and animal species richness relative to other TAs proposed for off-road maneuvers, and include black grama grasslands which are rated as globally important by The Nature Conservancy. The "Mesa" and "Foothill" grasslands in TAs 24, 26 and 27 are identified in the INRMP as having the highest density of arroyo riparian habitat, which provide a framework of habitat corridors for wildlife, including mule deer, pronghorn and neotropical migrant songbirds. The littleleaf sumac (*Rhus microphylla*) shrubs that line these corridors provide important winter browse food and cover for mule deer and pronghorn, and these areas also provide excellent game bird habitat. These grasslands areas have not been grazed by livestock for as many as 86 years, resulting in large areas of grasslands that are approaching pre-settlement conditions These areas are characterized by high grass cover with a low incidence of shrubs and weedy species and a general absence of exposed and eroded soil. The black grama grasslands in these areas are particularly important because they have been greatly reduced since the 19th century (INRPM p. 6-31) and serve as a baseline for study of ungrazed black grama grassland systems. Intensive off-road vehicle maneuver training could ultimately change the vegetative cover and ecological state of these TAs (24, 26, 27) (SPEIS Table S-2).

The INRMP (p. 6-26) describes how shrub-dominated plant communities have replaced grassland plant communities (including black grama grasslands) over large areas in southern New Mexico in the last century. More than 86,000 acres of a 144,500-acre study area on the Jornada Experimental Range were grasslands with no shrubs in 1858; no such habitat remained by 1963. During the same time period, mesquite-dominated habitat increased from 6,266 acres in 1858 to 66,151 acres in 1963, and creosote-dominated areas increased from 640 acres to about 12,000 acres during the same period. Mesquite-dominated areas have continued to expand even after livestock have been removed from the range for many years. Long-term studies in permanent enclosures at the Jornada Experiment station from 1935 to 1980 showed that black grama grass had totally disappeared by 1980, even in areas where it was the dominant species in 1935; the greatest decline in black grama took place between 1950 and 1955 during a severe drought. The transition to this essentially irreversible ecological state is believe to have been created by disturbance to vegetation and soils from livestock overgrazing and drought.

Page 4.5-1 of the SPEIS states that McGregor Range contains soils that are highly susceptible to both water and wind erosion. Page 5.5-2 states cross-country travel by vehicles has been shown to compact soils, crush vegetation and biotic crusts, and accelerate soil erosion. Page 5.5-3 states that if vegetation and soil crusts are damaged or destroyed by surface disturbance and not allowed adequate recovery periods, wind erosion will cause the bare ground to expand downwind until slowed by terrain.

Page 5.5-4 states that the soils on McGregor Range are the most susceptible to water erosion of all segments of the Fort Bliss Training Complex, especially if vegetation and biological crusts are

damaged. Southeast TAs 24, 26 and 27 of McGregor Range are identified as having the highest probability of accelerated soil erosion caused by rainfall and runoff. Page 5.5-5 states that in the south Tularosa Basin portion of McGregor Range (different TAs from the Southeast TAs), 11% of the area would likely become more bare with repeated tracking and 13% might convert to mesquite coppice dunes if the vegetation is not allowed to recover. Without adequate periods of rest to allow for recovery of soil cover, off-road vehicle maneuvers in these portions of the Fort Bliss Training Complex are likely to cause a change in vegetation and accelerated erosion. Page S-10 states "Expansion of off-road vehicle maneuver training into the Tularosa Basin portion of McGregor Range, along with increased maneuvers in the North and South Training Areas, is expected to increase wind and water erosion significantly and will likely result in long-term changes in vegetation communities in the more intensely used areas

Page 5.5-6 states that typical soil erosion control measures that may be implemented to reduce soil movement by air and water include 1) establishment of earth cover such as vegetation or aggregate; 2) installation of artificial or vegetative wind breaks; 3) adding soil binding materials to the ground surface; or 4) avoiding areas where vegetation and biological crusts have been damaged by multiple vehicle passes in order to allow recovery to occur. However, chapter 5.18 *Summary of Probable Adverse Impacts That Cannot Be Avoided* states "Although erosion control measures are available, it is not feasible to implement these measures on a scale needed to prevent erosion and fugitive dust generation in the training areas used for off-road vehicle maneuvers". The Department therefore believes that mitigation for impacted areas over time from overland maneuvers is unlikely to be successful, particularly given the climatic and soil conditions of McGregor Range in New Mexico.

The SPEIS describes potential long-term damage to soils and vegetation on Fort Bliss, primarily from overland maneuvers, but differentiates these potential impacts based on ecological site differences, with the presumption that the grasslands of the Southeastern McGregor Range Training Areas (24, 26, 27) will be more resilient to overland maneuver damage, and suggests that limiting the number of passages of tracked vehicles will avoid the type of habitat type conversion that has occurred elsewhere in southern New Mexico grasslands. However, it is not clear to the Department that the magnitude of overland training maneuvers (i.e., tracked and wheeled vehicles) planned for Fort Bliss, in conjunction with uncontrollable climatic factors, can ultimately be mitigated or manipulated by these measures to protect the more ecologically valuable grasslands in TAs 24, 26 and 27. We believe that opening up these grassland TAs to overland maneuvers would in essence be an experiment in disturbance to desert grasslands, with monitoring proposed in the SPEIS to document effects. However, current research in the southern New Mexico region, in relatively similar habitat types, has documented that once grassland sites reach a critical point of disturbance, a preexisting grassland ecological state can be lost permanently and modified to a woodier and /or less vegetated state.

Because of the documented history of loss of grasslands and conversion to shrublands and mesquite dunes in the southern New Mexico from drought and human-induced disturbance, we believe taking a more cautious approach of protecting the grasslands of TAs 24, 26 and 27 is warranted by protecting these training areas from overland maneuvers.

The Fort Bliss INRMP (p. 6-31) states that exotic plant species have become established on some areas of on Fort Bliss. African rue has become established on Otero Mesa. It invades disturbed

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Mr. John Barrera 5 December 12, 2006

sites and once successfully established, it can spread and out-compete native grasses. Russian thistle is another species that becomes established on disturbed ground and this species can be found throughout Fort Bliss. Salt cedar has become established at some stock tanks and at other widely scattered locations on Fort Bliss. Another potential problem plant is malta thistle, which is currently known to grow along U.S. Highway 54 and may occur along other roadways on Fort Bliss. Another exotic species of concern is Johnson grass, which occurs in some drainages on Fort Bliss. Bermuda is found on some abandoned farmland that is no longer irrigated. The Department strongly recommends that a Standard Operating Procedure/Best Management Practices be developed to reduce or prohibit the spread of existing State listed noxious weeds. These practices might include treatment of known stands of noxious weeds and/or creating protected zones where no off-road travel will occur until invasive, exotic and noxious weeds are controlled.
Best management practices should also be adopted that will prohibit the introduction of new exotic species from other regions of the U.S. or from other countries. These practices might include washing off all foreign material from vehicles that will enter McGregor Range to control the invasive spread of exotic and noxious plants onto the Range.

We appreciate the opportunity to comment on this project. Should you have any questions regarding our comments, please contact Mark Watson, Habitat Specialist, of my staff at (505) 476-8115, or <mark.watson@state.nm.us>.

Sincerely,

Tom Ward for Lisa Kirkpatrick

Lisa Kirkpatrick, Chief
Conservation Services

LK/MLW

CC: Ecological Services Field Supervisor, USFWS)
Tod Stevenson (Deputy Director, NMGF)
Luke Shelby (Assistant Director, NMGF)
Pat Mathis (Southwest Area Habitat Specialist, NMGF)
George Farmer (Southeast Area Habitat Specialist, NMGF)
Brian Novosak (Southeast Area Game Manager, NMGF)

DEPARTMENT OF THE ARMY
HEADQUARTERS, U. S. ARMY GARRISON COMMAND
1733 PLEASONTON ROAD
FORT BLISS, TEXAS 79916-6812

October 2006

079428

REPLY TO ATTENTION OF

IMSW-BLS-Z

Dear Interested Party:

The enclosed Draft Supplemental Environmental Impact Statement (DSEIS) and separate cover sheet and signature page are provided for your review and comment. Please retain the cover sheet and signature page as a part of your DSEIS. This DSEIS supplements the *Final Fort Bliss, Texas and New Mexico, Mission and Master Plan Programmatic Environmental Impact Statement* (PEIS) dated December 2000 and associated Record of Decision signed in 2001. This DSEIS identifies environmental effects that would result from modifying land and airspace use at Fort Bliss to continue supporting evolving changes in missions and units, associated facilities and infrastructure, and training activities and support Army Transformation, Integrated Global Presence and Basing Strategy, Base Closure And Realignment (BRAC), the Army Campaign Plan and other Army initiatives.

The Proposed Action would change land use in the Main Cantonment to support units assigned to Fort Bliss under BRAC and other initiatives, and in the Fort Bliss Training Complex to support construction of live-fire ranges and off-road maneuver space needed to train soldiers to doctrinal standards. In addition to the Proposed Action, the DSEIS analyzes the environmental affects of three other action alternatives and a no action alternative.

The action alternatives differ in the amount (216,000-352,000 acres) and location of land in the Tularosa Basin portion of McGregor Range proposed for off road maneuver, resulting in varied abilities to meet the defined need for maneuver training, accommodate units and missions in addition to the BRAC package, and flexibility to meet future requirements. Those portions of McGregor Range outside the Tularosa basin, specifically Otero Mesa and the Sacramento Mountain foothills, will not experience changes in land use.

Changes in land use in the Main Cantonment are necessary to accommodate the increase in military personnel associated with BRAC decisions and other initiatives.

The public comment period for this Draft SEIS will end December 12, 2006. Public meetings for the purpose of receiving comments on this Draft SEIS will be in Alamogordo and Las Cruces, New Mexico and El Paso, Texas. Additional details will follow in the media or you may contact the Fort Bliss Public Affairs Office at (915) 568-4505. Public Comments received on the Draft SEIS will be addressed in the Final SEIS and considered by the Army in its Record of Decision.

Your written comments may be sent by mail to Mr. John F. Barrera; IMSW-BLS-Z; Fort Bliss, Texas, 79916-6812; or via fax: (915) 568-3548; or email: SEIS@bliss.army.mil.

NO COMMENT
NMSHPO

1

COVER SHEET

Lead Agency: U.S. Army, Installation Management Agency

Title of Proposed Action: Changes to the Fort Bliss, Texas and New Mexico, Mission and Master Plan

Location: Fort Bliss is located in El Paso County, Texas and Doña Ana and Otero Counties, New Mexico

For Further Information Contact:

Mr. John Barrera, NEPA Manager
Directorate of Environment
Bldg. 624, Pleasonton Road
Fort Bliss, TX 79916-6812
Telephone: (915) 568-3908

Designation: Draft Supplemental Environmental Impact Statement (DSEIS)

Abstract: This Draft Supplemental Programmatic Environmental Impact Statement (DSEIS), prepared in accordance with the National Environmental Policy Act (NEPA), addresses the potential environmental impacts associated with proposed land use changes on the Fort Bliss Training Complex and Main Cantonment Area to determine how Fort Bliss can accommodate U.S. Army initiatives such as Base Realignment and Closure (BRAC) and the Integrated Global Presence and Basing Strategy (IGPBS). The initiatives seek to locate a Heavy Armor Division Headquarters comprised of four Heavy Brigade Combat Teams (BCTs), a Combat Aviation Brigade, an Artillery Brigade and various other supporting units at Fort Bliss. To support these units, additional infrastructure and facilities including live-fire and qualification ranges will need to be constructed. The changes will also result in an increase of approximately 20,000 to 30,300 military personnel assigned to Fort Bliss. Five alternatives have been identified four of which involve expanding the Main Cantonment Area and providing off-road vehicle maneuver training on portions of McGregor Range in the Tularosa Basin. None of the alternatives permit off-road vehicle maneuver on Otero Mesa or in the Sacramento Mountains foothills on McGregor Range. The fifth alternative, the No Action Alternative, is not considered feasible because it would not adequately support the requirements of BRAC. Significant environmental impacts resulting from expanding off-road vehicle maneuver training into the Tularosa Basin portion of McGregor Range and increasing maneuvers in the North and South Training Areas would likely include increased wind and water erosion and long-term changes in vegetation communities especially in the more intensely used training areas. Training related noise is also expected to increase in areas adjacent to Doña Ana Range and portions of McGregor Range. Additional impacts that could prove significant to the overall El Paso area include an increase in population growth and development which will affect air quality, increased traffic congestion, and increase in the demand for utilities and other public services.

Comments can be submitted to the above contact address postmarked through:

12 December 2006

OCTOBER 2006

This Draft SEIS, the PEIS and other environmental documents are available on the Fort Bliss web site https://www.bliss.army.mil. A CD with the PEIS is included in the mailing. This SEIS is also available upon request to the Fort Bliss Public Affairs Office or Mr. Barrera at the above addresses.

In addition, archeology and natural resources reports are available in Alamogordo, NM at the Alamogordo Public Library, 920 Oregon Avenue, in Las Cruces, NM, the New Mexico State University Zuhl Library at 2999 McFie Circle, and in El Paso, TX at the Clardy Fox Branch Library., 5515 Robert Alva.

Fort Bliss will host a field trip to the areas in the Tularosa Basin proposed for off-road maneuver. Details of times and locations will also follow in the media or you can contact the Fort Bliss Public Affairs Office at (915) 568-4505.

The Army appreciates your participation in the development of this Draft SEIS through the scoping and consultation process and looks forward to your continued participation in the development of the Final SEIS.

Sincerely,

Keith Landreth
Director
Directorate of Environment
Fort Bliss Garrison Command

Enclosures

2

Fort Bliss, Texas and New Mexico
Mission and Master Plan

Draft Supplemental Environmental Impact Statement

PREPARED FOR:

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Colonel, U.S. Army
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SEP 2 2 2006
Date

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Sept 22 2006
Date

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5 Oct 06
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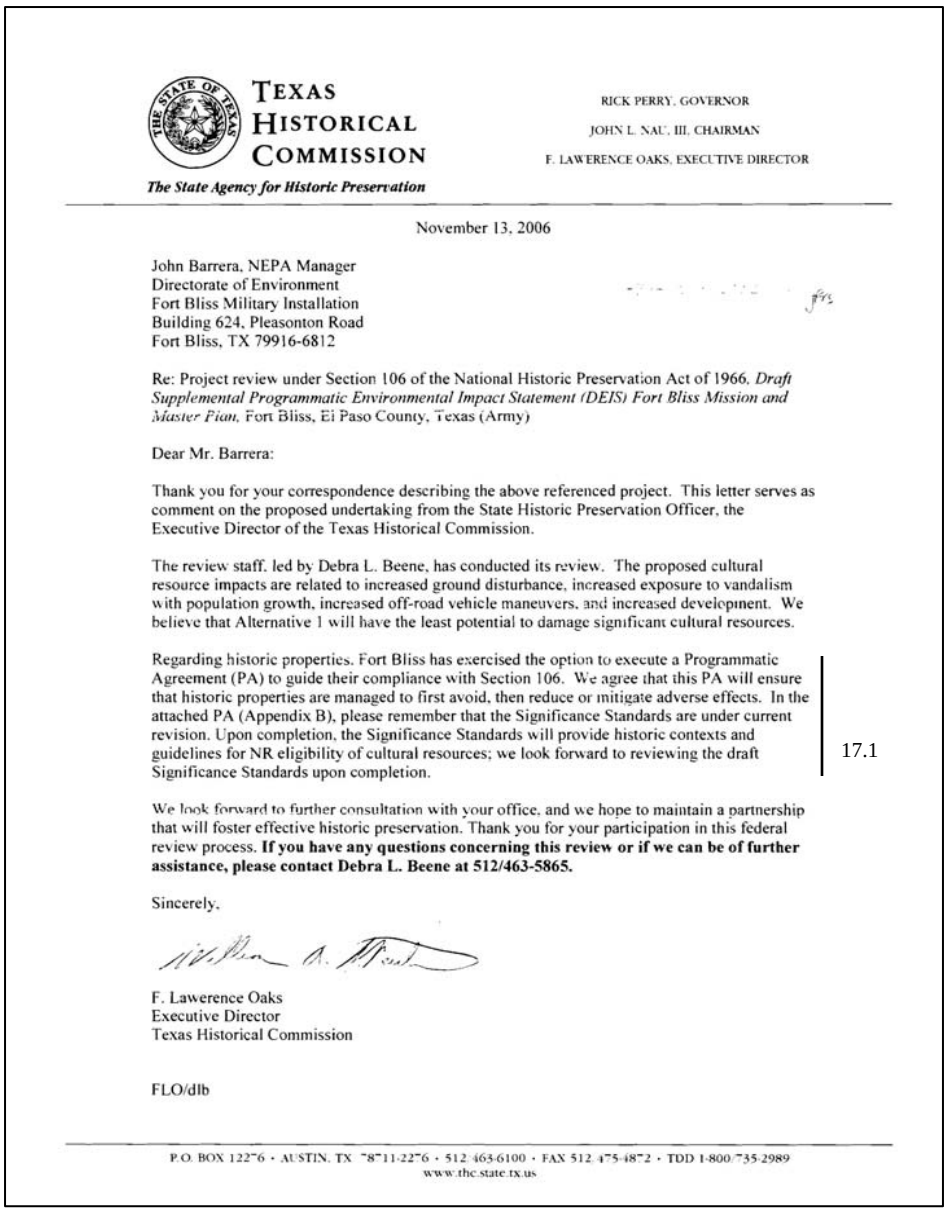

TEXAS HISTORICAL COMMISSION

The State Agency for Historic Preservation

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November 13, 2006

John Barrera, NEPA Manager
Directorate of Environment
Fort Bliss Military Installation
Building 624, Pleasonton Road
Fort Bliss, TX 79916-6812

Re: Project review under Section 106 of the National Historic Preservation Act of 1966, *Draft Supplemental Programmatic Environmental Impact Statement (DEIS) Fort Bliss Mission and Master Plan*, Fort Bliss, El Paso County, Texas (Army)

Dear Mr. Barrera:

Thank you for your correspondence describing the above referenced project. This letter serves as comment on the proposed undertaking from the State Historic Preservation Officer, the Executive Director of the Texas Historical Commission.

The review staff, led by Debra L. Beene, has conducted its review. The proposed cultural resource impacts are related to increased ground disturbance, increased exposure to vandalism with population growth, increased off-road vehicle maneuvers, and increased development. We believe that Alternative 1 will have the least potential to damage significant cultural resources.

Regarding historic properties, Fort Bliss has exercised the option to execute a Programmatic Agreement (PA) to guide their compliance with Section 106. We agree that this PA will ensure that historic properties are managed to first avoid, then reduce or mitigate adverse effects. In the attached PA (Appendix B), please remember that the Significance Standards are under current revision. Upon completion, the Significance Standards will provide historic contexts and guidelines for NR eligibility of cultural resources; we look forward to reviewing the draft Significance Standards upon completion. 17.1

We look forward to further consultation with your office, and we hope to maintain a partnership that will foster effective historic preservation. Thank you for your participation in this federal review process. **If you have any questions concerning this review or if we can be of further assistance, please contact Debra L. Beene at 512/463-5865.**

Sincerely,

F. Lawerence Oaks
Executive Director
Texas Historical Commission

FLO/dlb

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17.1. The comment is correct that the Significance Standards are under revision, and Fort Bliss will provide these to the State Historic Preservation Officers of both Texas and New Mexico for review.

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ORIGINAL

Mr. John F. Barrera
IMSW-BLS-Z
Fort Bliss, TX 79916-6812

Dear Mr. Barrera:

We appreciate the opportunity to review the Draft Supplemental Environmental Impact Statement (DEIS) which supplements the Final Fort Bliss, Texas and New Mexico, Mission and Master Plan Programmatic Environmental Impact Statement (PEIS).

We commend you on a very thorough description of the alternatives and analysis of potential impacts. As a Cooperating Agency for this DEIS, the Bureau of Land Management (BLM) has provided previous input and suggestions, which have been incorporated to a large degree in the DEIS. Fort Bliss was also a Cooperating Agency for the development of BLM's 2005 Resource Management Plan Amendment (RMPA) for McGregor Range, which addressed lands we jointly manage. This relationship has been useful to both parties to provide a better understanding of the issues, resources, and impacts associated with the various uses of withdrawn public land in McGregor Range.

We have a few concerns that we would like to describe, and ask that you address them in the Final Supplemental EIS.

The BLM is greatly concerned about Alternative 4 as presented in the SEIS. At the November 6, 2006 public hearing, which BLM attended, Fort Bliss stated they need a minimum of 539,000 acres of off-road vehicle maneuver area to support Fort Bliss operations. It appears Alternatives 1, 2, and 3, provide ample off-road maneuver capability to support these operations. We are seriously concerned about the expansion of off-road maneuvers north of State Road 506. Alternative 4 allows off-road vehicle maneuvers north of Highway 506 and provides a total of 687,000 acres of off-road vehicle maneuver area. This amount significantly exceeds Fort Bliss needs by over 148,000 acres. Therefore, the need to move off-road vehicle use north of Highway 506 is not well justified.

The addition of off-road maneuvers in this area is also not consistent with the just completed RMPA for McGregor Range. Fort Bliss was a Cooperating Agency on this planning effort where the decision was made that off-highway vehicle (OHV) use on the withdrawn public lands would be limited to designated roads and trails, including the area north of State Road 506. This

18.1

18.1. Military activities are inherently different from public land uses. Congress withdrew land on McGregor Range from the public domain for military use in recognition of this difference. The Army is committed to working with BLM to permit compatible public use of the withdrawn lands, including appropriate recreation and grazing activities that do not interfere with military training or pose a danger to the public. It is not practical, and should not be expected, that military and public uses of this land would be the same.

Section 5.1.3.2 of the Final SEIS acknowledges that the McGregor RMPA does not permit non-military off-road vehicle use.

creates a challenge for BLM, when the public and BLM administrators are required to stay on roads, but military missions are not held to that same constraint. The SEIS should address the impacts associated from the two different management philosophies. In summary, BLM requests Fort Bliss select an alternative that limits off-road vehicle use to that area south of State Road 506. 18.1

We also have a few more specific comments:

- Page 4.1-9, Line 170 indicates that camping is permitted during some hunts. We request that the SEIS reflect that camping is permitted yearlong, except when a military mission would preclude it. 18.2

- Page 5.1-8, Lines 319-323 Most portions of the document indicate that the Otero Mesa would not be affected by the missions of the basin but in this section it states that dismounted training may increase, affecting access to the Otero Mesa area. This would affect public use and the Grazing Program, and the impacts of that should be reflected in more detail in the SEIS. 18.3

- Page 5.1-6, Lines 245-250 This section describes impacts from interruptions to access along Grapevine Canyon in Grazing Unit 1 and State Road 506. This would close off access to the U.S. Forest Service areas which are used by livestock operators as well as hunters or other users and would have a greater impact to those users, which should be reflected in the analysis. 18.4

- We did not find in the SEIS, any mention of mitigation or protection of existing range improvements in Grazing Units 1, 2, and 3. The range improvements located in this area are wells equipped with windmills, corrals, fences, pipelines, water storages, water troughs, and earthen reservoirs. BLM would like to see some description of possible mitigations from vehicle damage, such as briefings for trainees regarding their existence or methods for flagging or otherwise marking them on the ground for avoidance by trainees. 18.5

Thank you for the opportunity to provide these comments. If you have any questions about these comments, please contact me at (505) 525-4311.

Sincerely,

E. Fuentes
Acting For
Edwin L. Roberson
District Manager

18.2. The text has been corrected in the Final SEIS.

18.3. There are numerous factors that could affect the amount of dismounted training conducted on Otero Mesa. Some, such as the volume of off-road vehicle maneuvers conducted in other part of the Fort Bliss Training Complex, could force more dismounted and on-road vehicle training onto the mesa, while other factors such as the departure of the Air Defense Artillery units, the decrease in Roving Sands exercises, and the Air Force's projected decrease in operations on Centennial Range could reduce the amount of such training conducted. These countervailing factors make it impossible to predict the net change in military training that might be conducted on Otero Mesa. However, if use of training areas on Otero Mesa does increase, it is not expected to exceed the intensity experienced in the past during Roving Sands exercises or in areas affected by the Air Force's activities on Centennial Range. Therefore, considering the amount of public use this area experiences, it is not expected that public use or the Grazing Program on Otero Mesa would be significantly affected.

18.4. As described in Section 5.3.4, NM Highway 506 and access roads to Grapevine could be closed during military crossing. However, these crossings would occur in company-size "march units" taking 15 minutes or less to cross, between which public traffic would be allowed to pass. Road closures will also continue to occur during missile firings. Access to the Forest Service lands will be provided in generally the same way as in the past.

18.5. The Range Standard Operating Procedures will address protection of range improvements identified by BLM as supporting grazing, if Alternative 2 or 4 is selected, and may include briefings, markings, and other measures.

December 12, 2006

John Barrera
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Email: SEIS@bliss.army.mil
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VIA EMAIL & FAX

Re: Comments on Draft Supplemental Programmatic Environmental Impact Statement

Dear Mr. Barrera,

These comments are submitted on behalf of Kevin von Finger (retired Senior Ecologist at Fort Bliss), Glen de Garmo (retired Senior Archaeologist at Fort Bliss), Forest Guardians, Rio Grande Chapter (Southern Group) and El Paso Regional Group of the Sierra Club, the Center for Biological Diversity, Southwest Environmental Center, and the New Mexico Wilderness Alliance. Fort Bliss seeks under its preferred alternative to open up 352,000 additional acres to off-road maneuvering. But this acreage includes some of the least disturbed areas on Fort Bliss, with important ecological and archeological values. We believe these values must be safeguarded, but the proposed action would greatly compromise them unnecessarily and without sufficient mitigation.

Furthermore, the Department of Defense (DoD) reported to BRAC that Fort Bliss has 992,303 acres of maneuver area (DoD 2005: Table 30, page A-30)), which was a principal basis for DOD's recommended conversion of Fort Bliss into a major mounted maneuver post, BRAC's subsequent approval of stationing four Heavy Brigade Combat Teams (HBCTs) at Fort Bliss, and Fort Bliss' development of this SEIS. However, the representation that Fort Bliss has 992,303 acres of maneuver area is inaccurate: it currently has 335,000 acres open to maneuvers. The basis for this proposal is therefore fraudulent.

In response to the U.S. Army's Draft Supplemental Programmatic Environmental Impact Statement (SEIS), we support the No Action Alternative. We recommend no expansion of off-road maneuver sites on Fort Bliss. In particular, we oppose opening any additional areas on the McGregor Range to maneuvers given the ecological and archeological importance of this area. As we show below, the existing off-road maneuver areas are adequate to handle Fort Bliss's needs through at least 2010 and likely beyond.

This draft SEIS is, for the reasons discussed below, sufficiently inadequate that it precludes meaningful disclosure and analysis of impacts. We request that it be revised and recirculated as a draft in accordance with 40 CFR § 1502.9 (a).

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Among the deficiencies is the SEIS' failure to provide a "hard look" at impacts. Impacts are often not disclosed, stated as obvious generalities without attempt at quantification or discussion, understated, or stated in a manner intended to mislead the public into believing they will be less significant than they will be. In fact, disclosure and discussion of the significance of the action's impacts on many resources are absent.

In addition, there is no stated life for the action, and there is therefore no basis for the analysis and discussion of impacts as they accumulate and intensify over time. 19.1

The SEIS does not disclose and make use of the best available scientific information to analyze impacts. Information relevant to reasonably foreseeable adverse impacts that is critical to the decision makers arriving at a reasoned choice among alternatives is not included in the SEIS. This includes data relative to ecological sustainability of maneuver activity. There is therefore no disclosure of how and why the decision makers will make a decision, i.e. no clear basis for choice among alternatives based upon impacts and their significance. In addition, mitigation is not discussed for many resources and the Army has therefore failed to adopt mitigations adequate to reduce the impacts. Finally, the SEIS does not rigorously explore and objectively evaluate all reasonable alternatives. 19.2

The public cannot be expected to assess the significance of the impacts of the proposed action when the reasonably expected life of the action is not even stated. The SEIS contractor representative assigned to accompany the McGregor field trip indicated it would be for at least 40 years (Robin Brandin, pers. comm.). Nowhere are the impacts discussed or disclosed relative to the continuous activities over this length of time. 19.3

In general, this NEPA process appears to have been undertaken to justify a decision already made, in violation of NEPA. 19.4

Important biological values on Fort Bliss & threats from expanded off-road maneuver areas

The SEIS fails to disclose the significance of the biological resources within the areas proposed for maneuver, even though their own contractor reports and conservation organizations do so. The Chihuahuan Desert is perhaps the most biodiverse desert ecoregion in the world, and it is also highly imperiled. *See* Southwest Environmental Center 2006; World Wildlife Fund.[1] Degradation threats include increasing off-road vehicle use in some areas, invasions of non-native species, and increasing dominance of native shrub species in areas historically characterized by open grasslands. These are precisely the threats the Army will increase through its proposed action. 19.5

Fort Bliss itself contains important biological values:

[1]View January 2006 Southwest Environmental Center Report on biological value of Otero Mesa at: www.wildnewsguide.org and World Wildlife Fund report at: http://www.worldwildlife.org/wildworld/profiles/terrestrial/nt/nt1303_full.html

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19.1. The duration of the proposed land use changes is indefinite. There is no defined end date when the activities described in the SEIS are expected to cease. It is not possible to predict how long the Army will need this capability, which depends on many undefinable factors, including future stationing decisions, training doctrine, lessons learned in combat, etc. The analysis in the SEIS is based on the assumption that there would be no end date and reflects accumulating impacts over time, to the extent they are reasonably foreseeable.

19.2. The choice provided to the decision maker is among land use alternatives that involve different geographic areas of Fort Bliss and associated differences in ecological and other effects.

19.3. This is an incomplete account of Ms. Brandin's response to this question. As Ms. Brandin indicated on the field trip, the duration of the Proposed Action is indefinite. It is not possible to predict what future changes will be made to Army organization, stationing, or training requirements that affect Fort Bliss. The analysis in the SEIS assumes no time limit for the proposed land use changes. Army long-range land use plans generally consider a 20-year horizon, and some of the analysis in the SEIS incorporates specific timeframes. The water resources analysis, for example, incorporates El Paso Water Utilities planning and modeling that extends out approximately 50 years. These timeframes generally reflect limits in what is reasonably foreseeable and therefore can be meaningfully analyzed. There is no intention to place a time limit on the life of the proposed land use changes at Fort Bliss. The land use changes and their attendant effects can for all intents and purposes be considered permanent.

Therefore, the analysis in the SEIS assumes that areas of Fort Bliss where off-road vehicle maneuver training is conducted would be subject to repeated use for an indefinite period. The impacts reported cover a timeframe of at least 20 years.

19.4. The SEIS is being prepared to assist in land use decisions at Fort Bliss. Those decisions have not been made, although the Army did disclose its preferred alternative in the Draft SEIS.

19.5. The SEIS describes the context and intensity of impacts, which are the components comprising significance. For example, it discloses that sandy areas may have more coppice dune formation and heavily used areas (e.g., live-fire ranges, Combined Arms Collective Training Facility, tactical approaches to Doña Ana Range) will be highly disturbed. It further discloses the percentage of various vegetation communities and specifically grasslands that would be affected under each alternative. Otero Mesa, the portion of Fort Bliss with the highest density of grasslands (92 percent), is not proposed for off-road vehicle maneuvers under any alternative.

From a regional perspective, Fort Bliss supports some of the most important occurrences of Southwestern ecosystem types. The areas described here are relatively large and there are few known counterparts that are comparable in terms of composition and condition. In addition, Fort Bliss has become increasingly important to animals that are displaced onto the reservation due to habitat destruction or deterioration elsewhere (SEIS, Ref. #30).

One of the most significant high quality areas on Fort Bliss is on and below southern Otero Mesa (Southern Otero Mesa, Castner Draw and Campbell Tank sites). This large area of approximately 50,000 hectares contains extensive highly productive black grama-bluegrama grasslands as well as large stands of New Mexico needlegrass and sideoats grama. This is one of the largest occurrences of high quality Chihuahuan Desert Grasslands known in the United States (*Id.*).

Fort Bliss must acknowledge and address these important biological values. However, as we show below, the draft SEIS fails to acknowledge the environmental consequences of its proposed action on these resources and provides insufficient mitigations to reduce these impacts, all in violation of federal law. 19.6

Also not disclosed or used in significance analysis is the fact and that grama grasslands are considered globally imperiled. Pigeon et al. (2001) have described the rarity of grama grasslands in the Chihuahuan Desert and need for their conservation,[2] and brush encroachment into grasslands is one of the suspected causes of the northern aplomado falcon's historic decline.[3] Off-road maneuvering and other disturbances is this rare ecosystem type can cause irreparable harm. For example, tracks from the only maneuver event that, to our knowledge, has ever occurred on McGregor Range (Gallant Shield '75 Joint Training Exercise) were still visible on the ground within these grasslands 20 years later.

The differences between inside a tank track and outside in the undisturbed areas are obvious at this site: inside the tracks dropseed grasses replaced grama grass, grass cover appeared lower, and track imprints were still visible in places. These impacts were from a single tank pass. Impacts from repetitive passes occurring over decades would be significantly greater, but the SEIS fails to disclose, quantify, or mitigate this impact despite data being available. It is likely that grasslands will be irreversibly degraded by this action, even if synergistic effects of drought and global warming are not factored into the analysis. 19.7

Violations of National Environmental Policy Act

In general, there is no evidence that the Army has actually performed the appropriate level and types of environmental analysis. For example, beginning in the mid 1980s and continuing through at least the late 1990s, Fort Bliss staff and contractors conducted research studies to evaluate impacts of maneuver training on soils and vegetation on McGregor Range. The specific 19.8

[2]See Pidgeon, A.M., N.E. Mathews, R. Benoit, and E.V. Nordheim. 2001. "Response of avian communities to historic habitat change in the Northern Chihuahuan Desert." *Conservation Biology* 15(6):1772-1788.
[3]See U.S. Fish and Wildlife Service. 1990. "Northern Aplomado Falcon Recovery Plan." U.S. Fish and Wildlife Service, Albuquerque, New Mexico. 56 pp.

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The Chihuahuan Desert encompasses more than 200,000 square miles in the U.S. and Mexico. Fort Bliss is 1,746 square miles or 0.8 percent of the area of the Chihuahuan Desert. The Proposed Action would affect 534 square miles or 0.3 percent of the Chihuahuan Desert. These actions are insignificant in the context of the Chihuahuan Desert as a whole.

19.6. The Draft SEIS was prepared in compliance with the National Environmental Policy Act and associated regulations. It reported reasonably foreseeable direct, indirect, and cumulative impacts from projected activities in 14 resource areas. To the extent foreseeable, it estimated effects quantitatively and described the context and intensity of the impacts, considering the factors listed in Council on Environmental Quality Regulations at 40 CFR 1508.27. Numerous mitigation measures were identified throughout the document.

The Draft SEIS was distributed for public review and comment. Several comments received included suggestions for additional mitigation measures, appropriate ones of which have been incorporated in the Final SEIS. As required by CEQ Regulations (40 CFR 1505.2(c)), the Record of Decision will identify mitigation measures that will be implemented by the Army and summarize monitoring and enforcement measures that will be adopted.

19.7. The Army made a concerted effort to minimize impacts to grasslands in identifying the alternatives considered in the SEIS. With the exception of the southeast training areas of McGregor Range incorporated in Alternatives 3 and 4, the overwhelming majority (approximately 90 percent) of the area proposed for off-road vehicle maneuvers contains 12 percent or less grasslands. The southeast training areas represent 18 percent of the grasslands on Fort Bliss. The majority of grasslands on the installation that provide suitable habitat for aplomado falcon are not proposed for off-road vehicle maneuvers.

While tracks from past maneuver may still be visible at the site mentioned in the comment, vegetation is also present. Note, however, that it is blue grama grass, not dropseed grass, that has filled in where black grama grass previously occurred.

19.8. Limited results from the studies mentioned in the comment have been published. Section 5.5.1 of the Draft SEIS discussed the findings published in an article by Fuchs et al (2003). In general, the studies do not provide data that assist in making the decisions currently facing the Army decision-maker. They were not designed to evaluate the effects of off-road vehicle maneuver training at the level and to the extent contemplated. The results of the studies do not lend themselves to extrapolation to the Proposed Action. The discussion in Section 5.5.1 has been expanded in the Final SEIS.

purpose of these studies was to provide the basis for NEPA analysis of impacts and an understanding of what frequencies and intensities of maneuver McGregor Range ecosystems could sustain without significant impact or irreversible degradation in the event maneuver training was proposed for McGregor Range. The studies were supposed to provide decisionmakers the ability to choose among management alternatives and to prescribe mitigation to minimize or avoid impacts. However, there is no disclosure of this data, research, and analysis in the SEIS. This information should be integrated into a revised draft SEIS. 19.8

Failure to Meet Purpose & Need for Action

The Army has failed to justify the need for additional off-road maneuver areas for training needs on Fort Bliss by 216,000-352,000 acres (Alternatives 1-4). While five Army posts have been scheduled for four or more HBCTs, Fort Bliss and one other post stationing four HBCTs have similar acreage allotted for off-road maneuvering, while the other three posts have far less area for these activities. Current allotted maneuvering is as follows:

- Fort Bliss, TX, 4 HBCTs, 335,000 acres;
- Fort Bragg, NC, 4 HBCTs, 105,733 acres;
- Fort Campbell, KY, 4 HBCTs, 66,424 acres;
- Fort Carson, CO, 4 HBCTs, 351,124 acres; and
- Fort Hood TX, 5 HBCTs, 136,912 acres.[4]

Only three of the four HBCTs stationed at Fort Bliss will require off-road maneuver space. One of the four brigades stationed there will be continously located at another U.S. or overseas installation.[5] 19.9

In addition, the SEIS fails to specify the data used to estimate what additional off-road maneuver areas may be needed at Fort Bliss (SEIS, page S-4, lines 121-137). The SEIS instead calculates the number of km^2days required for a HBCT to conduct two battalion level exercises annually. It then provides a total of annual km^2days for four HBCTs (despite one of the four being permanently stationed off of Fort Bliss), and includes a vague requirement for other users and uses that are not further defined. This lack of transparency impedes public understanding of the amount of off-road maneuver area actually required at Fort Bliss. 19.10

Fort Bliss has 335,000 acres (1,356 km^2) of existing off-road maneuver area. Based upon 365 training days annually, there are 494,940 km^2d available on Fort Bliss. Until FY2009, there will be an excess of 178,690 km^2d available annually on Fort Bliss. Three HBCTs annually require 474,375 km^2days, so even when Fort Bliss has all three HBCTs in residence sometime in FY2010, there will be an excess of 20,565 annual km^2days more than necessary. 19.11

[4]See Army News, 2005. BRAC, 28 June Brief. DoD May 2005, Table 7-5, Page 57. SEIS, Page S-6, lines 203-208; page S-3, Figure S-1.
[5]See the Army's planned rotational cycle for HBCTs (DoD, May 2005, Page A-37; SEIS, Page S-5, lines 169-172).

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19.9. This document uses in its analysis doctrinal requirements for off-road vehicle maneuver space. The Army's planned rotational cycle has been taken into account.

Note that the BCTs at Fort Bragg and Fort Campbell are not Heavy BCTs.

19.10. The battalion-level exercises described on page S-4, lines 121-137 of the Draft SEIS are clearly identified as an example to assist the reader in understanding the term "square kilometer days" and how they are calculated. Section 1.3.5 of the Draft SEIS provided more detail about the training requirement, including describing platoon-, company-, battalion-, and BCT-level exercises. It also indicated that other units in addition to the Heavy BCTs, including the Artillery Brigade, Sustainment Brigade, Combat Aviation Brigade, and Echelons Above Brigade, will also need to conduct training.

The requirement for 528,000 km^2d/year of off-road maneuver capability includes approximately 327,000 km^2d/year for three Heavy BCTs stationed at Fort Bliss, assuming one of the four assigned to Fort Bliss is deployed at any given time. This reflects the Forces Command Sustained Engagement Strategy, described in Section 3.2 of the Draft SEIS, which provides for a 36-month rotation cycle during which each Heavy BCT is expected to be temporarily, not permanently, deployed for approximately 12 months. The remaining 201,000 km^2d reflect requirements of the above-mentioned units and Fort Bliss' mobilization mission.

In response to public comments, Section 1.3.5 of the Final SEIS has been expanded to provide more detailed explanation of how these requirements were calculated.

19.11. As noted above, the three Heavy BCTs represent only a portion of the training requirement. Other requirements are described in Section 1.3.5 of the SEIS.

Failure to Take a "Hard Look" at the Consequences of the Proposed Action

Impacts on natural values. The SEIS fails to disclose adequately the impacts of the proposed action on the native flora, fauna, and ecosystems in the planning area. The SEIS does not provide for fair and full disclosure of impacts to biological resources and fails to address the significance of the impacts from the proposed action. There is no disclosure of baseline data and supporting research that would provide the public with a basis for assessing and understanding how and why decisions will be made with regard to consideration of environmental impacts.

The SEIS states that "The Organ Mountains,..Hueco Mountains, and Otero Mesa are not discussed. ..because land use will not change…" (P 4.8-1 L 9-11). However, the Huecos are proposed as maneuver areas. In fact, virtually the entire range in New Mexico save Cerro Alto is in the proposed new maneuver area. The SEIS Notice of Intent published in the Federal Register (www.bliss.army.mil/About%20Ft%20Bliss/NEW-EIS/Documents-EIS.htm) stated that the proposed alternatives include "increased… training on Otero Mesa", yet no disclosure of this fact is presented in the document. While not a "new" land use, an increase is certainly a change from current training. During the McGregor field trip, Ms. Robin Brandin, Ft Bliss SEIS contractor POC, was asked whether training will increase in intensity and replied "yes, but we haven't quantified it". This quantification must be done and analyzed with regards to environmental consequences of the proposed action, including cumulative impacts to grasslands and wildlife. 19.12

Fire. The SEIS mentions occurrence of fire in the Organ Mountains (P 5.8-1 L 18-19), and mentions wildfires as an impact (P 5.8-5 L 196-197), yet there is no further disclosure of wildfire impacts or where these would occur. While fire is a natural disturbance in the area, nowhere is there any discussion of altered fire regimes, including the potential for increase in fire frequency in the Organ Mountains, associated impacts to the sensitive species noted in Table 4.8-3 and to unique ecosystems in these mountains, or of the possibility of wildfire threatening homes and residents living adjacent to these mountains. This is of special concern given the expected increase resulting from global warming of both frequencies and intensities of storms and concomitant increase in fuel loads, and more frequent and intense droughts creating significantly greater number and intensities of wildfire. Clear evidence for this correlation for the western U.S. has been recently published in the scientific literature.[6] 19.13

Invasives. The SEIS does not disclose potential impacts of invasive species, despite its acknowledgement of the presence of such species on the installation such that they require the INRMP's "invasive weed monitoring and control." In addition, the SEIS states that "Opportunistic …vegetation" would colonize areas, and discusses these species in Appendix A by ranking as a "potentially significant impact" any "activity that will create conditions conducive to proliferation of non-native, invasive species" (P 5.8-5, L 217-218; A-37). 19.14

Aplomado falcon. The SEIS not only fails to disclose impacts to the aplomado falcon and its habitat, but cites research out of context and through entirely erroneous statements, which is deceptive to the public, as it presents the perspective that the areas proposed for maneuver

[6]See A.L. Westerling, H. G. Hidalgo, D. R. Cayan, and T. W. Swetnam.2006. "Warming and earlier spring increase western U.S. forest wildfire activity." *Science*, V313: 940-943.

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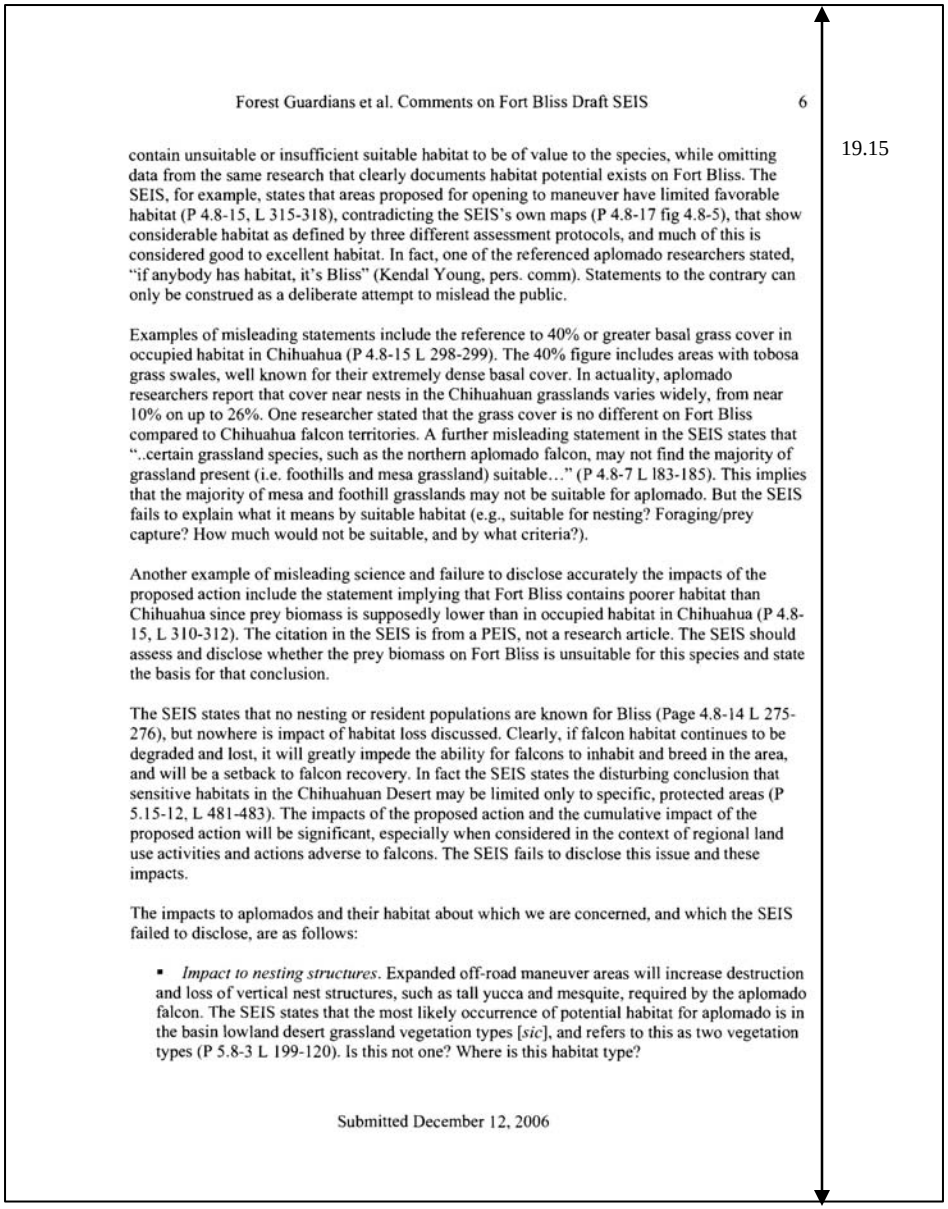
19.12. The term "maneuver" includes on-road vehicle and dismounted (on-foot) training, in addition to off-road vehicle maneuvers. As Figure 3.1-2 of the Draft SEIS shows, dismounted maneuvers were authorized in all training areas on Fort Bliss, and on-road vehicle maneuvers were authorized in all training areas except Culp Canyon Wilderness Study Area in the Record of Decision for the 2000 Mission and Master Plan PEIS.

There are numerous factors that could affect the amount of dismounted training conducted on Otero Mesa. Some, such as the volume of off-road vehicle maneuvers conducted in other parts of the Fort Bliss Training Complex, could force more dismounted and on-road vehicle training onto the mesa, while other factors such as the departure of the Air Defense Artillery units, the decrease in Roving Sands exercises, and the Air Force's projected decrease in operations on Centennial Range could reduce the amount of such training conducted. These countervailing factors make it impossible to predict the net change in military training that might be conducted on Otero Mesa. However, if use of training areas on Otero Mesa does increase, it is not expected to exceed the intensity experienced in the past during Roving Sands exercises or in areas affected by the Air Force's activities on Centennial Range.

During the field trip, Ms. Brandin indicated that the potential increase in training on Otero Mesa could not be quantified for the reasons noted above. While there may be fluctuations in the level of use of training areas on Otero Mesa, including possible increases in those activities, they are not expected to vary measurably from the levels assumed for the 2000 PEIS analysis. That analysis anticipated variations in use that have already been experienced, such as differences between years when Roving Sands exercises have been conducted and years with no Roving Sands exercises. The analyses in the PEIS and the SEIS provide for that variability.

19.13. Additional information on fire hazard has been added to Sections 4.11 and 5.11 of the Final SEIS. The effects of fire on biological resources were described in the 2000 Mission and Master Plan PEIS, which has been incorporated by reference, and are not repeated in the SEIS.

The Organ Mountains on Fort Bliss have functioned as a live-fire impact area for many years, but there have been few fires in this area of the installation. The projected increase in use of the Doña Ana Range is not expected to significantly increase fire risk in the Organ Mountains.



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19.15

contain unsuitable or insufficient suitable habitat to be of value to the species, while omitting data from the same research that clearly documents habitat potential exists on Fort Bliss. The SEIS, for example, states that areas proposed for opening to maneuver have limited favorable habitat (P 4.8-15, L 315-318), contradicting the SEIS's own maps (P 4.8-17 fig 4.8-5), that show considerable habitat as defined by three different assessment protocols, and much of this is considered good to excellent habitat. In fact, one of the referenced aplomado researchers stated, "if anybody has habitat, it's Bliss" (Kendal Young, pers. comm). Statements to the contrary can only be construed as a deliberate attempt to mislead the public.

Examples of misleading statements include the reference to 40% or greater basal grass cover in occupied habitat in Chihuahua (P 4.8-15 L 298-299). The 40% figure includes areas with tobosa grass swales, well known for their extremely dense basal cover. In actuality, aplomado researchers report that cover near nests in the Chihuahuan grasslands varies widely, from near 10% on up to 26%. One researcher stated that the grass cover is no different on Fort Bliss compared to Chihuahua falcon territories. A further misleading statement in the SEIS states that "..certain grassland species, such as the northern aplomado falcon, may not find the majority of grassland present (i.e. foothills and mesa grassland) suitable…" (P 4.8-7 L 183-185). This implies that the majority of mesa and foothill grasslands may not be suitable for aplomado. But the SEIS fails to explain what it means by suitable habitat (e.g., suitable for nesting? Foraging/prey capture? How much would not be suitable, and by what criteria?).

Another example of misleading science and failure to disclose accurately the impacts of the proposed action include the statement implying that Fort Bliss contains poorer habitat than Chihuahua since prey biomass is supposedly lower than in occupied habitat in Chihuahua (P 4.8-15, L 310-312). The citation in the SEIS is from a PEIS, not a research article. The SEIS should assess and disclose whether the prey biomass on Fort Bliss is unsuitable for this species and state the basis for that conclusion.

The SEIS states that no nesting or resident populations are known for Bliss (Page 4.8-14 L 275-276), but nowhere is impact of habitat loss discussed. Clearly, if falcon habitat continues to be degraded and lost, it will greatly impede the ability for falcons to inhabit and breed in the area, and will be a setback to falcon recovery. In fact the SEIS states the disturbing conclusion that sensitive habitats in the Chihuahuan Desert may be limited only to specific, protected areas (P 5.15-12, L 481-483). The impacts of the proposed action and the cumulative impact of the proposed action will be significant, especially when considered in the context of regional land use activities and actions adverse to falcons. The SEIS fails to disclose this issue and these impacts.

The impacts to aplomados and their habitat about which we are concerned, and which the SEIS failed to disclose, are as follows:

- *Impact to nesting structures*. Expanded off-road maneuver areas will increase destruction and loss of vertical nest structures, such as tall yucca and mesquite, required by the aplomado falcon. The SEIS states that the most likely occurrence of potential habitat for aplomado is in the basin lowland desert grassland vegetation types [*sic*], and refers to this as two vegetation types (P 5.8-3 L 199-120). Is this not one? Where is this habitat type?

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19.14. The Draft SEIS did disclose the potential for invasive species in disturbed areas, as noted in the comment. In the sentence on page 5.8-5 following the one quoted in the comment, the Draft SEIS went on to provide a quantitative estimate of the percentage of the area affected that would be vulnerable to this impact (11 percent of the south Tularosa Basin portion of McGregor Range). Section 2.1.4 of the Draft SEIS also described that the INRMP includes management actions to monitor for and control invasive species.

19.15. On the contrary, the Draft SEIS went to considerable lengths to incorporate multiple data sources and credible opposing views regarding aplomado falcon habitat on Fort Bliss. Fort Bliss professional biologists believe that Figure 4.8-4 provides the most accurate representation of suitable aplomado falcon habitat on the installation, based on research and their extensive knowledge of the ecological conditions at the installation. The SEIS also includes three other assessments of potential habitat. As Figure 4.8-5 shows, all three indicate little to no potential habitat in the great majority of area proposed for off-road vehicle maneuvers. All four maps in Figures 4.8-4 and 4.8-5 show that the best potential habitat is on Otero Mesa, which is not proposed for off-road vehicle maneuvers. All four maps, including the one generated by Fort Bliss scientists, show some potential habitat in the southeast training areas. There is in fact substantial agreement on habitat suitability among all the sources.

The reference to 40 percent basal cover came directly from a study of actual occupied habitat, specifically nesting and detection sites as reported in Table 5-6 of Kendal et al. 2002, (Ref# 511). Areas sampled in Mexico that had conditions comparable to the Tularosa Basin portion of Fort Bliss, which comprises 90 percent of the area under consideration for off-road vehicle maneuver, were unoccupied.

The sentence on page 4.8-7, lines 83-85 of the Draft SEIS has been modified in the Final SEIS. Further explanation of the characteristics that reduce the suitability of grassland for aplomado falcon was provided on pages 4.8-14 and 15 of the Draft SEIS.

The reference to the 2000 Mission and Master Plan PEIS indicates where more information about biomass is provided. The PEIS used and referenced several scientific studies. As noted throughout the SEIS, the information in the PEIS was incorporated by reference and not repeated. Those data point out that there is a difference in prey biomass when compared to occupied habitat in Mexico. The study is comparative and does not allow definitive determination of suitability on that factor alone.

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- *Area of habitat impacted.* The SEIS fails to disclose how many acres of potential aplomado habitat are involved in the proposed maneuver areas. This information is important because, as the SEIS states (P 4.8-15, L 306-308), birds require "substantial areas for year-round habitation," estimated at 4300 hectares. However, we note that the researchers contacted consider the study which referenced the 240 hectare minimum size (P 4.8-15, L 303-305) to be based on a limited study including a small sample size obtained during a limited time period. At present there is no good estimate for the size of grassland needed to sustain aplomado falcons and more research is needed in this area. Until more data is acquired, we should err on the conservative side by protecting smaller grassland tracts as well. In fact smaller but adjacent grassland parcels may be just as important as a single one of 240 hectares, especially if the shrubland boundaries increase prey diversities and densities. As the Army's activities destroy the habitat, it will become more and more difficult for the aplomado to survive.

- *Discounting potentially suitable falcon habitat.* The SEIS implies that sandy plains grassland (P 4.8-14 L 283-284) is unsuitable habitat. Researchers have however noted that the sample size of existing occupied habitats is too small to know unequivocally what is and is not suitable, or to discount all grassland habitat on Fort Bliss. Some habitat may not be of high preference for nesting, but may be excellent or required for prey capture and survival, dispersal, and overall species survival.

- *Discounting high quality habitat on Fort Bliss.* All aplomado researchers queried agree that, despite bliss statements to the contrary in the SEIS, good to excellent habitat exists on and below Otero Mesa.

19.15

Climate Change & Drought. The SEIS contains but a single mention of climate change (P 5-15-2), but discusses it as a result of, rather than a cause of impact. There is no disclosure of effects of climatically induced increases in drought severity and intensity on ecosystems, especially imperiled desert grasslands. If the State of New Mexico can evaluate future impacts of global warming on its natural resources, then the DOD can do likewise.

19.16

The SEIS should discuss the synergistic effects of drought and climate change and the proposed maneuver activities. This can be done at several levels but must be done at least in terms of loss of productivity, cover, mortality, and recovery. Data required for such an analysis should be available both in the literature and from Fort Bliss' research on simulated maneuver and carrying capacity on McGregor Range ecosystems.

19.17

The SEIS should evaluate and disclose possible cumulative impacts on our water supply resulting from the alternatives and extended droughts that are likely to occur as a result of global warming, using for example scenarios and data from the 1950's drought and other, major prehistoric droughts as identified in the Bliss-funded study "A 1373 year reconstruction of annual precipitation for the southern Rio Grande Basin," modeled over 5 and 10 year periods.

19.18

Ecological Sustainability. Nowhere is the ecosystems' ability to sustain various levels of maneuver training disclosed or discussed.

19.19

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Contrary to the comment, the analysis performed for the SEIS does not lead to a conclusion that the impacts of the Proposed Action on aplomado falcon habitat would be significant. At most, 29 percent of potential habitat on Fort Bliss, much of which is marginally suitable at best, would be affected. Young et all (2005) estimate there are over 2 million acres of suitable aplomado falcon habitat in New Mexico alone. At most, 82,000 acres of suitable habitat on Fort Bliss lies in areas proposed for off-road vehicle maneuver. This equates to about 4 percent of the potential habitat just in New Mexico and does not include other Chihuahuan Desert habitat in Mexico.

The cited sentence on page 5.8-3, lines 119-120 of the Draft SEIS was a typographical error and has been corrected in the Final SEIS. The mesa grassland and basin lowland desert grassland vegetation types have the most habitat potential.

Sandy plans grasslands comprise 3 percent of the grasslands on Fort Bliss and only 1 percent of the area potentially affected by off-road vehicle maneuvers under the Proposed Action.

The comment is not accurate in implying that the SEIS contains statements suggesting there is not suitable habitat on and below Otero Mesa. Page 4.8-14, lines 293-294 of the Draft SEIS states: "Both Figures 4.8-4 and 4.8-5 show that the vast majority of habitat **is on Otero Mesa and portions of the southeast TAs** on McGregor Range" [emphasis added].

Finally, it should be noted that there are no nesting aplomado falcons in the area so there will be no impact to aplomado falcons.

19.16. The objective of evaluating cumulative impacts in an environmental impact statement is to assess "the incremental impact of the action **when added to** other past, present, and reasonably foreseeable future actions" [emphasis added] (40 CFR 1508.7). The geographic scope of global warming is so vast and all encompassing that virtually every action undertaken could have some synergistic effect, and almost all individual actions will contribute only marginally and to an unmeasurable degree to its impacts.

Quantifying the specific contribution of the Proposed Action at Fort Bliss would require knowing what climate changes will occur in the El Paso region, when they will occur, what other actions may be taken in the region, and how they may influence local impacts from global warming, including whether they would contribute to the impact or counteract it. Even if this were possible to any degree of confidence, it would not help the public or the decision-maker distinguish between the alternatives contemplated in the SEIS, including the No Action Alternative.

The U.S. Environmental Protection Agency estimates that the volume of greenhouse gases emitted in the U.S. alone is in the billions of tons per year. While greenhouse gases and criteria pollutants are not directly correlatable, it is noteworthy that the projected emissions of criteria pollutants under any of the alternatives analyzed in the SEIS are on the order of thousands of tons per year at most. Therefore, Fort Bliss-related air pollutant emissions are about six orders of magnitude less than the U.S. total and even less of the worldwide total. At these levels, the contribution of Fort Bliss to global warming is substantially smaller than the margin of error associated with any attempt to quantify the impact with the information available.

Section 5.15 of the SEIS acknowledges that the activities associated with the Proposed Action may combine with other actions to contribute to global warming, but the magnitude of Fort Bliss' contribution to this global issue is not commensurate with the requested analysis of the effects of global warming on the region.

19.17. As indicated in Section 5.15.2.8 of the Draft SEIS, the synergistic effects of past grazing and drought are reflected in the current ecological conditions on Fort Bliss. That section also acknowledges the likely contributions of drought and other cumulative future actions to decreased habitat, transitions in ecological states, and increased desertification.

The synergistic effects of climate change are more difficult to predict. El Paso recently experienced several years of drought, while 2006 was a very wet year with increased productivity, cover, and recovery.

The research on carrying capacity performed on Fort Bliss was not designed in a way that addresses the synergistic effects of climate change and military maneuvers.

19.18. The cited study does not specifically correlate drought and measurable water supply. It also does not provide any data that can be used to predict the impact of future drought. A discussion of the study has been added to Section 5.15.2.7 of the Final SEIS.

19.19. This comment is not specific about what is meant by "ecosystems," nor does it provide a measure of sustainability. The SEIS discusses impacts on vegetation, habitat types, and ecosites, which represent ecosystems. Based on these analyses, the document discusses potential changes in vegetation communities, habitat types, and ecosites transition states.

Generalized discussion of impacts. In addition to the SEIS failure to disclose significant environmental impacts, many impacts are not provided with adequate quantification or discussion that pertain to the resource values at stake. This occurs throughout the SEIS:

- The SEIS states, "Continued disturbance can be expected to increase the amount of bare ground, and uncovered soils are susceptible to wind and water erosion" (P 5.15-9 L 368-369), but fails to provide quantification of the amount of bare ground and how much erosion. 19.20

- The SEIS states that "impact would result in less shrub cover" (P 5.8-8 L 329-330), but fails to quantify or further elaborate on impacts from this decrease in vegetative cover. For example, the SEIS fails to discuss the implications for erosion, gulleying, sheet wash, and loss of ecosystem integrity. 19.21

- On p. 5.8-5, L 194-195, the SEIS states that recovery from disturbance would be "low"; L 209 states that "impacts to vegetation communities would be low". There is no further explanation or clarification of what the term "low" means, nor an attempt at quantification of impacts. The SEIS fails to describe the differences between the coppice dune community in the existing maneuver areas and that same community right across U.S. Highway 54 on the McGregor Range. The latter has not been open to maneuvers, which therefore provides a baseline for assessing the ecological impacts of maneuvering. After more than twenty years of biological survey and studies on Fort Bliss there should be data relevant to describing with specifity the impacts from off-road maneuvers. On both public field trips the comment was made by Fort Bliss staff as we drove across the highway 54 boundary from the maneuver area to McGregor Range that "see, not any differences between the maneuver area and no maneuver." Yet, it was remarked by participating members of the public that there were more kinds of plants, plants were taller, and the ground had more cover in the McGregor Range portion. Surely if non-professionals can visually denote the differences then some degree of impact assessment for this and other cover types/ecosystems can be made. 19.22

- P 5.8-7 L250-251 states that several species listed under the Migratory Bird Treaty Act (MBTA) would be among those "impacted the greatest". The SEIS fails to disclose the specific impacts and which MBTA-listed birds and which habitats will be affected. 19.23

- P 5.8-9 L 343-344 states that "wildlife populations would… become less dense." The SEIS fails to provide further detail on this point, despite the existence of Fort Bliss survey data that can be used to quantify impacts. This is especially true for impacts to avifauna resulting from impacts to arroyo riparian habitat, since studies of nesting use, densities, and species composition have been conducted. 19.24

- P 5.8-9 L 384-385, P 5.8-10 L 428, state that Alternative 3 and 4 are expected to have "moderate impacts" to vegetation communities, despite the noted potential for the action to cause an irreversible ecological transition of grasslands to a shrub dominated state. 19.25

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19.20. These cumulative effects cannot be quantified. That would require detailed information about the size, timing, and location of all future disturbance relative to different soil types and their specific erodibility. This information is not available and cannot be estimated with any degree of confidence.

19.21. On the contrary, Section 5.5 of the SEIS contains substantial quantitative estimates of projected changes in ecosite transitions states, for example quantifying the percent of area that is likely to become bare and the percent that might convert to mesquite coppice dunes. That section also discusses erosion in detail.

19.22. The paragraph following page 5.8-5, lines 194-195 of the Draft SEIS explained the basis for the conclusion that recovery from disturbance would be low, and the sentences following line 209 explained that mesquite coppice dunes are not expected to change (i.e., impacts would be low) because they have stabilized in an altered ecological state and further change is unlikely.

The anecdotal observations in this comment do not reflect the complexity of either the Forty Bliss environment or ecosystem integrity. McGregor Range contains more diverse terrain and vegetation than the North Training Areas and any comparisons must be made with care. For example, the North Training Areas on the west side of US 54 are over 80 percent mesquite coppice dunes, while only 20 percent of the south Tularosa Basin portion of McGregor Range on east side of the highway is mesquite coppice dunes.

The comment also reflects a misunderstanding of the ecology of coppice dunes. The integrity of this ecosystem lies in its dunes, not in the amount of vegetation between them.

Off-road vehicle maneuvers can be expected to reduce vegetation in some areas, but as the SEIS indicates, military vehicles typically drive around, not through the dunes, so the integrity of the ecosystem is not expected to be affected. The areas that are currently dominated by coppice dunes will remain so, as evidenced by the North Training Areas, South Training Areas, and TA 8 that are already used for off-road vehicle maneuvers (see Figures 4.8-1, 4.8-2, and 4.8-3).

19.23. More information has been added to the Final SEIS to address this issue.

19.24. The cited sentence refers to the north Tularosa Basin portion of McGregor Range proposed for off-road vehicle maneuver under Alternative 2. This area contains approximately 6 percent of the miles of arroyos on Fort Bliss. While these arroyos may be affected, usable habitat value will remain. Note there will likely be an increase in species that utilize less shrubby, earlier succession stages, such as horned larks.

The SEIS also underrepresents the environmental impacts of the proposed action or portrays them in a manner which misleads the public into believing they will be less significant than they will be. This occurs throughout the SEIS:

- P 5.8-6, L 230-232, states that the magnitude of impact to arroyos would be low except at crossings; note that since arroyos run generally east–west and maneuver boxes appear to direct maneuver north- south, crossings will be anywhere a vehicle can get down the bank, and up and down the arroyo itself, as decades of maneuver have shown. In fact, tanks use arroyos for concealment and often drive up and down arroyos, crushing the very vegetation that provides the noted important wildlife habitat. 19.26

- P 5.8-7 L 252-253 and L 271, implies that wildlife will not be affected by habitat loss, since they would simply "move to adjacent locations" and "utilize adjacent lands", statements which completely ignore habitat loss as the major cause for population declines among native fauna. 19.27

- P 5.15-9 L 363 states, "Much of the undeveloped land is already partially degraded." However, no percentage for this degraded land is provided, nor is the fact mentioned anywhere that much of the land is not degraded. In fact, one of the Army's own contractors, New Mexico Heritage Program (NMHP), stated in a report provided to Ft Bliss that "The withdrawal of much of Fort Bliss from public use over the last 86 years has allowed, in some areas, the recovery or protection of ecosystems from the impacts of heavy grazing, development and other human uses. There are now large areas where species composition and structure approach pre-settlement and early settlement conditions where grazing was limited or absent, and fires went unnoticed or were not suppressed." 19.28

- P 5.15-9 L 365 states, "Much of the land is characterized by degraded shrub communities," which ignores the fact that such communities, including mesquite coppice dunes, that have transitioned from one state to another, are still functioning ecosystems that provide excellent habitat for significant numbers of species of wildlife. In fact the mesquite coppice dune ecosystem on McGregor Range may not described as degraded, since there are intact A horizons in interdune areas, whereas in the existing maneuver area, interdunes have only blow sand (torripsamments) or are eroded down to the calcic paleo horizons. 19.29

Additional concerns include: P 5.8-9 L 372-373 mentions construction of roads, but fails to describe where road construction will occur and impacts from road construction. There is no mention of impacts to the native antelope herd, which at least used to occupy in relatively large numbers the grasslands and draws in the proposed maneuver areas. 19.30

Water Impacts. There is uncertainty as to how much water is available in the Hueco Bolson aquifer; P 4.7-5 L 87-92 provides various estimates for amount of usable fresh and (unusable?) saline groundwater. The SEIS should state which acre-feet estimate was used to analyze impacts of this action in section 5.7. It does not appear that stated impacts in section 5.7 were based on both the high and low estimates stated in this paragraph. If based on only upon EPWU's stated (high) estimates (e.g. 9.4 million af, L 90-92), then a worst case analysis should be provided for 19.31

19.25. The cited sentence is merely a conclusion summing up the specific analysis provided in the preceding paragraph, which quantifies the magnitude of the expected impacts. It indicates that an estimated 18 percent of the mesa grasslands could transition to a shrub-succulent dominant state. These grasslands comprise 40 percent of the southeast training areas; 18 percent of 40 percent is 7.2 percent of the area that might undergo this transition. Further, the southeast training areas contain approximately 15 percent of the mesa grasslands and 29 percent of the piedmont grasslands on Fort Bliss. Council on Environmental Quality Regulations indicate that significance of impact incorporates the impact's context and intensity. The conclusion presented in the SEIS is based on consideration of both the context and the intensity of the impact as described above.

19.26. It is accurate that arroyos are important to providing realistic training and can be expected to be driven on. The heaviest use, however, will be at crossing points.

19.27. The cited sentences have been taken out of context. They do not imply that wildlife will not be affected. In fact, the preceding and intervening sentences indicated that there will be impacts, and lines 268-269 indicated that wildlife species density is likely to decrease.

19.28. The cited sentence, which is in the section on cumulative impacts, refers to the entire region of influence. The exact percentage of the entire region that is degraded is not known. However, the vegetation map provided by NMHP shows approximately 73 percent of the proposed off-road vehicle maneuver space is currently vegetated by shrublands where the potential vegetation is grasslands, and thus "degraded" from its potential vegetation condition (see page 4.8-2 of the Draft SEIS).

As indicated in Section 5.15.2.8 of the Draft SEIS, the synergistic effects of past grazing and drought are reflected in the current ecological conditions on Fort Bliss. Approximately 31 percent of Fort Bliss is dominated by mesquite coppice dunes, which are recognized as a lower transition state of grasslands, and another 26 percent of Fort Bliss is currently in shrub-dominated vegetation types.

The NMHP quote, which points out that the lands were withdrawn for military use, is noteworthy as a reflection of Fort Bliss' stewardship of natural resources.

all alternatives using the low estimate of 3 million af as well so that all possible ranges of impacts are disclosed (in the event that EPWU is wrong). 19.31

Nowhere in Section 5.7 is significance disclosed, despite the significant increase in demand for our most significant resource that this action will create. 19.32

P 4.7-7 L 126-128, the same metric for desal plant (acre-feet) should be employed as was used for the preceding discussion of water availability so the reviewer can draw meaningful comparisons. 19.33

P 5.7-1 L 29-34 notes that "purple pipe" recycled water is part of the EPWU plan to meet increased demand, yet not stated is the fact that Fort Bliss refused to use this water to water its golf courses and parade grounds. Instead Bliss is using fresh water from the aquifer. The SEIS should disclose the impacts of not using purple pipe recycled water. 19.34

P 5.7-1 L 36; define term "nearly sustainable." This makes little sense: either something is or is not sustainable. 19.35

P5.7-2 L 40; clarify if 10,000 afy is without the increased demand of Fort Bliss proposed actions. 19.36

P 5.7-3 L 121 states that impact of increased pumping has not been quantified. The impact should be quantified, as EPWU has quantified theirs (L122-123). This information is necessary not only to comply with the impact disclosure requirements of NEPA, but critical in order to enable the decision makers to make a reasoned choice among alternatives (40 CFR § 1502.22 (a)). Certainly, Fort Bliss should obtain these data. 19.37

P 5.7-4 L 130-132 states that EPWU anticipates rate increases of approximately 5% per year. The SEIS should discuss whether this rate includes the cost of meeting the increased demand resulting from Alternative 1, as well as the other alternatives, including the preferred alternative. Rate information should be provided for all alternatives. 19.38

P 5.7-4 L 128-129 indicates that increased demand may require EPWU to develop projects more rapidly than anticipated. In fact, Section 5.7 states that for every alternative, increased consumption/demand may force EPWU to develop additional sources or develop them more rapidly. The SEIS should disclose these requirements/projects/sources, and describe the associated timelines and estimated costs and increases in rates for water users. We find it difficult to believe (as should the public) that Bliss and EPWU cannot estimate requirements, timelines, costs, and rates to meet the needs set forth in this SEIS for the proposed alternative. 19.39

El Paso Water Utilities (EPWU) is in fact a large corporation which has been estimating demand and planning to meet those demands for decades. Certainly Fort Bliss doesn't have to wait for EPWU to monitor for increases in water consumption when they have models and clearly defined population increases predicted by this SEIS. P 5.7-4 L162-164 states that the "magnitude [read impacts] of additional pumpage…is not known." However, the magnitude can be estimated and the SEIS should provide a worst case analysis. 19.40

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19.29. The Draft SEIS recognizes that mesquite coppice dunes are functioning ecosystems but notes that species variety and density is less than in other communities. Mesquite coppice dunes are widely recognized in the scientific community as lower transition states of historic grasslands. The areas that are currently mesquite coppice dune dominated are expected to remain so; therefore their habitat value would continue.

According to the Soil Survey, the torripsamments are the taxonomic classification for the Copia soil series and the Aguena soil series. Copia soils are well-represented on the North Training Areas and McGregor Range, but Aguena soils are minor soils within Fort Bliss, representing approximately 0.1 percent of the entire installation.

Copia soils have a buried horizon with an accumulation of carbonates that could be identified as calcic that is typically at a depth of 71 to 80 inches from the surface. It is unlikely that the interdunes on Copia soils dominant on coppice dunes at Fort Bliss are eroded down to this layer as it is so deep.

The state-transition model for ecological sites identifies the mesquite coppice dune state in all locations as degraded from its historic climax plant community and ecosystem. The Soil Survey and ecological site descriptions support the characterization of the mesquite coppice dune ecosystem as degraded. Both the North Training Areas and McGregor Range have "blow sand" and some interdune erosion on the Copia soils where they occur on mesquite coppice dunes.

19.30. The exact location of new road construction has not yet been determined, but Section 3.4.2.3 estimates that approximately 22 miles of roads could be constructed on McGregor Range. None of the new road construction is expected to occur on Otero Mesa, where most of the pronghorn occur. Large numbers of pronghorn are not found in the Tularosa Basin below Otero Mesa, though some are regularly found in the mesa grasslands below the mesa. Off-road vehicle maneuvers may reduce the number of pronghorn in the area below Otero Mesa, but antelope are expected to continue to use this area. Road construction is not expected to significantly affect pronghorn.

19.31. The volume of groundwater in the Hueco Bolson is difficult to estimate and the percentage of usable freshwater is even more difficult to determine. Part of the difficulty in recovering fresh groundwater is the potential for brackish groundwater intrusion.

The range of estimates provided in the Draft SEIS was made over a 26 year period and is based on varying levels of data availability. The most recent estimates include the referenced 9.4 million acre feet by EPWU in 2004 and an estimate of 3 million acre feet included in the Far West Texas Water Plan in 2001, which was also provided by EPWU.

The 2004 estimates were based on updated data, including data from monitoring wells and test holes that were drilled in 2002 and 2003. Prior to those test holes, no significant drilling had been completed in the Hueco Bolson for about 15 years. Thus, the 2001 estimates were based on outdated and, in some cases, incomplete data.

In addition, the two measures are not precisely comparable. For one reason, the 3 million acre feet figure is of water with less than 1,000 mg/L of total dissolved solids, while the 9.4 million acre feet figure is of water with less than 250 mg/L chloride, which is only one component of total dissolved solids. Second, the 9.4 million acre feet estimate represents total storage, not necessarily recoverable freshwater. In its analysis, EPWU assumed that only 25 percent of the total available fresh water would be recoverable, or about 2.4 million acre feet. This is more comparable to the 3 million acre feet cited in the Far West Texas Water Plan. Thus, the SEIS analysis does provide an analysis consistent with the "low estimate."

19.32. Section 5.7 provides quantitative estimates of the magnitude, intensity, and context of impacts. These are the attributes that determine significance (40 CFR 1508.27).

19.33. The Draft SEIS used both metrics in several places, including page 4.7-6 and the Glossary. The referenced paragraph has been expanded in the Final SEIS to also provide both units of measure.

19.34. Fort Bliss is investigating cooperative plans with EPWU for the provision of reclaimed wastewater for use on the installation. The impacts of not using "purple pipe" recycled water are already incorporated in the SEIS analysis of water resources, as it did not assume that reclaimed water would be used on landscaping.

19.35. This statement in the Draft SEIS was simply a quotation from the Far West Texas Water Plan. A comment on the draft plan also requested a definition of the term. The Far West Texas Water Planning Group response to the comment was: "These terms differ from one water source to another. Therefore, it is difficult to provide a single definition that can include all sources equitably."

19.36. Yes, the additional 10,000 afy is without the increased demand connected with Fort Bliss. As the Draft SEIS indicated, this was projected baseline growth.

19.37. Nearly all of the additional water required to meet the increased demand at Fort Bliss would be provided by EPWU. The Final SEIS has been modified to clarify this point. Therefore, the Fort Bliss wells would not increase pumpage. The Draft SEIS surmised that EPWU might have to increase its pumping, and the effects of that increase had not been modeled.

However, EPWU has indicated that it has no plans to increase groundwater withdrawals from the Hueco Bolson above current levels through 2060. Instead, increased demands identified in the Region E water plan would be met through increased surface water diversions (resulting from retirement of irrigation lands) and importation from Hudspeth and Culberson Counties. Current EPWU plans are to increase surface water diversions in 2020 and begin importation in 2030.

A key assumption in the Region E plan is that per capita use would remain at current levels (140 gallons per capita per day). The per capita assumption is conservative in that, since 1989, the per capita demand in El Paso has been declining due to a number of demand management initiatives. EPWU has indicated that current per capita demand is 137 gallons per day. Total EPWU demand in 2006 was about the same as the demand in 1989 despite the addition of 120,000 people in the service area.

The Draft SEIS was more conservative and assumed on-post water consumption would be 203 gallons per capita per day. Several factors suggest that number will be significantly lower. New construction will incorporate water conservation measures. The increase in population, both on and off post, will result in the construction of new housing. The Army's Residential Communities Initiative is incorporating xeriscaping and other water conservation measures.

EPWU is actively engaged in land planning in various parts of the city to deal with the demand for new housing off post. Water use in new houses is significantly lower than older houses. Most new houses include xeriscape landscaping and a growing number have refrigerated air conditioning. Therefore, EPWU expects that overall per capita demand will continue to decrease as new houses are constructed and occupied.

EPWU expects to be able to meet increased water demands with surface water facilities, whether it is in 2020, 2015, or sooner as conditions warrant. If any additional pumping from the Hueco Bolson were needed, it would be a temporary measure as surface water diversion and treatment facilities are being constructed. Typically, the lead time for bidding and constructing these facilities is three years. Under a worst case scenario, therefore, groundwater pumping might need to increase over a three year period.

This increase could be in the range of 1,000 afy to about 7,000 afy. A temporary increase in pumping of this magnitude for three years would have no significant impact on the Hueco Bolson.

19.38. Yes, the rate increases projected by EPWU do include the expected costs associated with increased demands generated by Fort Bliss. These estimated rate increases are based on a number of factors, including replacing aging infrastructure, meeting new regulatory requirements, and developing new infrastructure to meet new demands. EPWU plans identify new sources and the cost of developing them to meet expected increased demands in the future.

It is not expected that water rates would differ appreciably among the alternatives, as the population increase does not vary substantially, especially among Alternatives 1, 2, and 3. The projected population increase in Alternative 4 was generated for analysis purposes only and is not based on any announced stationing decisions. As such, it is extremely conservative. Given the conservative assumptions incorporated in the analysis, including higher than anticipated per capita water consumption rates, the potential for further decreases in per capita consumption, and the fact that there are no plans at this time for additional increases in personnel at Fort Bliss, there is too much uncertainty to more precisely determine the effect of Alternative 4 on water rate increases. EPWU's 5 percent per year remains the best credible estimate of potential rate increases for any alternative.

19.39. EPWU currently has the capacity to supply 305 million gallons of water per day, of which 100 million gallons per day is from surface water and 205 million gallons from groundwater resources. With a peak day demand of 162 million gallons in the past couple of years, EPWU has sufficient capacity to meet the expected accelerated growth. As noted above, the costs of developing additional projects has already been factored into EPWU's budget and the estimated rate increases.

19.40. As noted above, EPWU does not anticipate a need to increase groundwater pumping to meet the increased demand for water. It feels it can successfully accelerate its projects for developing other sources. However, for analysis purposes, EPWU has estimated that groundwater withdrawals might need to increase by up to 7,000 afy, about 5 percent, for three years. This would have no significant impact on the Hueco Bolson.

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Section 5.7 notes repeatedly (e.g. P 5.7-1 L11, L 32-33) that EPWU will meet partial demand by purchasing agricultural water rights/Rio Grande water rights. This will increase the cost of purchasing water rights. The SEIS should state if this will impact yearly rates for current water users, and by how much. It should also analyze the impacts of purchasing water rights on the ability by government agencies and conservation groups to acquire water to restore locally the Rio Grande wetland and bosque ecosystems. This is both proposed and currently underway. As an example, the city's Rio Bosque nature park only receives water at the discretion of the EPWU, despite the fact that water rights are attached to a portion of the acreage. Rio Bosque has an estimated need of 5000 acre feet per year. The only water Rio Bosque receives is reclaimed water from the Bustamonte sewage treatment plant, and then only when irrigators no longer need it. This has resulted in the lack of water for and resulting death of restored native trees. 19.41

The SEIS should describe in Sections 4.7 and 5.7 whether Fort Bliss meters all its water use, including golf courses, or whether figures for annual water uses are only estimates. 19.42

Much of the lacking information described above should be disclosed in a revised SEIS not only to comply with the impact disclosure requirements of NEPA but to enable the decision makers to make a reasoned choice among alternatives (40 CFR 1502.22 (a)).

Air quality impacts and associated health effects. The SEIS should disclose the health effects of increased emissions and resulting non-attainment of the National Ambient Air Quality Standards to both the general public and to minority and low income populations. El Paso has serious pollution during frequent periods of atmospheric inversion and "ozone action days" all of which create significant negative health effects, not only for asthmatics but many others in the general population. 19.43

The SEIS fails to disclose the impact of PM 2.5 emissions and effects on public health. P 5.6-12 L 382-387 discusses only the impacts of the increase in Fort Bliss personnel, not the preferred actions' direct impact of approximately 150,000 other area residents. The SEIS obliquely refers to this additional population as a reference in Table 5.6-6. This table estimates the incredible daily increases that will result from the preferred alternative, including over one million three hundred thousand more miles driven per day under the proposed alternatives. This is eight times the current miles driven. The SEIS must disclose the consequent impacts to air quality and public health from this increase. 19.44 19.45

Results of a Fort Bliss study conducted in the mid 1980s showed maneuver training increased soil particle transport by a factor of 10 times over areas that did not receive maneuver use. Fort Bliss collected additional dust transport data in the 1990s. Other researchers have done studies in coppice dune ecosystems (e.g. reference 82). It is not clear whether these data were used in the PNNL model. If they were omitted, the Army should revise the modeling with data included. 19.46

Effects of dust on visibility and aesthetic qualities of Otero Mesa should be further discussed in the SEIS. Alarmingly, the discussion in the current SEIS states that the action will contribute to increasing haze all the way at Guadalupe National Park (P15.5-10 L 403-405). 19.47

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19.41. EPWU is a customer of El Paso County Water Improvement District (EPCWID) No. 1. EPCWID manages surface water from the Rio Grande Project. EPWU is obligated to return effluent flows to the surface water system and has no discretion to supply water directly to Rio Bosque. The Region E Plan calls for an increase in surface water diversions in the future to meet some of the expected increased demands. This would be accomplished by purchasing or leasing water rights, retiring the irrigated land, and converting the irrigation water to municipal use. This is how all of EPWU's surface water is obtained. The rate impact has already been factored into EPWU's estimates.

19.42. Fort Bliss meters all of its groundwater pumping and its use of EPWU water. The projected water use reported in the Draft SEIS was estimated based on historic use and other factors such as conservation measures being incorporated in new construction.

19.43. The Proposed Action and other alternatives are not expected to result in non-attainment of National Ambient Air Quality Standards (NAAQS). The Proposed Action would result in incremental increases in emissions, but this is not expected to hinder progress toward meeting the NAAQS in the El Paso region. Therefore, an analysis of the health effects of nonattainment of the NAAQS is not required for the SEIS. Fort Bliss will continue working with the El Paso Metropolitan Planning Organization to ensure that growth and development on the installation will be captured in the region's transportation plans.

19.44. The overwhelmingly greatest amount of particulate emissions from the Proposed Action is expected to be in the PM_{10} size range, in particular the fugitive dust emissions produced during training exercises. Consequently, the focus of the analysis is on PM_{10} emissions. $PM_{2.5}$ emission factors were not available for all sources. However, $PM_{2.5}$ emissions from the Proposed Action are expected to be relatively modest and not sufficient to exceed standards set by USEPA to ensure public health.

19.45. Table 5.6-6 of the Draft SEIS also provided estimated emissions of criteria pollutants associated with the additional vehicle traffic generated by the induced population increase for each alternative, including the preferred alternative.

Although the changes at Fort Bliss are expected to result in a substantial increase in vehicle miles traveled by the Fort Bliss-related population, understanding the potential impact on local air quality requires placing that increase in the context of total vehicle miles traveled in the region. The El Paso Metropolitan Planning Organization has projected approximately 17,800,000 vehicles miles for 2010 in the most recent Transportation Conformity Report. Therefore, an increase of 1,303,000 vehicle miles traveled by Fort Bliss-induced population under Alternative 4 would

P 5.6-3 L 104-108 states that neither the proposed action (nor related cumulative effects) will have any impact on other PSD Class I areas, such as Big Bend National Park. This appears to be only an assumption. The SEIS should state how this conclusion was arrived at and what analysis was performed to confirm accuracy. Fort Bliss should contact the National Park Service and discuss this issue and its ramifications. The visibility of Big Bend National Park is significantly and severely impacted by emissions that are produced a long distance from the park's boundary. Satellite imagery reveals entrained dust moving from bare soils of the Mojave far to the east of its source. 19.48 19.49

Failure to Adequately Disclose Cumulative Impacts of Proposed Action

The SEIS fails to adequately disclose how the intersecting threats of oil and gas, livestock grazing, off-road vehicle use and other activities are resulting in harm to ecological and archaeological values in the region. One example is the oil and gas drilling plan approved by the U.S. Bureau of Land Management in 2005. This should be discussed in the context of greatly impeding Aplomado falcon recovery, the impacts of which will be greatly exacerbated by the proposed action on Fort Bliss.

SEIS Aims to Justify a Pre-determined Outcome

This NEPA process appears to have been undertaken to justify a decision already made, in violation of NEPA. For example, in response to a request for several Fort Bliss documents pertaining to transforming the Fort Bliss's mission, the Army wrote, prior to May 2005:

> The text below was included talking points included with Slide Number 35 in the slide presentation to the BRAC Commission Staff. We have no way of confirmingthat these issues were actually presented to the staff.
>
> G3/AEC determined that 4-1 BCT can train to standard using existing maneuver areas. Also defined potential for two infantry BCTs using Otero Mesa and Sacramento Mountains north of Highway 506. Supplemental EIS will develop changes in land use from no off road maneuver on McGregor to an additional 243,000 acre maneuver area to determine carrying capacity on how many additional BCTs can train to standard on Fort Bliss.
>
> (We already know that we can train 4 BCTs w/logistics and Command BCTs added plus two Infantry BCTs), The EIS will determine how many more we can take in.)

In addition, the draft SEIS states that the No Action Alternative does not provide sufficient area designated for Off-Road Vehicle Maneuver to accommodate the units identified by BRAC to be relocated to Fort Bliss and continue to support other users of the Fort Bliss Training Complex. This suggests the predetermined nature of this public process. In addition, as we discuss elsewhere in these comments, it is clear that the only ecologically protective alternative is the No Action Alternative, yet it is not feasible for the Army to choose this, due to congressional mandate. It is therefore vital that Fort Bliss revise the draft SEIS to include more alternatives. 19.50 19.51

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represent only a 7 percent increase in total vehicle miles traveled in El Paso County.

19.46. The analysis conducted for the Fort Bliss SEIS used the most current and relevant emission factors available, as well as an air dispersion model specifically designed for application at Fort Bliss. The emission factors for training exercises were developed from recent research conducted at Fort Bliss in 2004-2005 by the Desert Research Institute (DRI) specifically for that purpose. DRI researchers are experts in this area, and the decision was made to use these results rather than to rely on older studies not specifically designed to calculate fugitive dust emissions.

19.47. Visibility protection is only mandated for Class I areas, which include designated National Parks and U.S. Forest Service Wilderness Areas. Otero Mesa is not a Class I area.

The referenced section of the Draft SEIS states "air pollutant emissions from proposed activities at Fort Bliss are **not** expected to significantly affect visibility in Class I areas such as Guadalupe National Park…" [emphasis added]. The sentence goes on to note that other emissions in the region of influence may do so.

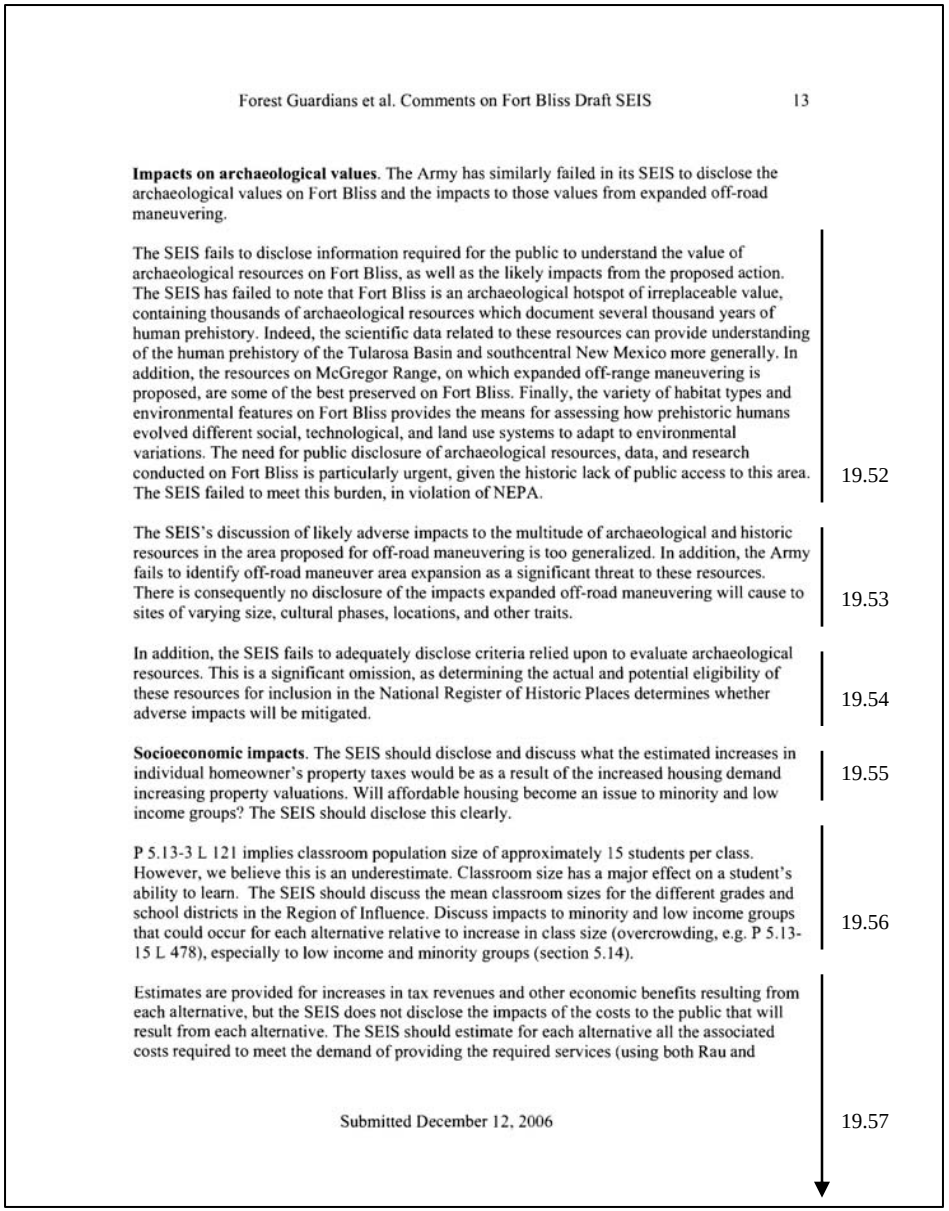
19.48. The majority of emissions from the Proposed Action at Fort Bliss would be from mobile sources, which are typically not included when identifying the potential for visibility impairment at distant Class I areas. In addition, much of the emissions would be generated during exercises conducted over the vast 2,780 km^2 Fort Bliss training areas, and these emissions would be widely dispersed even before they leave Fort Bliss property. Finally, fugitive dust would be the largest category of emissions, and these relatively coarse particles quickly settle out of the atmosphere before moving significant distances downwind. Consequently, it is extremely unlikely that there will be visibility impacts at distant Class I areas like Big Bend National Park due to activities at Fort Bliss.

19.49. The Draft SEIS was distributed to Department of the Interior agencies for review. No comments were received from the National Park Service.

19.50. The No Action Alternative is included in the SEIS because it is required by Council on Environmental Quality Regulations (40 CFR 1502.14(d)). It provides a baseline for comparison with the other alternatives. It does not meet the Army's needs, which is the reason for the proposed land use changes. The SEIS considers four alternatives that would meet the Army's needs, and the selection of any of those alternatives has not been predetermined.

Section 3.3.2 of the Draft SEIS indicated that if the No Action Alternative were selected, impacts would include using available maneuver areas 365 days a year, resulting in insufficient time for road maintenance and environmental activities; inability to support off-post users and the mobilization mission; and degraded training.

19.51. As described in Chapter 3 of the Draft SEIS, the Army undertook an extensive study to identify and consider alternatives. This resulted in identification of four alternatives that are analyzed in detail and four other alternatives that were considered but not carried forward. No other alternatives have been identified that meet the Army's training needs.



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Impacts on archaeological values. The Army has similarly failed in its SEIS to disclose the archaeological values on Fort Bliss and the impacts to those values from expanded off-road maneuvering.

The SEIS fails to disclose information required for the public to understand the value of archaeological resources on Fort Bliss, as well as the likely impacts from the proposed action. The SEIS has failed to note that Fort Bliss is an archaeological hotspot of irreplaceable value, containing thousands of archaeological resources which document several thousand years of human prehistory. Indeed, the scientific data related to these resources can provide understanding of the human prehistory of the Tularosa Basin and southcentral New Mexico more generally. In addition, the resources on McGregor Range, on which expanded off-range maneuvering is proposed, are some of the best preserved on Fort Bliss. Finally, the variety of habitat types and environmental features on Fort Bliss provides the means for assessing how prehistoric humans evolved different social, technological, and land use systems to adapt to environmental variations. The need for public disclosure of archaeological resources, data, and research conducted on Fort Bliss is particularly urgent, given the historic lack of public access to this area. The SEIS failed to meet this burden, in violation of NEPA. 19.52

The SEIS's discussion of likely adverse impacts to the multitude of archaeological and historic resources in the area proposed for off-road maneuvering is too generalized. In addition, the Army fails to identify off-road maneuver area expansion as a significant threat to these resources. There is consequently no disclosure of the impacts expanded off-road maneuvering will cause to sites of varying size, cultural phases, locations, and other traits. 19.53

In addition, the SEIS fails to adequately disclose criteria relied upon to evaluate archaeological resources. This is a significant omission, as determining the actual and potential eligibility of these resources for inclusion in the National Register of Historic Places determines whether adverse impacts will be mitigated. 19.54

Socioeconomic impacts. The SEIS should disclose and discuss what the estimated increases in individual homeowner's property taxes would be as a result of the increased housing demand increasing property valuations. Will affordable housing become an issue to minority and low income groups? The SEIS should disclose this clearly. 19.55

P 5.13-3 L 121 implies classroom population size of approximately 15 students per class. However, we believe this is an underestimate. Classroom size has a major effect on a student's ability to learn. The SEIS should discuss the mean classroom sizes for the different grades and school districts in the Region of Influence. Discuss impacts to minority and low income groups that could occur for each alternative relative to increase in class size (overcrowding, e.g. P 5.13-15 L 478), especially to low income and minority groups (section 5.14). 19.56

Estimates are provided for increases in tax revenues and other economic benefits resulting from each alternative, but the SEIS does not disclose the impacts of the costs to the public that will result from each alternative. The SEIS should estimate for each alternative all the associated costs required to meet the demand of providing the required services (using both Rau and 19.57

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19.52. The Draft SEIS disclosed the total number of sites on Fort Bliss. It is stated in the SEIS that cultural resources have the potential of being impacted by this action, but mitigation measures have been developed through the Programmatic Agreement.

The comment that the resources are the "best preserved" is not necessarily accurate. Alluvial fan contexts for sites on both Doña Ana and McGregor Ranges tend to have the highest degree of preservation due to the nature of the depositional environment. Aeolian dune settings on the basin floor tend to have less preservation due to wind erosion. Recently, an El Paso phase pueblo on Doña Ana Range was excavated in the contact zone between the basin floor and lower alluvial fans and may represent one of the most intact El Paso phase pueblos ever excavated.

Since 1995, Fort Bliss has provided a great deal of access to reports. Reports are sent to both the New Mexico and Texas SHPOs and are available in New Mexico through the ARMS program. In addition, when the Directorate of Environment is contacted directly, every effort is made to provide either digital or paper copies of reports that are available. Fort Bliss has a mailing list of interested parties that receive a copy of the project brochure generated for each project. If the recipient finds the brochure of interest and wants a copy of the full report, a digital or paper copy will be provided on request.

19.53. Section 5.9 of the Draft SEIS acknowledges that some loss of cultural resources is likely unavoidable, and a statement to that effect has been added in Section 5.18 of the Final SEIS. Any effects would only be adverse effects if they occur to NRHP-eligible properties per the National Historic Preservation Act. Mitigation measures will be put in place per the Programmatic Agreement to minimize or avoid those impacts. Fort Bliss does not at present have any data to suggest that off-road vehicle maneuvers will cause different levels of adverse effects to different cultural periods and phases. However, the potential to cause differing effects to different depositional characteristics, sizes, and locations will have to be studied over time through careful archaeological monitoring and continued site evaluations on McGregor Range. If the signatories of the PA determine the measures are not effective, new measures will be developed in consultation with all parties to the PA, and the PA will be amended as needed.

Wooten demand factors) - new schools, teachers, fire and law enforcement protection, medical services (including but not limited to new facilities, physicians, emergency response, Thomason), infrastructure and facility maintenance, the cost to consumers of El Paso Electric Company's need to expand its capacity, and the additional water rate increases (a $100 per month/ $1200 per year water bill will increase in 20 years to ~$270 per month/ $2880 per year). 19.57

The SEIS should also estimate the potential increases in local tax rates for each alternative (El Paso should be able to assist Bliss with this). These estimates are necessary to comply with the impact disclosure requirements of NEPA (in particular to comply with environmental justice requirements). The cost of obtaining these estimates should not be exorbitant, nor should it be difficult, given that Bliss has already set a precedent by initiating several (P 5.13-1 L 4-5, 22) recent economic studies to document its beneficial impacts on the region. Disclose in section 5.14 the impacts of these costs on minorities and low income populations. The SEIS appears to assume that the public will be able to afford to meet all of these costs, possibly an incorrect assumption. The SEIS should discuss those impacts that would result if local governments were not being able to meet these costs, as a worst case analysis. 19.58

At P 5.13-14 L 469-471, the SEIS should define and quantify what is meant by "acceptable" and unacceptable" roadway Levels of Service (LOS) and apply those standards to all alternatives. 19.59

Section 5.13 notes alternatives have progressively greater impacts to quality of life via roadway LOS degradations, including traffic delays, longer commutes, gridlock, and increased highway congestion. Table 5.6-6 estimates the incredible daily increases in vehicle use of roads that will result from the preferred alternative. For example, regarding, vehicle miles traveled, the SEIS estimates over one million three hundred thousand more miles will be driven per day under the proposed action. This is eight times the current miles driven.

Ultimately, the SEIS fails to quantify impacts to quality of life, traffic, and roadways for each alternative. The Army should determine options for eliminating these impacts and associated costs for each (include as cumulative impacts) so the public and local governments know what the quality of life and financial costs are. Increased highway congestion results in more air pollution; if not already disclosed and evaluated in air section, these effects must be addressed. 19.60 19.61 19.62

Failure to Analyze a Range of Reasonable Alternatives

The SEIS fails to identify and analyze reasonable alternatives that could avoid or minimize adverse effects to biological resources. The alternatives of using other federally-owned or managed lands, resting and rotating maneuver use, permitting only those level of maneuver frequencies and intensities that a each ecosystem can sustain without degradation, and not conducting maneuvering during the rainy/growing season are not evaluated. However, given that the Army has failed to justify the need for expansion of off-road maneuver areas at all, any reasonable alternatives should not expand the extent of off-road maneuver areas, yet all of the alternatives (except for the no action alternative) propose expansion. 19.63

We are concerned that the No Action alternative is not feasible given the BRAC Commission decision, codified by Congress, which authorizes four HBCTs for Fort Bliss. The only alternative

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19.54. The Fort Bliss Significance Standards (Abbott et al 1996) outline the current criteria for NRHP eligibility and are available in public libraries in El Paso, Alamogordo, and Las Cruces. These standards are currently being updated in the Revised Significance Standards and will be done in consultation with the appropriate SHPOs. Determining NRHP eligibility will establish whether or not any impacts have the potential to be "adverse." If the effects are determined adverse, then mitigation measures are implemented.

19.55 Adequate information is not available to make these estimates. While housing costs might increase, the tax base will also increase with the construction of new housing. Therefore, it is not possible to predict future tax rates, but more information on revenues and costs for public services has been added to Section 5.13 of the Final SEIS. Similarly, employment can be expected to increase, which could result in higher family income and lower unemployment rates. Further, if there are housing shortages, they would likely not be uniform across all types of housing. Given all these factors, it is not a foregone conclusion that affordable housing will become an issue to minority and low-income groups.

19.56. This analysis is beyond the scope of the SEIS. The analysis in the SEIS has used the existing classroom sizes in the affected school districts as a reasonable measure for estimating impacts. Whether or not classroom sizes would change is not reasonably foreseeable, and if they did, how that might affect student learning is completely speculative. There is no evidence that impacts on low-income or minority populations would be disproportionately high and adverse.

Fort Bliss is working closely with local school districts to help them plan for the increase in school-aged children. The DoD's Office of Economic Adjustment is providing consulting assistance to the districts to obtain funding for additional facilities and to meet other increased requirements. Furthermore, local districts receive impact aid to mitigate the cost of educating military dependents.

19.57. Section 5.13 of the Final SEIS has been expanded to provide an estimate of the costs of accommodating increased community service demands, to the extent practicable using available information.

There is no evidence to suggest that there will be an increase in the cost of electricity. While additional infrastructure may be needed, there will also be an increase in customers and associated revenues to the utilities.

The estimated increase in water rates is already discussed in the SEIS. It should be noted that some cost of living increases will occur independent of any action at Fort Bliss.

19.58. Additional information on costs for public services has been added to Section 5.13 of the Final SEIS. It does not necessarily lead to a conclusion that local tax rates will increase. While additional demands will generate costs for public agencies, it is also true that the region's tax base will increase, both in the form of population increases (more tax payers) and in increased earnings, as reported in the SEIS. There is no evidence that local governments will be unable to meet these costs. The DoD's Office of Economic Adjustment is providing assistance to local governments in planning for and accommodating the increased demands due to BRAC actions at Fort Bliss.

19.59. This information is provided in Sections 4.2 and 5.2 of the Draft and Final SEIS.

19.60. Impacts to traffic and roadways were quantified and reported in Section 5.2 of the Draft SEIS. Elements that contribute to quality of life have been quantified to the extent practicable, but there is no quantitative measure of quality of life *per se* because it is based on personal values.

19.61. A precise estimate of the costs of mitigating traffic impacts cannot be developed because the costs of roadway improvements vary widely depending on location and design, and specific roadway improvement plans have not yet been developed by the El Paso Metropolitan Planning Organization. However, additional information has been added to Section 5.2 of the Final SEIS to provide a sense of the potential costs, based on available information.

As noted above, other quality of life impacts are related to personal values and cannot be reduced to financial terms.

19.62. The vehicle emission factors used in developing the traffic emissions were based on MOBILE6, USEPA's emissions model, using the model's default mix of vehicle types and speeds, which are characteristic of typical highway conditions.

Section 5.2 of the SEIS shows that, depending on the alternative, between one and four of the 25 roadway segments analyzed would degrade to an unacceptable level of service due to direct effects from the increase in population at Fort Bliss. This is not expected to result in a significant difference in air pollutant emissions from those estimated in the SEIS.

Because of the uncertainty associated with where development would occur in the region to accommodate the increased induced population, and the complexity of traffic patterns within the roadway network, the El Paso MPO will need to conduct Traffic Demand Modeling to ascertain whether there would be an increase in traffic congestion due to the induced population increase and to ensure conformance with the goals to meet the National Ambient Air Quality Standards. It is the agency

tasked with determining whether an increase in vehicle miles traveled will fit within its emission budget. The information in Table 5.6-6 of the SEIS has been provided to assist the MPO in making this assessment.

19.63. Some of the suggested alternatives are not reasonable because they do not meet the purpose for and need for action, while others are too vague to respond to.

Specifically, the comment does not identify any other federally owned land that would result in less adverse impacts to biological resources, and the Army does not know of any less sensitive lands that could be used for training of units stationed at Fort Bliss. Furthermore, as described in Section 3.8.3 of the Draft SEIS, the length of time required to withdraw non-military federal lands for military use would not meet the Army's needs. Lands on McGregor Range have already been withdrawn for that purpose, so it is difficult to justify withdrawing additional land while not making more use of already available land.

The amount of off-road vehicle maneuver conducted on Fort Bliss lands will be based on training needs and cannot be artificially limited. To be reasonable, any alternative must meet the need as defined in Chapter 1 of the SEIS. Within that requirement, measures like rest and rotation will be employed to the extent practicable to minimize effects.

The Army's Integrated Training Area Management program's mission is to sustain training lands so they continue to be viable for training, including maintaining the variety of ecological conditions that Fort Bliss provides.

There is no reasonable alternative that does not expand the amount of off-road vehicle maneuver area. That is the reason for the proposed land use changes and the SEIS. If the area already approved for off-road vehicle maneuver were adequate to meet the Army's requirements, there would be no need for the SEIS.

that adequately protects the values on Fort Bliss therefore cannot be chosen. Here are additional suggestions for reasonable alternatives which should be analyzed in a revised draft SEIS:

- One reasonable alternative that the Army should examine is one that would exclude all the grasslands from off-road maneuvers, including grassland acreage on McGregor Range and along the east flanks of the Organ Mountains. 19.64
- Another alternative we would support is a modified Alternative 1 which does not increase off-road maneuver areas. 19.65
- The Army should also consider alternatives which propose maneuvering on federal lands (including those not managed by Fort Bliss) that contain less valuable ecological and archaeological resources than does the relatively undisturbed McGregor Range. 19.66

Failure to Mitigate Impacts of Proposed Action

The mitigations provided in the SEIS are inadequate to reduce impacts of the proposed action. The Army fails to discuss mitigation measures that could reduce or eliminate impacts of the proposed action. The lack of mitigations is especially egregious given the high magnitude, wide extent, and certainty of severe, long-lived impacts. 19.67

Mitigation is not discussed for many resources. Where referenced, e.g. P 5.15-5, L 187-189, it is simply "mitigation is in our design and management plans". Mitigation, as defined in 40 CFR 1508.20, should be disclosed clearly and unequivocally described, even if mitigation is part of a plan (e.g. INRMP) and/or incorporated by design or reference. The revised draft SEIS must disclose what the mitigation specifically is, describe each mitigative action or activity, explain how each mitigation action is expected to result in the mitigation effects, enumerate the metrics of success, how the resource and mitigation action will be monitored, and specify these details in a revised draft SEIS to be circulated to the public and also in the Record of Decision to ensure mitigation is funded and carried out. 19.68

If Fort Bliss assumes that local governments will undertake actions or has been discussing actions that will mitigate impacts the SEIS should specifically state these actions, and what it could cost to implement them. 19.69

Participants on the McGregor field trip asked the Ft Bliss and contractor hosts why the very highly erosive loamy soil near Hackberry tank, which comprises a tiny 2% of the entire proposed maneuver area, could not be placed off-limits to concentrations of vehicles. Rather than answering the question the participants were told that anyone from the public can suggest mitigation in their comments. However, the burden is on the Army to propose mitigations, under NEPA requirements. Further, it is ludicrous to expect the non-professional members of the public who has never seen McGregor Range (as it has been closed to the public for several decades) to propose mitigation measures. The professionals employed by Bliss should have already identified potential mitigation actions. In those few instances where mitigation is implied, the Army has done so obliquely and without any explanation. Examples include: 19.70 19.71

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19.64. The Army has already minimized potential impacts to grasslands on Fort Bliss in the alternatives considered in the SEIS. As shown in Table 4.8-2 in the Draft SEIS, the area of Fort Bliss with the largest percentage of grasslands (92 percent) is Otero Mesa, which has been avoided in all the alternatives under consideration. By comparison, the areas in the north and south Tularosa Basin portions of McGregor Range under consideration for off-road vehicle maneuvers contain12 percent or less grasslands. The southeast training areas considered in Alternatives 3 and 4 are approximately 67 percent grasslands. So the areas under consideration are those with the lowest density of grasslands.

Those areas also represent the smallest areal extent of grasslands. Otero Mesa and the Sacramento Mountains foothills, which the Army does not propose to use for off-road vehicle maneuvers, contain nearly 60 percent of the grasslands on Fort Bliss. The Tularosa Basin areas of Fort Bliss currently used or proposed for off-road vehicle maneuvers contain approximately 18 percent of Fort Bliss grasslands. The southeast training areas considered in Alternative 3 and 4 contain another 15 percent of the installation's grasslands.

The grasslands in the Assembly Area east of the Organ Mountain and the Tularosa Basin portion of McGregor Range are distributed among the coppice dunes, shrub, and other vegetation and cannot be completely avoided without severely constraining training.

The southeast training areas considered in Alternatives 3 and 4 can only be avoided if those alternatives are not selected. Impacts to grasslands in those areas would be unavoidable if they are opened to off-road vehicle maneuvers.

However, the benefit that those areas provide to training lies in the diversity they offer, so the Army's goal would be to maintain those grasslands and the variety they provide. That would be accomplished through the Integrated Training Area Management program, which will monitor the areas using satellite imagery and ground surveys and identify management actions to keep the area from degrading to unsustainable conditions.

19.65. It is not clear how this would differ from the No Action Alternative, which is already addressed in the SEIS.

19.66. This comment is too unspecific for a meaningful response. The comment does not identify any federal lands containing "less valuable" ecological and archaeological resources that the Army might consider, and the Army does not know of any in the vicinity of Fort Bliss that are known to be ecologically and archaeologically less valuable.

19.67. A number of mitigation measures were provided throughout the Draft SEIS. Chapter 6 of the Final SEIS consolidates the discussion of mitigation measures and adds additional measures identified through the public comment process.

19.68. Section 5.15 of the SEIS describes cumulative impacts. Mitigation measures are discussed in multiple other sections of the SEIS, including Chapters 2, 3, and 5. Taking one sentence out of context does not accurately reflect the document's contents.

The sentence following the one cited in this comment elaborates on the types of mitigation measures incorporated by design and through management processes. It reads: "They include such measures as siting and consolidating facilities and live-fire ranges to reduce the area affected; ensuring land use compatibility in the Real Property Master Plan; energy-efficient facility design; executing a Programmatic Agreement for historic properties; implementing projects in the Integrated Natural Resources Management Plan; promoting a sustainable range and training base through the Integrated Area Management program; and maintaining Solid Waste Management (including an aggressive recycling program), Storm Water Management, Spill Prevention, Control, and Countermeasures, Asbestos Management, Lead Hazard Management, and Pollution Prevention Plans.

Further, this section of the Draft SEIS refers back to Chapter 2, where more detail is provided about all these programs, including listing specific projects. In the Final SEIS, the discussion of mitigation measures has been consolidated in a single Chapter 6.

19.69. The Army does not assume that local governments will mitigate the impacts of the actions on Fort Bliss. The analysis in the SEIS identifies potential impacts on local government services with no presumption of mitigation. It is reasonable to assume that local governments will continue to provide the services that are in their charter – there is no basis for assuming otherwise. However, the SEIS analysis did not reduce its assessment of impacts based on any assumption of mitigation by local government.

Chapter 6 of the Final SEIS consolidates the discussion of mitigation measures and describes ongoing collaborative efforts between the federal government and local governments to mitigate the effects of the changes at Fort Bliss.

19.70. The Fort Bliss Range Standard Operating Procedures already limit vehicle maneuvers in grasslands. Limited-use areas are established where no bivouac or concentration of people or vehicles is permitted. Fort Bliss would establish a 3.5-kilometer limited-use area around Hackberry Tank if Alternative 3 or 4 is selected.

- P 5.15-12 L 491-492 states, "Section 7 consultation by the Army in combination with the Fort Bliss INRMP, will minimize the installation's contribution to impacts on species protected by the Endangered Species Act." These is no discussion of how impacts will be minimized, what specific actions in the INRMP will accomplish this (the INRMP appears to be a hollow document given it can not prevent the loss of aplomado habitat or eliminate the significant impacts associated with this action), no commitment to funding specifics, or what the mechanisms of protection and metrics of success could possibly be. Rather, this appears to be a meaningless statement for public consumption. 19.72

- P 4.8-10 L 250-252 simply states that continued monitoring and improved documentation "ensures that sensitive species receive adequate protection in the event a new population is discovered." There is no basis for expecting this to occur. This is a vague, meaningless assertion that fails to fulfill the Army's obligation to provide specific mitigations to reduce the impacts of the proposed action. 19.73

- P 4.8-7 L 99-101 states that, regarding invasive species, Fort Bliss "completes" annual monitoring and "targeted mitigation" of exotics, and this information has been incorporated into the INRMP providing necessary "recommendations" to preserve biological diversity on post. The SEIS needs to define what specifically measures are being or will be taken to preserve biological diversity in the planning area. If this statement is intended as a mitigation, specific mitigation measures must be described and disclosed. 19.74

Possible mitigative actions to protect ecological resources in the planning area that are not discussed in the SEIS include, but are not limited to:

- On P 4.8-1 L 29-31, the shinnery oak population within the proposed maneuver area is described as unique. We therefore urge the Army to place this area off limits to maneuver as a specific mitigation. 19.75

- Training locations on Otero Mesa can be rested and rotated as a mitigation to reduce[7] impacts to the rare and valuable grassland communities. Rest and rotation would allow maneuvering to be limited to existing maneuver sites. 19.76

- Grazing currently occurs north of highway 506 and has potential to significantly impact the vegetation communities when combined with expanded maneuver areas. A revised SEIS should provide the mitigation of eliminating grazing. 19.77

- Prohibit concentrations of vehicles, bivouacs, command centers, staging areas, etc. in areas of erosive soils as a mitigation measure. 19.78

- Place draws off limits to maneuver as a mitigation. These lands forms have deep, highly erosive soils and will become severely eroded and gulleyed if maneuvered on. 19.79

[7]We use the word "reduce" and not eliminate or avoid, because recovery may take decades or not occur at all due to the fragile ecology of the area.

Submitted December 12, 2006

19.71. The Army recognizes its responsibility to identify mitigation measures and does not expect members of the public to propose mitigation measures. However, if members of the public did suggest mitigation measures, as was the case at the field trip, the Army encouraged them to submit them for consideration. Several mitigation measures have in fact been suggested through the public comment process, are consequently included in the Final SEIS, and will be considered by the Army.

19.72. The INRMP integrates management of natural resources. Cumulative impacts are reduced by integrating training needs with natural resource management. For example, requests for training land use are reviewed by the Fort Bliss Directorate of Environment to ensure that training does not occur on areas occupied by Sneed pincushion cactus habitat.

19.73. Section 2.1.4 of the Draft SEIS described Fort Bliss' Integrated Natural Resources Management Plan, which contains specific management goals and actions, including conducting surveys to identify sensitive species and implementing mitigation measures for a variety of resources (see Table 2-2).

Fort Bliss professional biologists regularly monitor the list of threatened and endangered species. If new species are identified that may occur on Fort Bliss, the INRMP will be modified as needed to provide for appropriate surveys and implement mitigation measures identified in consultation with the U.S. Fish and Wildlife Service.

Contrary to the comment, there is every basis for expecting Fort Bliss to continue its stewardship of natural resources in general and sensitive species in particular. Fort Bliss has an outstanding record of preservation and compliance with the Endangered Species Act.

19.74. Fort Bliss' targeted mitigation of exotic invasives is already in place. It is not specifically intended to mitigate impacts from the Proposed Action but is standard operating procedure for maintaining the ecosystem to support training. Allowing exotics to take over would reduce the capability of the land; Fort Bliss manages invasives to avoid that impact. The specific control measures used depend on the targeted species and have included and will continue to include both chemical and physical treatments. Adaptive management will be used to identify the most effective approach.

- Place arroyos limits to maneuver as a mitigation, except at a limited number of specifically designated crossing points. 19.80

Possible reasonable mitigations to address water issues include, but are not limited to:

- Use of purple pipe reclaimed water for their parade grounds and golf courses. 19.81
- Elimination of turf on the majority of the parade ground to reduce water demand. El Pasoans are doing this, and DOD can as well. 19.82
- Transfer of Fort Bliss fresh groundwater to EPWU to be used for Rio Bosque and other restoration initiatives in return for purple pipe water. 19.83

Possible reasonable mitigative actions to address socioeconomic impacts include, but are not limited to:[8]

- Offset the anticipated housing demand by constructing housing on-post or funding off-post housing. 19.84
- Fund construction and staffing of on-post schools for military dependents. 19.85

The SEIS has failed to provide mitigations sufficient to ensure effective reduction of the adverse impacts to archaeological resources from the proposed action. The Army's disclosure of proposed mitigation measures for archaeological resources is primarily drawn from Standard Operating Procedures in a a Programmatic Agreement (Table 3.9-2, page 3.9-5; Appendix B; cf. Footnote 6) without discussion of the efficacy of these procedures in the past. There is thus little basis for evaluating whether these mitigations whether these same procedures will be effective in the future. Examples of unclear or problematic mitigations include: 1) Failure to disclose efficacy of the red zones (Page 5.9-4, lines 180-181. Page 5.9-5, lines 218-220. cf. Footnote 8*)* which seem to be an important component of the mitigation strategy; 2) Failure to disclose (and therefore impeded evaluation of) the possible efficacy of mitigations proposed in a revised Programmatic Agreement being negotiated with the Advisory Council on Historic Preservation and the cognizant State historic Preservation Officers (SEIS, Page 5.13-12, lines 500-502); and 3) Failure to disclose planned revisions to the ICRMP (Page 4.9-4, lines 159-161). 19.86

Most importantly, we are particularly concerned that the Army is insincere about adopting mitigations sufficient to redress environmental harms of the proposed action. Consider that a briefing slide produced by Team Bliss for a DoD briefing to BRAC states in regard to Fort Bliss: "Largest Maneuver Area in the Army - One Million acres of training space ---- *with no environmental limitations*!" (emphasis in the original). This is quite alarming, given the important ecological and archeological values we have discussed in these comments. In addition, the briefing slide contradicts the statement in the SEIS that Fort Bliss proposes to "Modify current land use on Fort Bliss ... without compromising the commitment to stewardship of

[8]These mitigations are described solely to underscore the deficiencies of the draft SEIS. The signatories to this letter are concerned by environmental impacts from the proposed action, and we do not suggested construction be integrated into a proposed action.

Submitted December 12, 2006

19.75. The word "unique" describes the occurrence of this vegetation community on Fort Bliss. Shinnery oak communities are very common in the southwest portion of the Great Plains of the U.S. However, the Army will identify a limited-use area around this area if Alternative 2 or 4 is selected. No bivouac or concentration of people or vehicles would be permitted in limited-use areas.

19.76. The Army does not propose to use Otero Mesa for off-road vehicle maneuvers, to alter the existing field training sites, or to change land use on Otero Mesa. Vehicle maneuvers are already and will continue to be limited to existing controlled-access field training exercise sites and roads.

19.77. The large majority of grazing on Fort Bliss is on Otero Mesa. There is no proposal to change land use on Otero Mesa. The Army will work with BLM to determine the future of grazing in Units 1, 2, and the western half of 3 if Alternative 2 or 4 is selected.

19.78. This mitigation is too vague to consider without a more precise definition of erosive soils. As Figure 4.5-3 shows, all of Fort Bliss contains soils that are highly susceptible to wind erosion, including areas already designated for these activities.

The installation's Integrated Training Area Management program implements management strategies to minimize soil loss as part of its charter to sustain training capabilities.

19.79. Placing draws completely off limits to maneuver is not practicable. Many of these areas are important to providing realistic training. Because of this importance, the Integrated Training Area Management program will implement measures to keep draws from eroding to the point that they are no longer usable for training.

19.80. This restriction would unacceptably degrade training realism.

19.81. Fort Bliss is investigating cooperative plans with EPWU for the provision of reclaimed wastewater for use on the installation.

19.82. Fort Bliss has been converting to xeriscaping and other landscaping measures that conserve water in family housing and other areas, similar to other residents of El Paso. The parade grounds, however, are a key contributing feature of the Main Post Historic District, which is listed on the National Register of Historic Places. Fort Bliss is working with the State Historic Preservation Officer and the Advisory Council on Historic Preservation in keeping with its Programmatic Agreement to identify ways to reduce freshwater consumption while maintaining the historic district's integrity.

natural and cultural resources" (page S-1, lines 26-29). A revised draft SEIS should clearly represent sufficient, enforceable, specific mitigations to address the concern that the current mitigations are general and apparently disingenuous. 19.87

As we have stated previously, we request a revised draft SEIS be issued and circulated for public comment. If after that stage a final SEIS is issued, mitigation requirements must be specified in the Record Of Decision. The DOD went on record internally years ago and told installations that they will not fund mitigation unless it is specified in the Record Of Decision. 19.88

Violation of Endangered Species Act

Violation of Duty to Conserve

While a non-essential, experimental designation for the northern Aplomado falcon removed federal agencies' duty to consult under Section 7(a)(2) of the Endangered Species Act (except on National Wildlife Refuges and National Parks), the Army still has a duty to conserve the falcon under Section 7(a)(1) of the ESA. This section requires that all federal agencies must utilize their authorities to carry out programs for the conservation of endangered and threatened species.

ESA § 7(a)(1) requires BLM to "carry out programs for the conservation of endangered species and threatened species…." Courts have interpreted this mandate as "a specific, rather than a generalized duty to conserve species."[9] And "conserve" is defined under the ESA as to "recover" (16 U.S.C. § 1532(3)). This means that BLM "must utilize all [of its] authorities to 'conserve' the endangered [species there]."[10] The Army must take active measures to encourage the propagation of healthy populations of listed species on the lands it administers. The Army is doing just the opposite with the proposed action, which will harm falcon habitat and therefore the falcon itself. A revised draft SEIS must consider this issue. 19.89

General Comments

The SEIS needs to describe at P 4.8-6 Table 4.8-2 the dominant species that comprise these cover types. For example, the SEIS should state the differences between piedmont, mesa, and foothill desert grasslands. Relatedly, on P 4.8-7 L 83-85 the SEIS states that the distinction between piedmont, mesa, and foothill desert grasslands is important. The SEIS should disclose what different values are found on those habitat types. It is difficult for the public to understand what impacts will be otherwise. 19.90

Percentages are given for each cover type, which means close to nothing to the public, and acreages are not provided. The SEIS should provide the acreage breakdown for each cover type by: proposed maneuver areas; McGregor proposed area; and as a total of all maneuver areas per alternative. P 5.8-6 Table 5.8-1 does not provide acreage which therefore impedes comprehension of levels of impacts. Basin lowland desert grassland is listed in the table but not shown on maps PP 4.8-3 through –5. These areas should be disclosed on maps in a revised SEIS. 19.91

[9] *Sierra Club v. Glickman*, 156 F.3d 606, 618 (5th Cir.1998); *Defenders of Wildlife v. Secretary, U.S. Dept. of the Interior*, 2005 WL 221253 (D.Or. Jan. 31, 2005).
[10] *Rio Grande Silvery Minnow v. Keys*, 2002 WL 32813602 (D.N.M. April 19, 2002).

Submitted December 12, 2006

19.83. Fort Bliss does not propose to increase pumping from its wells, in order to help preserve fresh water in the Hueco Bolson. As described in the response to comment 19.41, EPWU returns effluent flows to the surface water system and has no discretion to supply water directly to Rio Bosque.

19.84. As Chapter 3 of the Draft SEIS indicated, the Army Residential Communities Initiative is planning to construct additional housing.

19.85. Construction, operations and maintenance, and staffing of schools fall under the purview of El Paso Independent School District. However, their costs are mitigated with assistance from impact aid. Also, Fort Bliss provides land that schools are built on; four El Paso ISD schools are currently located on Fort Bliss property.

19.86. Restricted areas have provided significant protection of archaeological properties, and to date very few impacts have been identified in those areas.

The signatories of the Programmatic Agreement have agreed that the mitigation strategies are adequate and will support the military mission. Archaeological monitoring by the Range Liaison staff will identify impacts, and if it is found that the measures are inadequate, the PA will be amended through consultation with the two SHPOs, ACHP, and Tribes that are parties to the PA. If standard mitigation identified in the PA is inadequate, the PA requires consultation with the SHPO, ACHP, and Tribes to identify appropriate mitigation measures. Appropriateness of proposed mitigation is reviewable by the signatories of the PA through the National Environmental Policy Act process or consultation procedures outlined in the PA. Planned revisions to the ICRMP will bring it in line with the Programmatic Agreement and will include standard operating procedures for NAGPRA, Native American consultations, and ARPA.

19.87. The Draft SEIS included numerous mitigations. Chapter 6 of the Final SEIS expands and consolidates the discussion of mitigation measures. As required by CEQ Regulations, the Record of Decision will specify what mitigation measures will be implemented by the Army and summarize monitoring and enforcement measures that will be adopted.

19.88. An analysis of the public comments received on the Draft SEIS does not indicate that the document was so inadequate as to preclude meaningful analysis or that there is significant new information relevant to environmental concerns (40 CFR 1502.9) warranting issuance of a revised Draft SEIS. The Record of Decision will specify mitigation measures to be implemented by the Army.

P 4.8-7 L 83-85 states that "…certain grassland species… may not find the majority of grassland present (i.e. foothills and mesa grassland) suitable…" The SEIS should discuss what other grassland species would not find this habitat suitable and which species would find it suitable. The SEIS should disclose and discuss what areas/percentages are suitable so the public can ascertain the degree and significance of impacts. 19.92

At P4.8-9 L 185-187 the SEIS fails to list the species of concern noted. They should be named and impacts from the proposed action should be assessed for each. 19.93

References are made to major impact producing localized activities including, for example, bivouacs and staging areas (P 5.8-1, L 12-15), but the SEIS fails to describe where these will occur. It also fails to discuss training standards and scenarios that help predict locations. Fort Bliss should draw from its decades of maneuver training experience to help predict these locations, frequencies of repetitive use, impacts, and potential mitigations. 19.94

P 5.8-5 L 193-194 states that since not every vehicle will travel a unique route, impacts will be less. While we advocate limiting the geographic extent of off-road maneuvers, the greater the number of repetitive passes by vehicles, or "hits" a plant and patch of soil receives, the greater the impact. The Army should refer to Fort Bliss studies and revise its analysis on this point. Fort Bliss should be able to graphically model the tracking patterns to understand impact intensities and frequencies and disclose such in the SEIS, given known training doctrine and the aerial imagery already acquired or available for the installation that clearly shows track patterns on the ground. In fact, in the 1970s imagery was obtained for McGregor that shows tracks of one-time maneuver exercise Gallant Shield '75 and clearly reveals how these vehicles would maneuver and impact soil and vegetation. This area coincides with the areas being proposed for maneuver. Fort Bliss also has acquired coverage of the maneuver areas several different times over the past decades from Cooper Aerial Survey, Ikonos satellite imagery, and other sources. 19.95

Conclusion

There are numerous deficiencies in the draft SEIS enumerated above, which should be addressed through a revision and recirculation of draft SEIS for public comment. The draft SEIS violates multiple federal environmental laws by failing to consider a range of reasonable alternatives, failing to take a hard look at environmental impacts of the proposed action, failing to provide specific and effective mitigations to address those impacts, failing to conserve endangered species, as well as other violations.

Most fundamentally, however, Fort Bliss has failed to demonstrate a need for the proposed action, which doubles the off-road maneuver area on Fort Bliss and will cause severe and likely irreversible damage to significant ecological and archaeological values.

Sincerely,

Nicole J. Rosmarino

Nicole J. Rosmarino, Ph.D.
Conservation Director, Forest Guardians
On behalf of:

Submitted December 12, 2006

19.89. As noted above in response to previous comments, the Proposed Action is not expected to significantly affect aplomado falcon habitat due to the small percentage of potential habitat that would be affected and the lack of aplomado falcons on Fort Bliss. Fort Bliss will continue to monitor, cooperate with the U.S. Fish and Wildlife Service, and comply with the Endangered Species Act.

19.90. This information is provided in Table 4.8-1 of the 2000 Mission and Master Plan PEIS, which was incorporated by reference.

19.91. Percentages were used because they assist in understanding context. In addition, the analysis was performed using geographic information system, which, due to variations in boundary definition, contains minor differences in acreages. If desired, a reader can obtain an estimate of the acreages involved by applying the percentages in Table 5.8-1 to the acreages in Table 3.2-1.

19.92. This paragraph of the SEIS has been modified for clarity. See also response to comments above concerning suitable aplomado falcon habitat.

19.93. Much of this detail was contained in the 2000 Mission and Master Plan PEIS and incorporated by reference. The alternatives addressed in the SEIS are not expected to affect most of these species. Section 5.8 of the SEIS identifies the habitats, and by extension the species who use those habitats, that are expected to be affected.

19.94. Bivouacs and staging areas could occur anywhere that off-road vehicle maneuvers are authorized, except in designated limited-use areas. The location of these activities is extremely variable and depends on evolving training doctrine. Training doctrine has changed and is expected to undergo further change under Army Transformation, so past history is no longer an accurate indicator of current and future training doctrine. That is the reason the Army employs the Integrated Training Area Management program and the Integrated Natural Resources Management Plan to adapt its management of training lands in response to changing requirements.

19.95. The Draft SEIS clearly disclosed that areas open to off-road vehicle maneuvers would be subject to repeated tracking, whether the repetition occurs during a single exercise, in the course of a year, or over multiple years. The impact analysis is based on the expectation that off-road vehicle maneuver areas would be driven over repeatedly. The experience of Gallant Shield, which this comment points out involved a one-time exercise, is not comparable to the regular training that will be conducted by the Heavy BCTs and other units coming to Fort Bliss.

Kevin von Finger, retired Fort Bliss Senior Ecologist[11]
Glen de Garmo, retired Fort Bliss Senior Archeaologist

Margot Wilson, Southern Group of the Rio Grande Chapter of the Sierra Club

Laurence Gibson, Chair, El Paso Regional Group of the Sierra Club

Michael Robinson, Center for Biological Diversity

Michael Scialdone, New Mexico Wilderness Alliance

Glenn Landers, Southwest Environmental Center

[11]Mr. von Finger retired as a senior ecologist after 28 years of doing ecological management and NEPA analysis and document writing at the Fort Bliss Directorate of Environment. Before the hiring of additional staff in 1994, Mr. Glen de Garmo and Mr. von Finger were responsible for the entire program area of their respective disciplines (archaeology and ecology) and were the program managers.

Submitted December 12, 2006

In addition, the Army's equipment and training doctrine have changed since 1975, and the patterns of Gallant Shield are no longer representative of current off-road vehicle maneuvers.

A representative sample of training events adapted from Training Circular 25-1 to provide an estimate of off-road vehicle traffic for the SEIS included 17 types of exercises involving a total of 55 discrete maneuver activities. Even if it were possible to accurately model them all, it is expected that the results would demonstrate that all areas where off-road vehicle maneuvers are authorized would eventually be tracked, as the SEIS concludes.

-----Original Message-----
From: Roxlau, Kathy -- NUS [mailto:Kathy.Roxlau@ttnus.com]
Sent: Wednesday, December 13, 2006 4:50 PM
To: SEIS@bliss.army.mil
Subject: Draft SEIS Comments

I realize that these comments are arriving a day after the end of the public comment period, but I am hoping you will include them in your Comment Response. My comments are aimed specifically at the analysis of impacts to cultural resources, Chapter 5.9.

Overall, the discussion presented does not provide any information by which the reader, and thus the Decision Maker, can make an informed comparison of the adverse impacts to cultural resources between the various alternatives. The analysis for every alternative basically says there will be impacts and they will be dealt with according to the Programmatic Agreement. Although impacts will be mitigated, this does not preclude the fact that resources will likely be destroyed under the various alternatives. There is no information presented that enables the reader to compare the extent of resource destruction between the alternatives. Chapter 4.9 demonstrates that a good deal is known about the cultural resources at Fort Bliss. A strategy is already in place to designate areas as red or yellow zones in regard to resource density. Also, the text states that resource density is reliably predictable across Fort Bliss based on completed surveys. I would expect that this information could be used to describe more "quantitatively" the potential impacts to cultural resources anticipated under each of the alternatives, and the sources of those impacts, so that an informed comparison can be made. 20.1

Thank you for your consideration of these comments.

Katherine Roxlau
Albuquerque, NM

20.1. Section 5.9 of the Draft SEIS acknowledges that some loss of cultural resources is likely unavoidable, and a statement to that effect has been added in Section 5.18 of the Final SEIS.

The SEIS provides the decision maker a choice among different geographic areas of the installation, and Table 4.9-1 provides a summary of the number of archaeological sites in each geographic area. Quantitatively, this gives the decision maker information on how many sites could potentially be affected, based on current inventory data, for each alternative. Section 5.9 identifies the sources of potential impacts.

There are no areas designated as “yellow zones” on Fort Bliss for purposes of archaeological management.

UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION 6
1445 ROSS AVENUE, SUITE 1200
DALLAS, TX 75202-2733

December 1, 2006

John Barrera
NEPA Manager
Directorate of Environment
Bldg. 624, Pleasonton Road
Fort Bliss, TX 79916-6812

Postmarked 12 Dec 2006

Dear Mr. Barrera:

In accordance with our responsibilities under Section 309 of the Clean Air Act, the National Environmental Policy Act (NEPA), and the Council on Environmental Quality (CEQ) Regulations for Implementing NEPA, the U.S. Environmental Protection Agency (EPA) Region 6 office in Dallas, Texas, has completed its review of the Draft Environmental Impact Statement (DEIS) for the changes to the Fort Bliss, Texas and New Mexico, Mission and Master Plan, El Paso County, Texas and Dona Ana and Otero Counties, New Mexico.

EPA rates the DEIS as "**LO,**" i.e., EPA has "**Lack of Objections** " to the proposed action as described in the DEIS. Our classification will be published in the Federal Register according to our responsibility under Section 309 of the Clean Air Act to inform the public of our views on proposed Federal actions. If you have any questions, please contact Michael Jansky of my staff at 214-665-7451 or by e-mail at jansky.michael@epa.gov.

EPA appreciates the opportunity to review the DEIS. Please send our office two copies of the FEIS when it is sent to the Office of Federal Activities, EPA (Mail Code 2252A), Ariel Rios Building, 1200 Pennsylvania Ave, N.W., Washington, D.C. 20460.

Sincerely yours,

Rhonda M. Smith, Chief
Office of Planning and
Coordination (6EN-XP)

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COMANCHE TRIBE
NAGPRA

original faxed

December 11, 2006

COL Robert Burns, Garrison Commander
Department of the Army
IMSW-BLS-ZA
1 Pershing Rd
Fort Bliss, TX 79916

Re: Draft Environmental Impact Statement for the Implementation of Base Realignment and Closure Recommendations at Fort Bliss, Texas

Dear COL Burns:

I have read the majority of the Environmental Impact Statement (EIS) for the BRAC relocation implementation. I have questions regarding the protection or relocation of historic sites on the range areas. The Comanche Nation is extremely concerned that no designated efforts are to be made to locate or protect any sites that exist on these ranges. It is very important to the Nation that the knowledge and insight that can be garnered for the future from the past is preserved. To destroy information that can be extracted by historic sites is a tragedy.

The Comanche Nation is vitally concerned with the preservation of historic sites because of what they can tell the present generation about the past and what this past can predict for the future. It is extremely important to the Nation to continue the fight to protect and to strive to glean all the knowledge and insight that these sites can provide. 22.1

If in the process of any of the construction for the BRAC project human remains or archaeological items are discovered, we request that you **immediately cease** the work and notify us so that we may discuss appropriate disposition with you and the other Tribal Nations that may be affected by such discoveries.

Sincerely,

Ruth Toahty

Ruth Toahty, NAGPRA Coordinator

PO Box 909 • Lawton, Oklahoma 73502 • PHONE: (580) 492-3740 • FAX: (580) 492-3745

22.1. Mescalero Apache Tribe and the Ysleta del Sur Pueblo were invited to consult but chose not to. Consultation has been initiated with The Navajo Nation as well as reinitiated with the Mescalero Apache Tribe and the Ysleta del Sur Pueblo. The Comanche Tribe has also been contacted to initiate consultation. This contact has indicated a possible interest in Fort Bliss lands but not specific interests in the SEIS. The Hopi Tribal Council has indicated that they do not have interests in lands managed by Fort Bliss. They recognize the Mescalero Apache Tribe and the Ysleta del Sur Pueblo as the Tribes that have traditional interests and that Fort Bliss should be consulting with. Tribal concerns are addressed in the Programmatic Agreement for historic properties, which can be amended at any time during its life upon request by the Tribe(s).

TEXAS PARKS & WILDLIFE

December 14, 2006

John F. Barrera
IMSW-BLS-Z
Bldg. 624, Pleasonton Road
Fort Bliss, TX 79916-6812

RE: Proposed Changes to Fort Bliss Mission and Master Plan, El Paso County

Dear Mr. Barrera:

Texas Parks and Wildlife Department (TPWD) has received the draft Supplemental Environmental Impact Statement (SEIS) regarding the changes in land use referenced above in the Main Cantonment Area and Fort Bliss Training Complex in Texas and New Mexico. TPWD staff has reviewed the SEIS and offers the following comments concerning the portion of the project located in El Paso County, Texas.

Project Description

The portion of the proposed project in Texas entails the expansion of the main cantonment area and the development of facilities to accommodate additional personnel and their dependants as well as additional vehicles, other equipment, and associated operations. Including projects previously evaluated in the 2001 Mission and Master Plan Programmatic Environmental Impact Statement, development within the main cantonment area would disturb an estimated 4,300 acres of land. In addition to development within the main cantonment area, off road vehicle maneuvers would be increased in the remainder of the Fort Bliss area located in Texas referred to in the SEIS as the South Training Areas.

Vegetation

The SEIS states that the development within the main cantonment area would have negligible impacts to vegetation because of the highly disturbed condition of this area. The SEIS also states that vegetation disturbance would be mitigated by ornamental landscaping.

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Mr. John F, Barrera
Page 2
December 14, 2006

Recommendation: TPWD recommends minimizing the extent of disturbance to native vegetation within the main cantonment area as much as possible. Existing native vegetation should be allowed to remain and be incorporated into landscaping as much as feasible. Where vegetation removal is unavoidable, disturbed areas should be revegetated with site-specific native plant species. Landscaping with native plants that are best adapted to the area would minimize the amount of water and fertilizers required for maintenance. 24.1

The SEIS states that the South Training Area contains 76% Mesquite (*Prosopis glandulosa*) coppice dunes, 7% Creosote (*Larrea tridentata*) piedmont shrublands, and 7% Sandscrub. The remaining 10% of the training area in Texas consists primarily of grasslands. Off road vehicle maneuvers would be concentrated within the shrub communities. These areas historically consisted of grassland species but due to disturbance such as grazing and trampling they have stabilized in this altered ecological state.

Recommendation: TPWD recommends that access to the remaining grassland communities be restricted to the extent feasible to minimize adverse impacts to this habitat type. If disturbed areas of the shrub communities will not be used for training activities for an extended period, these areas should be revegetated with site-specific native species as soon as possible after disturbance. The replacement of native plants would help control erosion, would provide habitat for wildlife, and would ensure that native plant species are provided an opportunity to compete with undesirable, non-native, invasive plant species. 24.2

The SEIS states that a large number of additional wheeled and tracked vehicles, as well as other equipment, would be transferred to Fort Bliss after the relocation of personnel.

Recommendation: In an effort to prevent the introduction and spread of introduced and/or invasive species, tire treads and tracks of equipment transferred from other military installations should be free of mud and vegetation that could potentially carry seeds of non-native plant species. 24.3

Water Resources

Impervious cover in the main cantonment area would be increased by approximately 1,600 acres. The SEIS states that storm water conveyances

24.1. Fort Bliss does landscape with native plants and plants adapted to arid landscapes. Natural areas not specifically landscaped as part of buildings are managed in native species as much as possible to minimize water and other maintenance costs and to suppress dust. Disturbance is minimized in areas outside of construction footprints. However, some areas of turf are maintained as part of the Main Post Historic District and on recreational playing fields.

24.2. The majority of grasslands on Fort Bliss (67 percent) will not be utilized for off-road vehicle maneuver. The Fort Bliss Integrated Training Area Management program has a goal to sustain grasslands in areas that would be open to off-road vehicle maneuver.

24.3. Vehicles are cleaned before being transported. This standard procedure minimizes the introduction of exotic weeds.

would need to be constructed in the area between El Paso International Airport and the main cantonment area to handle the additional runoff from the increase in impervious cover. Storm water management facilities would likely need to be built to minimize the discharge of storm water during rainfall events.

Recommendation: TPWD recommends that alternatives to concrete or asphalt be considered for parking areas. Incorporating pavers in parking area design will allow rainwater to reach the groundwater system. Any runoff from the developed areas should be treated before discharging into nearby aquatic and wetland habitats. Storm water management facilities should include vegetated swales, retention/detention ponds, or similar pretreatment areas into which runoff may be directed. 24.4

Rare and Protected Species

Based on the project description and when suitable habitat is present, the following species could potentially be impacted by the proposed project:

State Listed Threatened
Mountain short-horned lizard (*Phrynosoma hernandesi*)
Texas horned lizard (*Phrynosoma cornutum*)

Species of Concern
Western Burrowing Owl (*Athene cunicularia hypugaea*)
Comal snakewood (*Colubrina stricta*)
*Desert night-blooming cereus (*Peniocereus greggii* var. *greggii*)
Hueco rock-daisy (*Peritytle huecoensis*)
*Resin leaf brickellbush (*Brickellia baccharidea*)
*Sand prickly-pear (*Opuntia arenaria*)
*Wheeler's spurge (*Chamaesyce geyeri* var. *wheeleriana*)

Records in the TPWD Natural Diversity Database (NDD) indicate that occurrences of the species marked with asterisks (*) above and the species of concern Pecos River muskrat (*Ondatra zibethicus ripensis*) have been documented possibly within 1.5 miles of the project area. An occurrence of the federal and state listed endangered Sneed's pincushion cactus (*Escobaria sneedii* var. *sneedii*) has been documented in the Franklin Mountains possibly within 1.5 miles of the William Beaumont Army Medical Center and Logan Heights. Printouts for these occurrence records are included for your planning 24.5

24.4. Depth to groundwater under many parts of Fort Bliss exceeds 200 feet. Use of permeable pavements is unlikely to significantly enhance groundwater recharge. The majority of new construction is in areas of open desert, considerable distance from any existing storm water drainage infrastructure or aquatic or wetland habitat. For those reasons, on-site storm water retention is planned. Concentrating runoff in this manner simplifies West Nile Virus vector management efforts and creates temporary intermittent wetland habitat.

Much of the Main Cantonment Area of Fort Bliss is already served by existing storm water drainage infrastructure designed to drain the developed and redeveloped areas.

The Fort Bliss Directorate of Environment recommends the use of storm water treatment devices for runoff originating from new construction of vehicle maintenance or fueling areas. In addition, the Directorate of Environment conducts frequent pollution prevention training for soldiers and workers and regularly conducts internal inspections to ensure pollution prevention best management practices are implemented.

24.5. Fort Bliss has conducted Pecos River muskrat surveys and found no suitable habitat on the installation due to the absence of perennial wetlands.

The portions of the Franklin Mountains within Fort Bliss have been surveyed for Sneed pincushion cactus. The only populations found on Fort Bliss are in New Mexico.

Mr. John F, Barrera
Page 4
December 14, 2006

reference. **Please do not include these species occurrence printouts in your draft or final documents.** Because some species are especially sensitive to collection or harassment, these records are for your reference only.

The SEIS states that Texas horned lizards are widespread across the grassland and shrubland communities on Fort Bliss and project activities may impact local populations but are not expected to jeopardize regional populations. Western burrowing owls are also known to occur in the grassland, shrubland, Mesquite coppice dune, and sand scrub habitats on Fort Bliss.

Recommendation: TPWD recommends monitoring project areas for Mountain short-horned lizards and Texas horned lizards during construction activities in the main cantonment area to minimize adverse impacts to individuals of these species. Please note that if individuals of these species are found on the project sites they may only be handled by persons with a scientific collection permit obtained through this Department. For more information on this permit, please contact Karen Pianka at (512) 389-8212. Management guidelines for the Texas horned lizard are included for your planning reference. 24.6

In accordance with the Migratory Bird Treaty Act, TPWD recommends impacts to the Western Burrowing Owl be avoided during construction and training activities. TPWD recommends contacting the U.S. Fish and Wildlife's Migratory Bird Office at (505) 248-7882 if adverse impacts to the Western Burrowing Owl or other migratory birds are anticipated. 24.7

The SEIS states that the Hueco Mountains rock daisy is known to or has the potential to occur in the Hueco Mountains in the South Training Areas and the Sand prickly pear has low potential to occur on Fort Bliss. The SEIS also states that continued monitoring and improved documentation of Fort Bliss' natural environment ensures that sensitive species receive adequate protection in the event a new population is discovered.

TWPD recommends that continued monitoring include surveys for all rare plant species listed above and adverse impacts to these species be avoided during construction projects in the main cantonment area. Adverse impacts to known populations of rare species should also be avoided during training activities. The attached El Paso County list provides a brief description of the habitat requirements of these species. Please review this list, as other rare species could also be present depending upon 24.8

24.6. Surveys have demonstrated that Mountain short-horned lizards do not exist in the Main Cantonment Area or the South Training Areas of Fort Bliss, but they do occur in grassland habitats on Otero Mesa. No construction is planned on Otero Mesa.

Texas horned lizards do exist in areas proposed for construction, and there will be impacts to individuals within the construction area as well as loss of habitat in built-up areas. Planned construction will affect approximately 4,000 acres, with the potential for another 900 acres of construction in the future. By comparison, there are approximately 95,000 acres of Texas horned lizard habitat in the Texas portion of Fort Bliss alone. Texas horned lizards are common throughout most of Fort Bliss, as well as the northern Chihuahuan Desert.

24.7. Proposed construction and training activities will likely impact birds protected under the Migratory Bird Treaty Act and will be handled in accordance with the Memorandum of Agreement between the Department of Defense and the U.S. Fish and Wildlife Service.

The majority of burrowing owl dens on Fort Bliss are located in the mesquite coppice dune areas and in the black-tailed prairie dog colonies on Otero Mesa. Coppice dune areas are already used for off-road vehicle maneuvers and the dunes have continued to support owls and their burrows. No changes in military land use are proposed for the Otero Mesa portion of Fort Bliss.

24.8. The plant species on the referenced list do not occur in areas of Fort Bliss proposed for construction. Fort Bliss does monitor the Hueco Mountains rock daisy and desert night blooming cereus populations on the installation, and impacts to these populations are avoided.

habitat availability. The most current TPWD county lists are now available on-line at http://www.tpwd.state.tx.us/landwater/land/maps/gis/ris/endangered_species.phtml. If during construction, the project area is found to contain rare species, natural plant communities, or special features, TPWD recommends that precautions be taken to avoid impacts to them.

24.8

I appreciate the opportunity to review and comment on this project. TPWD strives to respond to requests for project review within the specified 30 day public review and comment period. Responses may be delayed due to workload and lack of staff. Failure to meet the 30 day review timeframe does not constitute concurrence from TPWD that the proposed project will not adversely impact fish and wildlife resources.

Please contact me at (512) 389-4579 if we may be of further assistance.

Sincerely,

Julie C. Wicker
Wildlife Habitat Assessment Program
Wildlife Division

JCW:hb.12062

Attachments

EL PASO COUNTY

AMPHIBIANS		Federal Status	State Status
Northern leopard frog	*Rana pipiens*		

streams, ponds, lakes, wet prairies, and other bodies of water; will range into grassy, herbaceous areas some distance from water; eggs laid March-May and tadpoles transform late June-August; may have disappeared from El Paso County due to habitat alteration

BIRDS		Federal Status	State Status
American Peregrine Falcon	*Falco peregrinus anatum*	DL	E

resident in west Texas

Arctic Peregrine Falcon	*Falco peregrinus tundrius*	DL	T

currently potential migrant through most of state, winters along gulf coast

Baird's Sparrow *Ammodramus bairdii*

shortgrass prairie with scattered low bushes and matted vegetation; mostly migratory in western half of State, though winters in Mexico and just across Rio Grande into Texas from Brewster through Hudspetth counties

Ferruginous Hawk *Buteo regalis*

open country, primarily prairies, plains, and badlands; nests in tall trees along streams or on steep slopes, cliff ledges, river-cut banks, hillsides, power line towers; year-round resident in northwestern high plains, wintering elsewhere throughout western 2/3 of Texas

Interior Least Tern	*Sterna antillarum athalassos*	LE	E

subspecies is listed only when inland (more than 50 miles from a coastline); nests along sand and gravel bars within braided streams, rivers; also know to nest on man-made structures (inland beaches, wastewater treatment plants, gravel mines, etc); eats small fish and crustaceans, when breeding forages within a few hundred feet of colony

Mexican Spotted Owl	*Strix occidentalis lucida*	LT	T

remote, shaded canyons of coniferous mountain woodlands (pine and fir); nocturnal predator of mostly small rodents and insects; day roosts in densely vegetated trees, rocky areas, or caves

Montezuma Quail *Cyrtonyx montezumae*

open pine-oak or juniper-oak with ground cover of bunch grass on flats and slopes of semi-desert mountains and hills; travels in pairs or small groups; eats succulents, acorns, nuts, and weed seeds, as well as various invertebrates

Peregrine Falcon	*Falco peregrinus*	DL	E T

subspecies (F p tundrius) potential migrant through most of state, winters along coast; subspecies (F p anatum) resident, nests in west Texas

Prairie Falcon *Falco mexicanus*

open, mountainous areas, plains and prairie; nests on cliffs

EL PASO COUNTY

BIRDS		Federal Status	State Status
Snowy Plover	*Charadrius alexandrinus*		

formerly an uncommon breeder in the Panhandle; potential migrant

Southwestern Willow Flycatcher	*Empidonax traillii extimus*	LE	E

thickets of willow, cottonwood, mesquite, and other species along desert streams

Western Burrowing Owl *Athene cunicularia hypugaea*

open grasslands, especially prairie, plains, and savanna, sometimes in open areas such as vacant lots near human habitation or airports; nests and roosts in abandoned burrows

Western Snowy Plover *Charadrius alexandrinus nivosus*

uncommon breeder in the Panhandle; potential migrant; winter along coast

Western Yellow-billed Cuckoo	*Coccyzus americanus occidentalis*	C;NL	

status applies only to western population beyond the Pecos River Drainage; breeds in riparian habitat and associated drainages; springs, developed wells, and earthen ponds supporting mesic vegetation; deciduous woodlands with cottonwoods and willows; dense understory foliage is important for nest site selection; nests in willow, mesquite, cottonwood, and hackberry; forages in similar riparian woodlands; breeding season mid-May-late Sept

FISHES		Federal Status	State Status
Bluntnose shiner	*Notropis simus*		T

extirpated; Rio Grande; main river channel, often below obstructions over substrate of sand, gravel, and silt; damming and irrigation practices presumed major factors contributing to decline

Rio Grande silvery minnow	*Hybognathus amarus*	LE	E

extirpated; historically Rio Grande and Pecos River systems and canals; pools and backwaters of medium to large streams with low or moderate gradient in mud, sand, or gravel bottom; ingests mud and bottom ooze for algae and other organic matter; probably spawns on silt substrates of quiet coves

INSECTS		Federal Status	State Status
A Royal moth	*Sphingicampa raspa*		

woodland - hardwood; with oaks, junipers, legumes and other woody trees and shrubs; good density of legume caterpillar foodplants must be present; Prairie acacia (Acacia augustissima) is the documented caterpillar foodplant, but there could be a few other woody legumes used

A tiger beetle *Cicindela hornii*

grassland/herbaceous; burrowing in or using soil; dry areas on hillside or mesas where soil is rocky or loamy and covered with grasses, invertivore; diurnal, hibernates/aestivates, active mostly for several days after heavy rains. the life cycle probably takes two years so larvae would always be present in burrows in the soil

Barbara Ann's tiger beetle *Cicindela politula barbarannae*

EL PASO COUNTY

INSECTS		Federal Status	State Status

limestone outcrops in arid treeless environments or in openings within less arid pine-juniper-oak communities; open limestone substrate itself is almost certainly an essential feature; roads and trails

Poling's hairstreak *Fixsenia polingi*

oak woodland with Quercus grisea as substantial component, probably also uses Q. emoryi; larvae feed on new growth of Q. grisea, adults utilize nectar from a variety of flowers including milkweed and catslaw acacia; adults fly mid May - Jun, again mid Aug - early Sept

MAMMALS		Federal Status	State Status

Big free-tailed bat *Nyctinomops macrotis*

habitat data sparse but records indicate that species prefers to roost in crevices and cracks in high canyon walls, but will use buildings, as well; reproduction data sparse, gives birth to single offspring late June-early July; females gather in nursery colonies; winter habits undetermined, but may hibernate in the Trans-Pecos; opportunistic insectivore

Black bear *Ursus americanus* T/SA;NL T

bottomland hardwoods and large tracts of inaccessible forested areas; due to field characteristics similar to Louisiana Black Bear (LT, T), treat all east Texas black bears as federal and state listed Threatened

Black-footed ferret *Mustela nigripes* LE E

extirpated; inhabited prairie dog towns in the general area

Black-tailed prairie dog *Cynomys ludovicianus*

dry, flat, short grasslands with low, relatively sparse vegetation, including areas overgrazed by cattle; live in large family groups

Cave myotis bat *Myotis velifer*

colonial and cave-dwelling; also roosts in rock crevices, old buildings, carports, under bridges, and even in abandoned Cliff Swallow (Hirundo pyrrhonota) nests; roosts in clusters of up to thousands of individuals; hibernates in limestone caves of Edwards Plateau and gypsum cave of Panhandle during winter; opportunistic insectivore

Desert pocket gopher *Geomys arenarius*

cottonwood-willow association along the Rio Grande in El Paso and Hudspeth counties; live underground, but build large and conspicuous mounds; life history not well documented, but presumed to eat mostly vegetation, be active year round, and bear more than one litter per year

Fringed bat *Myotis thysanodes*

habitat variable, ranging from mountainous pine, oak, and pinyon-juniper to desert-scrub, but prefers grasslands at intermediate elevations; highly migratory species that arrives in Trans-Pecos by May to form nursery colonies; single offspring born June-July; roosts colonially in caves, mine tunnels, rock crevices, and old buildings

Gray wolf *Canis lupus* LE E

EL PASO COUNTY

MAMMALS		Federal Status	State Status

extirpated; formerly known throughout the western two-thirds of the state in forests, brushlands, or grasslands

Long-legged bat *Myotis volans*

in Texas, Trans-Pecos region; high, open woods and mountainous terrain; nursery colonies (which may contain several hundred individuals) form in summer in buildings, crevices, and hollow trees; apparently do not use caves as day roosts, but may use such sites at night; single offspring born June-July

Pale Townsend's big-eared bat *Corynorhinus townsendii pallescens*

roosts in caves, abandoned mine tunnels, and occasionally old buildings; hibernates in groups during winter; in summer months, males and females separate into solitary roosts and maternity colonies, respectively; single offspring born May-June; opportunistic insectivore

Pecos River muskrat *Ondatra zibethicus ripensis*

creeks, rivers, lakes, drainage ditches, and canals; prefer shallow, fresh water with clumps of marshy vegetation, such as cattails, bulrushes, and sedges; live in dome-shaped lodges constructed of vegetation; diet is mainly vegetation; breed year round

Western red bat *Lasiurus blossevillii*

roosts in tree foliage in riparian areas, also inhabits xeric thorn scrub and pine-oak forests; likely winter migrant to Mexico; multiple pups born mid-May - late Jun

Western small-footed bat *Myotis ciliolabrum*

mountainous regions of the Trans-Pecos, usually in wooded areas, also found in grassland and desert scrub habitats; roosts beneath slabs of rock, behind loose tree bark, and in buildings; maternity colonies often small and located in abandoned houses, barns, and other similar structures; apparently occurs in Texas only during spring and summer months; insectivorous

Yuma myotis bat *Myotis yumanensis*

desert regions; most commonly found in lowland habitats near open water, where forages; roosts in caves, abandoned mine tunnels, and buildings; season of partus is May to early July; usually only one young born to each female

MOLLUSKS		Federal Status	State Status

Franklin Mountain talus snail *Sonorella metcalfi*

terrestrial; bare rock, talus, scree; inhabits igneous talus most commonly of rhyolitic origin

Franklin Mountain wood snail *Ashmunella pasonis*

terrestrial; bare rock, talus, scree; talus slopes, usually of limestone, but also of rhyolite, sandstone, and siltstone, in arid mountain ranges

REPTILES		Federal Status	State Status

Big Bend slider *Trachemys gaigeae*

EL PASO COUNTY

REPTILES		Federal Status	State Status

almost exclusively aquatic, sliders (Trachemys spp.) prefer quiet bodies of fresh water with muddy bottoms and abundant aquatic vegetation, which is their main food source; will bask on logs, rocks or banks of water bodies; breeding March-July

Chihuahuan Desert lyre snake *Trimorphodon vilkinsonii* T

mostly crevice-dwelling in predominantly limestone-surfaced desert northwest of the Rio Grande from Big Bend to the Franklin Mountains, especially in areas with jumbled boulders and rock faults/fissures; secretive; egg-bearing; eats mostly lizards

Mountain short-horned lizard *Phrynosoma hernandesi* T

diurnal, usually in open, shrubby, or openly wooded areas with sparse vegetation at ground level; soil may vary from rocky to sandy; burrows into soil or occupies rodent burrow when inactive; eats ants, spiders, snails, sowbugs, and other invertebrates; inactive during cold weather; breeds March-September

New Mexico garter snake *Thamnophis sirtalis dorsalis*

nearly any type of wet or moist habitat; irrigation ditches, and riparian-corridor farmlands, less often in running water; home range about 2 acres; active year round in warm weather, both diurnal and nocturnal, more nocturnal during hot weather; bears litter July-August

Texas horned lizard *Phrynosoma cornutum* T

open, arid and semi-arid regions with sparse vegetation, including grass, cactus, scattered brush or scrubby trees; soil may vary in texture from sandy to rocky; burrows into soil, enters rodent burrows, or hides under rock when inactive; breeds March-September

PLANTS		Federal Status	State Status

Comal snakewood *Colubrina stricta*

only known Texas population lies at the base of an igneous rock outcrop in the Chihuahuan Desert east of El Paso; flowering late spring or early summer

Desert night-blooming cereus *Peniocereus greggii var greggii*

shrublands in lower elevation desert flats and washes; flowering concentrated during a few nights in late May to late June

Hueco rock-daisy *Perityle huecoensis*

dry limestone rock outcrops only known location is in the Hueco Mountains

Resin-leaf brickellbush *Brickellia baccharidea*

mixed desert shrublands on gravelly soils derived from limestone and perhaps also from igneous rocks, on bajada slopes and in arroyos; flowering summer-fall

Sand prickly-pear *Opuntia arenaria*

deep, loose sands in sparsely vegetated dune or sandhill areas; flowering May-June

Sneed's pincushion cactus *Escobaria sneedii var sneedii* LE E

EL PASO COUNTY

PLANTS		Federal Status	State Status

dry limestone outcrops on rocky slopes in desert mountains of the Chihuahuan Desert; flowering April-September (peak season in April?)

Texas false saltgrass *Allolepis texana*

sandy to silty soils of valley bottoms and river floodplains; flowering (June-) July-October

Wheeler's spurge *Chamaesyce geyeri var wheeleriana*

sparsely vegetated loose sand in reddish sand dunes or coppice mounds; flowering and fruiting August-September?

Notes for
County Lists of Texas' Special Species

The Texas Parks and Wildlife (TPWD) county lists **include**:

Vertebrates, Invertebrates, and Vascular Plants identified as being of conservation concern by TPWD within Texas. These special species lists are comprised of species, subspecies, and varieties that are federally listed; proposed to be federally listed; have federal candidate status; are state listed; or carry a global conservation status indicating a species is critically imperiled, very rare, vulnerable to extirpation, or uncommon.

The TPWD county lists **do not include**:

Natural Plant Communities such as Little Bluestem-Indiangrass Series (native prairie remnant), Water Oak-Willow Oak Series (bottomland hardwood community), Saltgrass-Cordgrass Series (salt or brackish marsh), Sphagnum-Beakrush Series (seepage bog).

Other Significant Features such as bird rookeries, migratory songbird fallout areas, comprehensive migratory bird information, bat roosts, bat caves, invertebrate caves, and prairie dog towns.

These lists are not all inclusive for all rare species distributions. The lists were compiled, developed, and are updated based on field guides, staff expertise, scientific publications, and the TPWD Natural Diversity Database (NDD) (formerly the Biological and Conservation Data System) occurrence data. Historic ranges for some state extirpated species, full historic distributions for some extant species, accidentals and irregularly appearing species, and portions of migratory routes for particular species are not necessarily included. Species that appear on county lists do not all share the same probability of occurrence within a county. Some species are migrants or wintering residents only. Additionally, a few species may be historic or considered extirpated within a county.

TPWD includes the Federal listing status for your convenience and makes every attempt to keep the information current and correct. However, the US Fish and Wildlife Service (FWS) is the responsible authority for Federal listing status. The TPWD lists do not substitute for contact with the FWS and federally listed species county ranges may vary from the FWS county level species lists because of the inexact nature of range map development and use.

Status Key:

LE, LT -	Federally Listed Endangered/Threatened
PE, PT -	Federally Proposed Endangered/Threatened
E/SA, T/SA -	Federally Listed Endangered/Threatened by Similarity of Appearance
C -	Federal Candidate for Listing; formerly Category 1 Candidate
DL, PDL -	Federally Delisted/Proposed for Delisting
NL -	Not Federally Listed
E, T -	State Listed Endangered/Threatened
NT -	Not tracked or no longer tracked by the State
"blank" -	Rare, but with no regulatory listing status

This information is specifically for your assistance only; due to continuing data updates, **please do not redistribute the lists**, instead refer all requesters to the web site at: http://www.tpwd.state.tx.us/landwater/land/maps/gis/ris/endangered_species.phtml or to our office for the most current information available. For questions regarding county lists, please call (512) 912-7011.

Please use the following citation to credit the source for this county level information:

Texas Parks and Wildlife Department, Wildlife Division, Diversity and Habitat Assessment Programs. County Lists of Texas' Special Species. [county name(s) and revised date(s)].

Last Revision: 30 May 2006

MANAGEMENT OF TEXAS HORNED LIZARDS

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Caesar Kleberg Wildlife Research Institute
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Abstract: **Texas horned lizards are declining in abundance and distribution in Texas. There are no obvious causes for their decline; however, multiple factors such as widespread pesticide use, habitat loss, over-collection, and fire ants have been suggested as possible reasons. Texas horned lizards are a threatened species in Texas and are listed as a Federal Species of Concern. The ecology and habitat requirements of Texas horned lizards are outlined in this paper and management practices are suggested that should benefit this species.**

INTRODUCTION

The Texas horned lizard is a part of the history and culture of Texas. In fact, most Texans have fond memories of growing up with Texas horned lizards. Horned lizards are as much of Texas folklore as cowboys, longhorns, the Alamo, and listening to coyotes howl at the moon. Unfortunately, many young Texans have not experienced the thrill of seeing a horned lizard in their backyard. This is because the Texas horned lizard population has declined in Texas over the past couple of decades.

Many Texans have an intense interest in stopping the population decline of horned lizards. The purpose of this management bulletin is to inform Texans of the current status, life history, and habitat requirements of Texas horned lizards, and to offer management tips that possibly could slow the decline of Texas horned lizards in Texas.

Wyman Meinzer

Texas horned lizards are easily identified by the 2 large spines behind their head.

TAXONOMY AND DESCRIPTION

Much like the bandits of western folklore, Texas horned lizards have used many aliases. Two of the most commonly-used misnomers are horned toads and horned frogs. However, Texas horned lizards are, as their true name implies, lizards! Toads are tailless amphibians with rough, warty skin and live on moist land or in water (i.e., during breeding). Frogs also are tailless amphibians but have smooth skin and are equally adapted to land and water. Horned lizards are reptiles and belong to the Iguanid genus *Phrynosoma*. They have tails and a scaled body. In fact, many of the body scales of horned lizards are enlarged into spine-like structures. Bodies of horned lizards are strongly dorsoventrally flattened, generally contain sharp spines on the back of their head, and have relatively short legs (Pianka and Parker 1975). There are 13 species of horned lizards (Sherbrooke 1981). Seven species occur in the United States and 3 of these species occur in Texas; these include the Texas horned lizard, Roundtail horned lizard, and Mountain short-horned lizard (Fig. 1).

Texas horned lizards can be distinguished from other species of horned lizards in Texas by their 2 very sharp spikes that protrude from the back of their head (called occipital spines), 2 rows of fringed scales on their sides (other species of horned lizards have only 1 row of fringed scales), dark brown to sooty-colored dorsal spots edged with lighter colors, and a light-colored stripe down the middle of their back (Stebbins 1954). Adult Texas horned lizards range in length from 3 to 5 inches, excluding their tail (Ballinger 1974). The largest Texas horned lizard on record measured just over 7 inches from tip of snout to tip of tail (Brown and Lucchino 1972). Weights of mature Texas horned lizards range from 0.9 to 3.5 ounces (Munger 1984a).

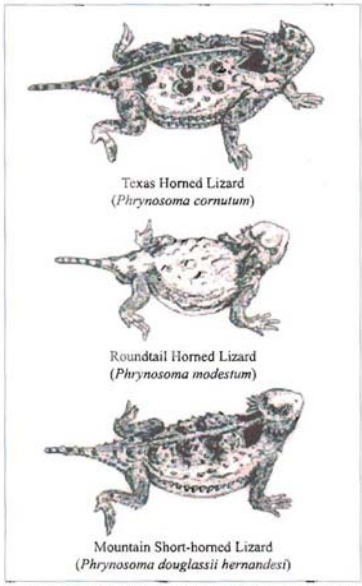


Figure 1. The 3 species of horned lizards occurring in Texas (illustrated by Diane Thompson).

DISTRIBUTION AND CURRENT STATUS

Historically within the United States, Texas horned lizards ranged throughout the south-central United States, from southern Arizona to northwestern Louisiana and from southern Texas to central Kansas (Sherbrooke 1981). Today, Texas horned lizards are found in the southeastern tip of Arizona and Colorado, southern and eastern New Mexico, most of Kansas and Texas, and all of Oklahoma.

They apparently are doing well throughout most of their range except in Texas. The current range of Texas horned lizards in Texas (Fig. 2) appears to be decreasing; they no longer occur in Texas east of an imaginary line from Fort Worth to Corpus Christi (Donaldson et al. 1994), except for small, isolated populations. Because of this decline, they are listed as a threatened species in Texas. The Texas horned lizard was one of the first species listed by Texas as threatened on 18 July 1977 (Texas Parks and Wildlife Code 1987).

Unfortunately, there is no one obvious reason for the declining populations of Texas horned lizards in Texas. However, several ideas have been proposed (Price 1990). The first reason is a cause-and-effect relationship with red imported fire ants. The ants were first detected in Texas in 1953 (Summerlin and Green 1977) and have since spread throughout much of the state. Fire ants are thought to out-compete native harvester ants for food and space. Harvester ants are the preferred food of Texas horned lizards and if the food resource declines, Texas horned lizard numbers also will decline.

Another reason thought to cause the decline in Texas horned lizards is the widespread use of broadcast insecticides. These insecticides could be detrimental to Texas horned lizards directly by causing illness and death, or indirectly by severely reducing or eliminating their food source (i.e., insects).

A third reason attributed to their decline is over-collection. In the past, Texas horned lizards have been collected for the pet industry, by boy scout troops for trading at jamborees, for the curios trade, and by tourists to take home and show friends (Donaldson et al. 1994).

Some researchers have suggested that Texas horned lizards have declined because of the loss of habitat from urbanization, suburban sprawl, and an increasing trend to convert native rangelands to agricultural crops. The above reasons for the declining population have not been substantiated and are only speculative. Although the Texas horned lizard population appears to be declining over most of Texas, no single reason for their decline occurs statewide (such as fire ants, broadcast insecticide use, and urbanization; and, collection or possession is illegal). Most likely, a combination of factors is causing the decline of Texas horned lizards.

LIFE HISTORY

Texas horned lizards are active from March until October (Potter and Glass 1931, Fair 1995). Cessation of activity occurs with onset of cold weather during autumn (Wright 1949). They exhibit 2 types of activity patterns (Potter and Glass 1931). Activity patterns in the early spring and late fall are unimodal, with the greatest activity occurring during midday. During summer, activity patterns are bimodal, with greatest activity occurring during mid-morning and again during late afternoon. These patterns occur because the lizards are ectotherms and need the proper temperature range to function. The mean critical minimum and maximum temperatures for the species are 49°F and 119°F, respectively, with

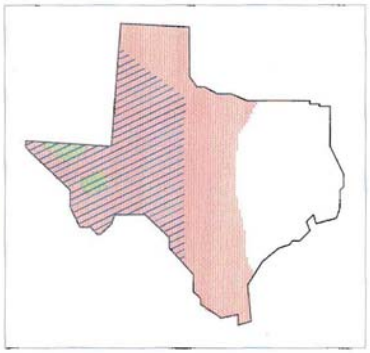


Figure 2. Approximate current range of the Texas horned lizard, roundtail horned lizard, and mountain short-horned lizard in Texas. Abundance of horned lizards varies within their respective ranges.

a mean preferred temperature of 101°F (Prieto and Whitford 1971).

Winter time inactive periods are spent buried 6 to 12 inches under the soil surface, in sheltered areas such as under rocks, stacks of wood, and abandoned animal burrows (Peslak 1985). Also, they seek covered areas under leaf litter near the base of bunch grass or a tree (Fair 1995).

Texas horned lizards breed from shortly after spring emergence until mid-July (Milne and Milne 1950). The gravid female excavates a slanted hole 4 to 6 inches in vertical depth and about 3 inches in diameter (Reeve 1952, Ramsey 1956, Peslak 1985). Eggs are deposited in 2 to 3 layers; each layer is covered with soil (Reeve 1952, Sherbrooke 1981). Once laying is completed, the female refills the hole with excavated soil, rakes the surrounding surface to disguise the nest (Ramsey 1956), and leaves the site (Sherbrooke 1981).

Clutch sizes for Texas horned lizards range from 13 to 45 eggs (Milne and Milne 1950, Ballinger 1974, Pianka and Parker 1975, Sherbrooke 1981); however, Henke (unpubl. data) recently has noted that Texas horned lizards in southern Texas appear to have clutches of <12 eggs. Eggs are elliptical and measure up to 0.75 by 0.5 inches (Sherbrooke 1981). Eggs hatch in 5 to 9 weeks, depending upon cloud cover, soil moisture, and temperature (Ramsey 1956, Sherbrooke 1981, Peslak 1985). The hatchlings emerge as fully functional and independent individuals measuring about 0.75 inch (Blaney and Kimmich 1973, Sherbrooke 1981).

Texas horned lizards are considered dietary specialists (Whitford and Bryant 1979) with 69% of their diet consisting of harvester ants (Pianka and Parker 1975). Feeding may occur at nest entrances or on ant foraging trails (Whitford and Bryant 1979) and mature lizards are capable of eating 70 to 100 ants per day (Sherbrooke 1981). Although ants comprise a majority of the diet, Texas horned lizards are opportunistic predators and will consume crickets, grasshoppers, beetles, centipedes, bees, and caterpillars (Milstead and Tinkle 1969, Munger 1984b). Texas horned lizards do not actively eat fire ants. This may be due to their inability to effectively neutralize fire ant venom; whereas, horned lizards are resistant to the venom of harvester ants (Schmidt et al. 1989). Very little is known about the diet of hatchling and juvenile horned lizards.

Anatomical and physiological adaptations allow horned lizards to live in areas where little free water is available (Milne and Milne 1950). Water requirements are met by licking morning dew from plants, rain harvesting, ingesting food, and metabolic processes (Sherbrooke 1981, 1990; Montanucci 1989).

Mortality factors of Texas horned lizards include predation, traffic accidents, exposure, starvation, and disease. The effect each mortality factor has on the population of Texas horned lizards is unknown. Munger (1986) and Fair and Henke (unpubl. data) found yearly survival rates of 35-86% and 9-54%, respectively; predation was considered to be the leading cause of death in both studies. Predators include bobcats, striped skunks, raccoons, domestic dogs and cats, hawks, owls, roadrunners, shrikes, and snakes (Miller 1948, Anderson and Ogilvie 1957, Sherbrooke 1981, Munger 1986). Young lizards are more vulnerable to predation than adults due to their small size and undeveloped spines (Sherbrooke 1981). However, little is known about mortality factors of hatchling and juvenile horned lizards.

The Texas horned lizard has several defensive behaviors to protect itself from predators. Its rough, irregular appearance combined with cryptic coloration allows them to escape detection (Reeve 1952, Peslak 1985). Other non-aggressive tactics include burrowing into the soil to avoid detection, retreating from predators, inflating its body with air, and various defensive stances (Reeve 1952, Sherbrooke 1981, Peslak 1985). Aggressive actions include hissing and lunging at the predator, biting, jabbing with the occipital horns, or ejecting blood from the conjunctival sac located near the eye (Lambert and Ferguson 1985).

Few studies have determined the longevity of Texas horned lizards. Results from mark-recapture efforts suggest that Texas horned lizards can live to be at least 5 years old. However, scientists believe

that the typical Texas horned lizard survives only 2 to 3 years.

HABITAT

Texas horned lizards occur in a variety of habitats (Donaldson et al. 1994). They inhabit areas from open desert to grasslands and shrublands, from sea level to nearly 6,000 feet in elevation, and on soils varying from pure sands and sandy loams to coarse gravels, conglomerates, and desert pavements (Price 1990). They are typically found in arid and semi-arid habitats that contain bunch grasses, cacti, yucca, mesquite, and acacias. Some reports suggest that Texas horned lizards can be found only in areas of scant vegetation (Whiting et al. 1993). Although Texas horned lizards are easier to see in areas with little or no vegetation, they often use areas with a dense vegetative canopy (Fair 1995).

Texas horned lizards prefer sandy loam and loamy sand soils (>67% sand, <15% silt, and <15% clay) that allow for easy digging of bedding, nesting, and hibernation sites and avoid areas of predominantly clay soils (Fair 1995). Also, soils that contain >2.5% soil moisture content are avoided as bedding and nesting sites (Fair 1995). Perhaps wet soils require greater expenditure of energy in which to dig or wet soils may make it more difficult for horned lizards to meet their thermoregulatory needs. Soils that are slightly alkaline (i.e., >7.4 pH) appear to be preferred by Texas horned lizards (Fair 1995). Texas horned lizards select areas with a soil surface temperature between 74 to 88°F for thermoregulation (Fair 1995) and areas with minimal ground litter for ease of movement (Whiting et al. 1993, Fair and Henke 1997a).

A 'patchy' environment consisting of open areas interspersed with >60% vegetative canopy cover and <100 stems/yd^2 provides Texas horned lizards with areas needed for escape cover from predators and aids thermoregulation. Habitats containing bare ground also entice newly-fertilized harvester ant queens to colonize the area (DeMers 1993). Texas horned lizard habitat must include active harvester ant mounds, because harvester ants comprise a large portion of the Texas horned lizard diet. Without this feature, few if any Texas horned lizards can be expected to occur in the area.

Texas horned lizards use about 6 acres of habitat (Fair 1995). Because they appear to avoid each other, possibly to reduce competition for food resources (Fair and Henke, unpubl. data), large tracts of contiguous habitat may be required to maintain a sustainable population. Unfortunately, it is unknown what the minimum viable population size is for Texas horned lizards and, consequently, the amount of area needed to sustain a given population.

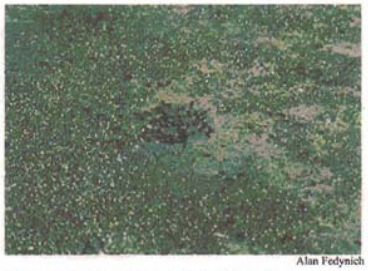
MANAGEMENT RECOMMENDATIONS

Since the Texas horned lizard is a threatened species, it is illegal to pick up, touch, or possess them in Texas. Handling horned lizards is illegal even if your intentions are good. For example, if you help a Texas horned lizard cross the street or move it to what you believe is better habitat, you are in violation of the law and could be ticketed for your actions. Scientists are required to obtain collecting and handling permits from the Texas Parks and Wildlife Department prior to conducting research on horned lizards.

If you have habitat characteristics consistent with those previously described for Texas horned lizards and you wish to help their population recover in Texas or wish to improve existing habitat to make it more suitable for horned lizards, then the following management recommendations are offered.

1. **Survey your property for Texas horned lizards.**
   The distribution and abundance of Texas horned lizards in Texas is unknown. To answer this question, a program called "Texas Horned Lizard Watch" was developed. The program recommends either a transect survey or a fixed-area survey, depending on the size of the property you wish to assess. Transect surveys are recommended for properties greater than 10 acres and fixed-area surveys are recommended for smaller properties. Surveys should be conducted between May 1 and September 1 during the mid-morning hours on clear days when temperatures are >75°F.

   Transect surveys should be straight lines about 200 yards long. One survey route is recom-



Alan Fedynich

Harvester ants are the major food item eaten by Texas horned lizards.

Scott Henke

Presence of horned lizards on a tract of land can be determined by finding their scats (fecal pellets), which contain ant heads and a white uric acid tip.

mended per 100 acres. Multiple routes should be parallel and at least 100 yards apart. Routes should be marked so that they can be used in subsequent surveys. At least 3 counts should be conducted during summer; however, more counts would improve the reliability of the data collected. Slowly walk the survey route and count all Texas horned lizards, harvester ant mounds, and fire ant beds seen within 3 feet of either side of the transect line. Record the time elapsed to conduct the survey.

For fixed area surveys, first determine the size of the area to be sampled. This is needed to calculate the number of observations per unit area. Slowly walk the plot in parallel lines; lines should be about 6 feet apart. Record all Texas horned lizards, harvester ant mounds, and fire ant beds observed, taking care not to double-count lizards or ant beds. Record the time elapsed to conduct the survey.

Additional survey instructions and data sheets can be obtained by writing to:

Texas Horned Lizard Watch
Texas Parks and Wildlife Department
4200 Smith School Road
Austin, Texas 78744 U.S.A.

Surveys are important, even if you believe that your property is not optimal horned lizard habitat. Not finding horned lizards may shed light on why they are not found in that particular area. Also, if your property is being managed for horned lizards, it is important to conduct surveys to determine the success of the management practices.

2. **Use prescribed fires to remove ground litter.**
Texas horned lizards avoid areas with substantial ground litter because ground litter can impede their movements. Burning is a useful tool to decrease ground litter; however, it could be directly harmful to lizards. Therefore, allow the property to build up ground litter (i.e., resting the pasture from livestock grazing, etc.). By doing so, Texas horned lizards will avoid the area. Then, divide your property into several blocks and burn the blocks on a rotational time schedule (i.e., burn 1 block each year during winter or early spring). For example, a 200-acre property could be divided into 10, 20-acre blocks. At the end of a 10-year period, each block would have been burned once and the first block that was burned should contain enough ground litter to start the burning cycle again.

3. **Avoid overgrazing by livestock.**
Texas horned lizards do not appear to be negatively affected by low to moderate grazing of livestock (Fair and Henke 1997a). However, overgrazing by livestock on rangelands may substantially reduce cover needed by horned lizards for thermoregulation or to escape from predators. Thus, if grazing is practiced, try to avoid overgrazing.

4. **Avoid disking or grading roads during the active period of horned lizards.**
Texas horned lizards are active from mid-March through mid-October (Fair 1995) and often cross secondary roads and use the roadsides as resting and bedding sites. Disking or grading roads during this period could kill the lizards directly. Also, road maintenance could uncover them if they are using secondary roads for resting, nesting, or bedding sites, thereby exposing them to predators. This may be particularly critical when the ambient temperature is too cool for the lizards to seek protective cover after being disturbed.

5. **Avoid the use of broadcast pesticides.**
Pesticides could kill horned lizards directly by accumulating toxins within their body or indirectly by killing harvester ants, the main food source of adult Texas horned lizards. Without a stable food supply, horned lizards must emigrate from the area or die. If pesticides are needed, (i.e., to combat fire ants), then spot treatment is recommended rather than broadcast pesticide application.

6. **Create 1 yd^2 areas devoid of vegetation and ground litter.**
Being an ectotherm, horned lizards use the sun to regulate their body temperature. Small cleared areas provide horned lizards access to direct sunlight, which is needed to help them maintain optimal body temperature. When their body temperature rises above the preferred level, horned lizards seek shelter. Also, newly-fertilized harvester ant queens seek open areas to establish new colonies. Therefore, the creation of several small open areas per acre of land will serve 2 beneficial purposes for aiding horned lizards.

7. **Create a mosaic habitat of open areas intermixed within dense cover.**
Such a patchy environment will give horned lizards the proper thermoregulatory mix of habitat and offer sufficient escape cover from predators. Areas where vegetation canopy cover may be up to 100% (i.e., no sunlight reaching the ground) are suitable, as long as the individual stems of plants are not too close together to impede the movement of horned lizards.

8. **Remove feral domesticated predators.**
Keep in mind that avian predators (i.e., hawks, owls, roadrunners, etc.) are protected by federal law and cannot be killed or trapped. However, feral cats and dogs also are predators of horned lizards and can be removed from an area. Contact the local Humane Society for assistance in removing these domestic predators.

9. **Develop a habitat that contains a diversity of native plant species.**
A diverse community of native plants will attract a diverse community of insects. Although Texas horned lizards prefer a diet of harvester ants, a number of other insect species are consumed. Also, juvenile Texas horned lizards appear to eat a greater variety of insects than their adult counterparts. By increasing the amount of prey available for horned lizards to consume, you reduce the chances that lack of food will be the limiting factor governing their abundance.

10. **Limit driving on secondary roads during peak times of horned lizard activity.**
Fair and Henke (1997b) noted that vehicular accidents were a significant mortality factor of horned lizards. Henke and Montemayor (1998) found that April through July resulted in the greatest number of encounters with Texas horned lizards on secondary roads in southern Texas. During these months, more horned lizards were encountered on secondary roads from late afternoon to sunset in April and May, while morning hours resulted in a greater number of lizard encounters in June and July.

11. **Plant native bunch grasses.**
If your interests include reclaiming a previous agricultural area or planting a lawn, plant native bunch grass such as buffalo grass. Bunch grass forms clumps that allows horned lizards to easily move among the grass clumps; whereas carpet grasses form a thick mat that can impede horned lizard movement.

12. **Become a member of the Horned Lizard Conservation Society.**
The Horned Lizard Conservation Society is a nonprofit organization dedicated to the conservation and recovery of declining horned lizard populations. They publish a quarterly newsletter that discusses current events concerning horned lizards, are active in research and recovery of horned lizards, and educate the public concerning horned lizard issues. To become a member, write to:

Horned Lizard Conservation Society
P.O. Box 122
Austin, Texas 78767 U.S.A.

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Acronym List

AAF	Army Air Field
ACEC	Area of Critical Environmental Concern
ACHP	Advisory Council on Historic Preservation
ADA	Air Defense Artillery
ADNL	Day Night Average Sound Level for A-weighted noise
AEF	Army Evaluation Force
af	acre feet
afy	acre feet per year
APE	Area of Potential Effect
AR	Army Regulation
ARMS	Archaeological Management System
ARNG	Army National Guard
ARPA	Archaeological Resources Preservation Act
AST	above ground storage tank
ATC	Air Traffic Control
BCT	Brigade Combat Team
BLM	Bureau of Land Management
BRAC	Base Realignment and Closure
CDNL	Day Night Average Sound Level for C-weighted noise
CEQ	Council on Environmental Quality
CERCLA	Comprehensive, Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CX	Categorical Exclusion
dB	decibel
dBP	peak sound pressure level
DEIS	Draft Environmental Impact Statement
DNL	Day Night Average Sound Level
DoD	Department of Defense
DOE	Directorate of Environment
DOPAA	Description of Proposed Action and Alternatives
DPTMS	Director of Plans, Training, Mobilization, and Security
DPW	Directorate of Public Works
DRI	Desert Research Institute
DU	depleted uranium
EA	Environmental Assessment
EBS	Environmental Baseline Survey
ECO	Environmental Compliance Officer

EIS	Environmental Impact Statement
EO	Executive Order
EOD	explosives ordnance disposal
EPA	U.S. Environmental Protection Agency
EPCWID	El Paso County Water Improvement District
EPWU	El Paso Water Utilities
EUL	Enhanced Use Leasing
FAA	Federal Aviation Administration
FEIS	Final Environmental Impact Statement
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FONSI	Finding of No Significant Impact
FORSCOM	Forces Command
FTX	field training exercise
FY	fiscal year
GIS	Geographic Information System
gpd	gallons per day
GSA	General Services Administration
GWOT	Global War on Terrorism
HPO	Historic Preservation Officer
HQ	Headquarters
HQDA	Headquarters Department of Army
ICRMP	Integrated Cultural Resources Management Plan
ICUZ	Installation Compatible Use Zone
ID	Identification
INRMP	Integrated Natural Resources Management Plan
ISCP	Installation Spill Contingency Plan
ISD	Independent School District
ITAM	Integrated Training Area Management
km	kilometer
km^2	square kilometer
km^2d	square kilometer days
LOS	level of service
MCL	maximum contaminant level
mg	milligram
mg/L	milligram per liter
MOU	Memorandum of Understanding
MPO	Metropolitan Planning Organization
MTR	Military Training Route
NAAQS	National Ambient Air Quality Standards

NAGPRA	Native American Graves Protection and Repatriation Act
NEAP	Natural Events Action Plan
NEPA	National Environmental Policy Act
NESHAP	National Emission Standards for Hazardous Air Pollutants
NHPA	National Historic Preservation Act
NM	New Mexico
NMDGF	New Mexico Department of Game and Fish
NMED	New Mexico Environment Department
NMHP	New Mexico Heritage Program
NMSU	New Mexico State University
NO_2	nitrogen dioxide
NOI	Notice of Intent
NPDES	National Pollutant Discharge Elimination System
NPS	National Park Service
NRHP	National Register of Historic Places
NSPS	New Source Performance Standards
OSHA	Occupational Health and Safety Administration or Act
PA	Programmatic Agreement
PCB	polychlorinated biphenyls
PEIS	Programmatic Environmental Impact Statement
PL	Public Law
PM_{10}	particulate matter less than 10 microns in diameter
$PM_{2.5}$	particulate matter less than 2.5 microns in diameter
POL	petroleum, oil, and lubricants
R&D	Research and Development
RCI	Residential Communities Initiative
RCMP	Range Complex Master Plan
REC	Record of Environmental Consideration
RFMSS	Range Facility Management Support System
RMP	Resource Management Plan
RMPA	Resource Management Plan Amendment
ROD	Record of Decision
ROI	Region of Influence
ROW	right of way
RPHC	Record of Historic Properties Consideration
RPMP	Real Property Master Plan
SDZ	Surface Danger Zone
SEIS	Supplemental Environmental Impact Statement
SHPO	State Historic Preservation Officer

SO_2	sulfur dioxide
SOP	standard operating procedure
SPCCP	Spill Prevention, Control, and Countermeasures Plan
SWMU	solid waste management unit
TA	Training Area
TADC	Training Area Development Concept
TC	Training Circular
TCEQ	Texas Commission on Environmental Quality
TCP	Traditional Cultural Property
TDY	temporary duty
THPO	Tribal Historic Preservation Officer
TPD	Technical Data Package
TRADOC	Training and Doctrine Command
U.S.	United States
USACAS	U.S. Army Combined Arms Support Battalion
USACE	U.S. Army Corps of Engineers
U.S.C.	United States Code
USEPA	U.S. Environmental Protection Agency
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
UST	underground storage tank
WQS	Water Quality Standard