PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

IMPLEMENTATION OF THE REAL PROPERTY MASTER PLAN AT UNITED STATES ARMY GARRISON FORT HUACHUCA, ARIZONA

Prepared for:

U.S. Army Garrison
Fort Huachuca, Arizona

Prepared by:

VERNADERO GROUP
INCORPORATED

4422 E. Indian School Road
Suite 101
Phoenix, Arizona 85018

September 2014

FINDING OF NO SIGNIFICANT IMPACT
IMPLEMENTATION OF THE REAL PROPERTY MASTER PLAN AT UNITED STATES ARMY GARRISON FORT HUACHUCA, ARIZONA

November 2014

Introduction: A Programmatic Environmental Assessment (PEA) was prepared to analyze the potential for significant environmental impact associated with the implementation of Fort Huachuca's Real Property Master Plan (RPMP) 2014 Update.

The PEA was prepared in accordance with the National Environmental Policy Act (NEPA) (Title 42 U.S. Code Section 4321, et seq.), Council on Environmental Quality (CEQ) regulations (Title 40 Code of Federal Regulations [CFR] Parts 1500-1508), and *Environmental Analysis of Army Actions* (32 CFR 651). This Finding of No Significant Impact is a document that briefly states why the Proposed Action will not significantly affect the environment and that an Environmental Impact Statement will not be prepared.

Description of the Proposed Action: The Proposed Action is the implementation of Fort Huachuca's RPMP. Three reasonable future development alternatives were evaluated against the Installation's mission, vision, goals and objectives as well as all long-range Department of Defense and Army planning guidelines and development strategies. Installation-wide, alternative future development scenarios were identified and evaluated based on operational needs, transportation and utility systems, and existing Area Development Plans.

Alternatives Considered: Three Alternatives and a No Action Alternative were evaluated for their potential direct, indirect, and cumulative impacts on the human environment.

Alternative One: Is the Army's Preferred Alternative and was found to be in greater compliance with Fort Huachuca's mission, vision, goals and objectives as well as Army planning strategies and general requirements, planning principles, long-range planning guidelines, and strategies identified throughout the RPMP. Under this alternative, Fort Huachuca will not only confine future development to areas within the existing cantonment area and Black Tower Unmanned Aircraft System (UAS) Complex growth boundaries, but will also encourage future development to locate near or within existing mission areas and prioritize facility reuse opportunities early in the planning process. Use of vacant or peripheral lands will only be considered as a last option, and preference will be given to development in areas within 0.25 mile of the primary transportation loop network.

Under Alternative Two: Fort Huachuca would confine future development within the existing cantonment area and Black Tower UAS Complex growth boundaries. However, this alternative would not encourage future development to locate near or within existing mission areas and prioritize facility reuse opportunities early in the planning process.

Preference will not be given to development in areas within 0.25 mile of the primary transportation loop network and vacant or peripheral lands would not be considered only as last options.

Under Alternative Three: Fort Huachuca would not confine future development within the existing cantonment area and Black Tower UAS Complex growth boundaries.

Under the No Action Alternative: Fort Huachuca would not implement the RPMP. The current management practices are becoming outdated and will not support the Army's sustainability strategy.

The No Action Alternative: Is required under the CEQ regulations implementing the NEPA, and serves as a baseline or benchmark to be used to compare the Proposed Action and alternatives.

Additional Alternatives: Other future development alternatives were evaluated but dismissed as either unreasonable, unrealistic, or beyond the control and/or planning horizon of Fort Huachuca. Examples of dismissed alternatives included Installation closure or significant mission reduction under future Base Closure and Realignment Commission and 2020 force structure realignment proceedings and the relocation or consolidation of major tenant organizations on the Installation.

Anticipated Environmental Effects: Based on information gathered and presented in the PEA, it has been determined that implementation of the Proposed Action under Alternative One, Two, and Three, and the No Action Alternative would have no significant direct, indirect, or cumulative adverse impacts on the environment. Adverse impacts associated with implementing the Proposed Action would be minor in context and intensity, and most would be of a very temporary nature. Consequently, the overall environmental effect of implementing the Proposed Action is anticipated to be less than significant.

30-Day Public and Agency Review Period: The PEA and a draft copy of this Finding of No Significant Impact were made available to the general public and applicable government agencies for review and comment during a 30-day period that began on 5 October 2014 with the publication of a Notice of Availability in the *Sierra Vista Herald*. Copies of the PEA along with instructions for submitting comments were available at the Sierra Vista Public Library, 2600 E. Tacoma Street, Sierra Vista, Arizona 85635 and at http://www.army-nepa.info. Copies of the documents were also sent directly to applicable agencies for review.

Public and Agency Comments: Responses from the following agencies were received and considered during the 30-day comment period: Arizona State Historic Preservation Office, Glia River Indian Community, and Tohono O'odham Nation.

Findings: Based on the analysis contained in the PEA, I have concluded that implementation of the Proposed Action would not constitute a major federal action significantly affecting the quality of the human environment. Consequently, implementation of the Proposed Action does not require the preparation of an Environmental Impact Statement.

Approved By:

THOMAS A. BOONE
COL, MI
Commanding

NOV 25 2014
Date

HOW THIS ENVIRONMENTAL ASSESSMENT IS ORGANIZED

The EXECUTIVE SUMMARY briefly describes the Proposed Action and alternatives. Impacts and conclusions are summarized.

ACRONYMS AND ABBREVIATIONS

SECTION 1 PURPOSE AND NEED discusses the purpose and need for the Proposed Action, the regulatory background surrounding this project, and the scope of this Environmental Assessment.

SECTION 2 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES discusses the Proposed Action and alternatives addressed in this Environmental Assessment.

SECTION 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES describes the existing environment within the region of influence. It also provides a comparison of environmental consequences associated with each alternative. Conservation and mitigation measures are also addressed in this section. The cumulative impacts analyses are also included in this section.

SECTION 4 FINDINGS AND CONCLUSIONS

SECTION 5 REFERENCES provides bibliographical information for sources cited in the text of this Environmental Assessment.

SECTION 6 LIST OF PREPARERS AND CONTRIBUTORS

SECTION 7 DISTRIBUTION LIST

SECTION 8 LIST OF INDIVIDUALS AND AGENCIES CONSULTED

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PROGRAMMATIC ENVIRONMENTAL ASSESSMENT IMPLEMENTATION OF THE REAL PROPERTY MASTER PLAN AT UNITED STATES ARMY GARRISON FORT HUACHUCA, ARIZONA

Prepared by:

Vernadero Group Incorporated
4422 E. Indian School Road, Suite 101
Phoenix, Arizona 85018

Recommended for approval by:

ROSS L. VANDERHYE
Director, Public Works
U.S. Army Garrison, Fort Huachuca

Approved by:

THOMAS A. BOONE
COLONEL
Commander, U.S. Army Garrison Fort Huachuca

September 2014

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EXECUTIVE SUMMARY

This Programmatic Environmental Assessment (PEA) was prepared to analyze the potential for significant environmental impact associated with the implementation of Fort Huachuca's Real Property Master Plan (RPMP) 2014 Update. Fort Huachuca is a military installation encompassing 73,142 acres of land located in the City of Sierra Vista, Cochise County, Arizona. Fort Huachuca is a Department of the Army Installation supporting approximately 60 deployable and nondeployable tenant organizations. The overall mission of United States Army Garrison Fort Huachuca is to provide equitable, effective and efficient management of the installation to support mission-readiness and execution; enable the well-being of soldiers, civilians and family members; improve the Army's aging infrastructure; and preserve the environment. This PEA provides a programmatic evaluation of potential impacts that is broad enough in scope to assist in the evaluation of future unknown actions that are comparable to those projects and activities that are currently identified and evaluated herein.

The Proposed Action is the implementation of Fort Huachuca's RPMP. Three reasonable future development alternatives were evaluated against the Installation's mission, vision, goals and objectives as well as all long-range Department of Defense and Army planning guidelines and development strategies. Installation-wide, alternative future development scenarios were identified and evaluated based on operational needs, transportation and utility systems, and existing Area Development Plans.

Alternative One is the Army's Preferred Alternative and was found to be in greater compliance with Fort Huachuca's mission, vision, goals and objectives as well as Army planning strategies and general requirements, planning principles, long-range planning guidelines, and strategies identified throughout the RPMP. Under this alternative, Fort Huachuca will not only confine future development to areas within the existing cantonment area and Black Tower Unmanned Aircraft System (UAS) Complex growth boundaries, but will also encourage future development to locate near or within existing mission areas and prioritize facility reuse opportunities early in the planning process. Use of vacant or peripheral lands will only be considered as a last option, and preference will be given to development in areas within 0.25 mile of the primary transportation loop network.

Under Alternative Two, Fort Huachuca would confine future development within the existing cantonment area and Black Tower UAS Complex growth boundaries. However, this alternative would not encourage future development to locate near or within existing mission areas and prioritize facility reuse opportunities early in the planning process. Preference will not be given to development in areas within 0.25 mile of the primary transportation loop network and vacant or peripheral lands would not be considered only as last options.

Under Alternative Three, Fort Huachuca would not confine future development within the existing cantonment area and Black Tower UAS Complex growth boundaries.

Under the No Action Alternative, Fort Huachuca would not implement the RPMP. The current management practices are becoming outdated and will not support the Army's sustainability strategy. The No Action Alternative is required under the Council of Environmental Quality regulations implementing the National Environmental Policy Act and serves as a baseline or benchmark used to compare with the Proposed Action and alternatives.

At a programmatic level, the potential impacts associated with implementing the Proposed Action at Fort Huachuca would not result in any significant adverse impacts. Any anticipated adverse impacts would be local in context with the exception of air quality and transportation, which although regional in context, would still only constitute a minor impact due to low levels of anticipated emissions and increased traffic. Likewise the intensity of potential adverse impacts is anticipated to be minor or negligible for all resources evaluated. Consequently, the overall environmental effect of implementing RPMP at Fort Huachuca is anticipated to be beneficial. Similarly, a beneficial contribution to cumulative impacts is anticipated. It is the conclusion of this PEA that none of the alternatives for implementing the Proposed Action, nor the No Action Alternative would constitute a major federal action with significant impact on human health or the environment and that a Finding of No Significant Impact for the Proposed Action should be issued to conclude the National Environmental Policy Act documentation process. A summary of potential impacts and measures to minimize adverse impacts is provided in Table ES-1.

Table ES-1. Summary of Potential Impacts and Measures to Minimize Impacts for the Proposed Action

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than Significant	No Impact	
Land Use		X		Long-term, beneficial impacts would be anticipated as a result of implementing the Proposed Action under all alternatives. The RPMP guidelines specify that land use compatibility be considered during the planning process of all projects. Projects should be sited in previously developed areas, and should be compatible with surrounding land use. Variations in the impacts to land use may vary slightly depending on which alternative is implemented. However, no significant impacts are anticipated as a result of the implementation of any of the alternatives, as long as the RPMP guidelines are followed.
Topography, Geology, and Soils		X		Minor short-term impacts are anticipated for soil resources during construction activities associated with the Proposed Action under all alternatives. Best management practices such as silt fencing, performing dust control, and plating native grasses would limit the impact. No impacts to topography or geology are expected.

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than Significant	No Impact	
Hydrology and Water Resources		X		No significant adverse impacts to floodplains, groundwater, or surface water are anticipated as a result of implementing the Proposed Action under all alternatives; however, some long-term beneficial impacts to water quality are anticipated.
Biological Resources		X		Minor, short-term and long-term impacts to wildlife and vegetation are expected during construction activities associated with the Proposed Action under all alternatives. Alternative Three would allow development outside the cantonment area and Black Tower UAS Complex growth boundaries, which may result in a greater chance to impacts biological resources than Alternatives One and Two. However all projects would be reviewed by the Fort's Environmental and Natural Resources Division (ENRD) to ensure that effects are identified, proper coordination and mitigation are performed if necessary. Additionally, all Fort projects must also comply with other approved management plans, including the Integrated Natural Resources Plan. Therefore, no significant impacts are anticipated.
Cultural Resources		X		No adverse impacts are expected as a result of the implementation of the Proposed Action under all alternatives. However further evaluation of potential impacts to cultural resources would be undertaken in areas where improvements would occur. All projects would be reviewed by the ENRD to ensure that effects are identified, and proper coordination and mitigation are performed if necessary.
Air Quality		X		Short-term and long-term impacts to air quality would occur as a result of the implementation of the Proposed Action under all alternatives. Minor short-term, adverse impacts would be associated with construction activities. Short-term, minor impacts would be expected to be greater under Alternative Three, due to the increased use of unpaved roads and need for generators at remote sites. Best management practices during construction, such as dust control and limiting equipment idle time would help minimize the impact. Minor long-term impacts would result from operating new facilities. However, new facilities would be constructed to meet Leadership in Energy and Environmental Design (LEED) Silver standards. Improvements to the transportation network would decrease the high dependency on personal, motorized vehicles, reducing the amount of air emissions on the Installation. Therefore, long-term beneficial impacts to local and regional air quality are expected.
Noise		X		Minor short-term impacts are expected during construction activities associated with the Proposed Action under all alternatives. However, these impacts would be temporary in nature, only occurring during construction.

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than Significant	No Impact	
Visual Resources		X		Minor short-term impacts are anticipated during construction activities associated with the Proposed Action under all alternatives. Alternative Three would be expected to result in greater impacts to visual resources, because it would more likely involve development in previously undeveloped areas. However, the guidelines within the Installation Planning Standards would be implemented for all new construction and renovation projects to ensure that buildings and structures are uniform and conform to the Fort standard.
Socioeconomics		X		No adverse impacts are expected as a result of the implementation of the Proposed Action under all alternatives. Short and long-term beneficial impacts to the local economy would be expected. Short-term impacts would result from construction activities. Long-term impacts would result from improvements that would allow for an increase in number of individuals training at the installation and contributing to local sales volumes. Impacts are expected to be less than significant.
Transportation and Circulation		X		Short-term, minor adverse impacts during construction are expected on and around Fort Huachuca as a result of the Proposed Action under all alternatives. Long-term, adverse impacts may result from the potential increase in the number of individuals training at the installation and contributing to the amount of daily traffic. However, these impacts would be temporary and are expected to be less than significant. Alternative Three would be expected to result in greater long-term impacts to transportation and circulation, because projects would be sited outside of the cantonment area and Black Tower Complex growth boundaries and involve additional road improvements and result in greater commute distances and traffic volume to new facilities. Improvements to roadways and gates would result in beneficial impacts to the transportation and circulation on the Installation.
Utilities		X		Minor long-term impacts would result from the additional amount of solid waste produced during construction activities associated with the implementation of the Proposed Action under all alternatives. However, these impacts would not significantly affect the amount of solid waste being disposed of in local landfills. Long-term beneficial impacts are expected due to the upgrades to the utility infrastructure and construction of renewable energy sources. All new construction should be sited in areas with existing utility connections or close to connections, to minimize the need for utility extensions. Alternative Three would result in an increased need for utilities extension, because projects would be sited outside of the cantonment area and Black Tower UAS Complex growth boundaries.
Hazardous and Toxic Substances		X		Minor short-term impacts are anticipated as a result of the implementation of the Proposed Action under all alternatives. Short-term impacts that would result from construction activities include handling or disposing of hazardous materials. Complying with Fort Huachuca hazardous waste plans and programs and local, state, and federal laws and regulations would minimize the potential for adverse impacts.

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than Significant	No Impact	
Health and Human Safety		X		No significant adverse impacts to human health and safety are expected as a result of the implementation of the Proposed Action under all alternatives. Proposed improvements would result in a long-term indirect beneficial impact to human health and safety due to improved transportation and open space networks.
Electromagnetic Spectrum		X		Fort Huachuca's Encroachment Board, Installation Real Property Planning Board, and the Installation Spectrum Managers review project locations and specifications as needed and determine whether projects would interfere with the electromagnetic spectrum surrounding the Installation. Implementation of the Proposed Action under all alternatives is not expected to cause any significant impacts to the spectrum. Alternative Three may result in greater EMI, because projects would be sited outside of the cantonment area and Black Tower UAS Complex growth boundaries.

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LIST OF ACRONYMS AND ABBREVIATIONS

ADEQ	Arizona Department of Environmental Quality
AMA	Agave Management Area
amsl	Above Mean Sea Level
AR	Army Regulation
AT/FP	Anti-Terrorism/Force Protection
AZSTATS	Arizona Office of Employment and Population Statistics
BMP	Best Management Practice
CBP	Customs and Border Patrol
CDNL	C-Weighted Day-Night Level
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CFR	Code of Federal Regulation
CIF	Central Issue Facility
CO	Carbon Monoxide
CO_2e	Carbon Dioxide Equivalent
CWA	Clean Water Act
DA	Department of the Army
dB	Decibel
dBA	A-Weighted Decibel
DES	Directorate of Emergency Services
DoD	Department of Defense
DPW	Directorate of Public Works
DRMO	Defense Reutilization and Marketing Office
EIS	Environmental Impact Statement

EM	Electromagnetic
EMI	Electromagnetic Interference
ENRD	Environmental and Natural Resources Division
EPA	U.S. Environmental Protection Agency
EPG	Electronic Proving Ground
ERMP	Extended Range/Multi-Purpose
ESA	Endangered Species Act
FR	Federal Register
GHG	Greenhouse Gas
HAZMAT	Hazardous Materials
HMCC	Hazardous Material Control Center
HMMP	Hazardous Materials Management Program
HUMINT	Human Intelligence
HWAP	Hazardous Waste Accumulation Point
HWU	Huachuca Water Umbel
ICRMP	Integrated Cultural Resources Management Plan
IRP	Installation Restoration Program
ISCP	Installation Spill Contingency Plan
JITC	Joint Interoperability Test Command
JLUS	Joint Land Use Study
LAAF	Libby Army Airfield
Ldn	Day-Night Decibel
LEED	Leadership in Energy and Environmental Design
LLNB	Lesser Long-Nosed Bat
LRE	Launch and Recovery Element
MRR	Mandatory Reporting Rule

MSO	Mexican Spotted Owl
MW	Megawatt
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NFA	No Further Action
NHL	National Historic Landmark
NO_x	Nitrogen Oxides
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
OSHA	Occupational Safety and Health Administration
PAC	Protected Activity Center
PEA	Programmatic Environmental Assessment
PK15	Peak Sound Pressure Level
POL	Petroleum, Oils, and Lubricants
PSD	Prevention of Significant Deterioration
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
RPMP	Real Property Master Plan
SHPO	State Historic Preservation Office
SO_2	Sulfur Dioxide
SPRNCA	San Pedro National Conservation Area
SR 90	State Route 90
SVE	Soil Vapor Extraction
TPH	Total Petroleum Hydrocarbons
tpy	Tons Per Year
UAS	Unmanned Aircraft System

U.S.	United States
USACE	U.S. Army Corps of Engineers
USAG	U.S. Army Garrison
USC	United States Code
USFS	U.S. Forest Service
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
USPB	Upper San Pedro River Basin
USPP	Upper San Pedro Partnership
UST	Underground Storage Tank
UXO	Unexploded Ordinance

1.0 PURPOSE AND NEED

1.1 Introduction

United States (U.S.) Army Garrison (USAG) Fort Huachuca (Installation) is a military installation encompassing 73,142 acres adjacent to the City of Sierra Vista in Cochise County, Arizona. The Installation is approximately 75 miles southeast of Tucson and 63 miles northeast of Nogales, Arizona. The southernmost boundary of the Installation is approximately 8 miles from the international border with Mexico. Fort Huachuca is divided by State Highway 90 into an East Reservation (28,544 acres) and West Reservation (44,598 acres) (Figure 1-1).

USAG Fort Huachuca is a Department of the Army (DA) installation supporting approximately 60 deployable and nondeployable tenant organizations and their missions. Tenants include multiple Department of Defense (DoD) agencies and other federal agencies. As an Installation Management Command garrison, the installation property management and shared services are provided by USAG Fort Huachuca. The overall mission of USAG Fort Huachuca is to provide equitable, effective, and efficient management of the Installation to support mission readiness and execution; enable the well-being of Soldiers, civilians, and their Family members; improve the Army's aging infrastructure; and preserve the environment.

The National Environmental Policy Act (NEPA) requires all federal agencies to give appropriate consideration to potential environmental effects of proposed major actions in planning and decision making, as further explained in Section 1.3. In accordance with the NEPA, the Army is completing this Programmatic Environmental Assessment (PEA) to evaluate the potential impacts of the implementation of the Installation's Real Property Master Plan (RPMP).

1.2 Purpose and Need for Action

1.2.1 Purpose

The primary purpose for the implementation of the RPMP is to guide the Installation's growth and development, and establish a long-range vision to sustainably support the changing command goals, mission objectives, and policies at Fort Huachuca. The RPMP, subject to this PEA, updates previous versions of the document and establishes both a short- and long-term framework for developing and managing real property on the Installation. The Black Tower Unmanned Aircraft Systems (UAS) Complex and cantonment area growth boundaries (Figure 1-2), which includes the Libby Army Airfield (LAAF), are the primary focus of the plan. The RPMP presents specific future development options in accordance with the Installation's Real Property Vision and provides a long-term strategy for infrastructure maintenance and sustainable development to support the Installation's mission.

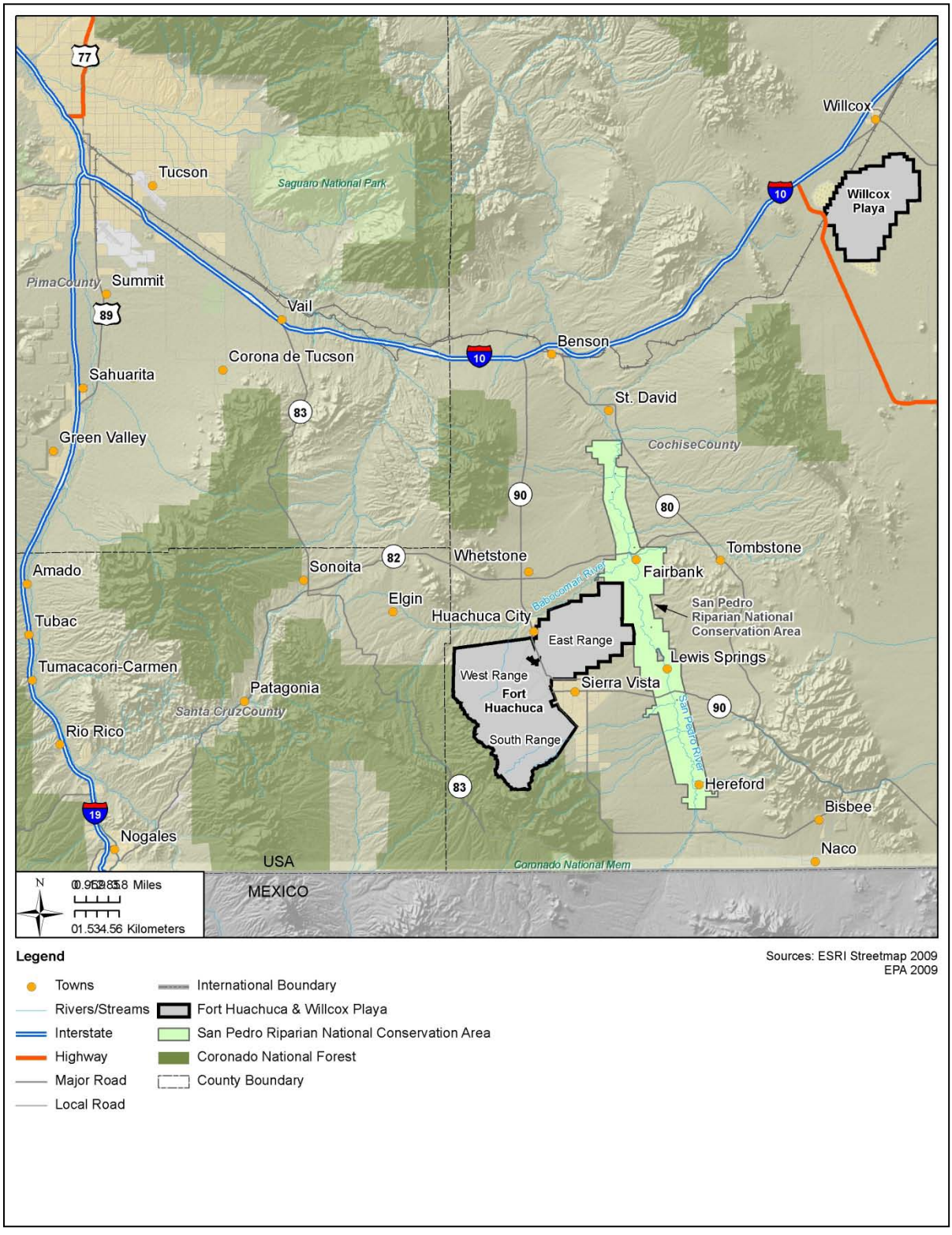

Figure 1-1. Regional Location

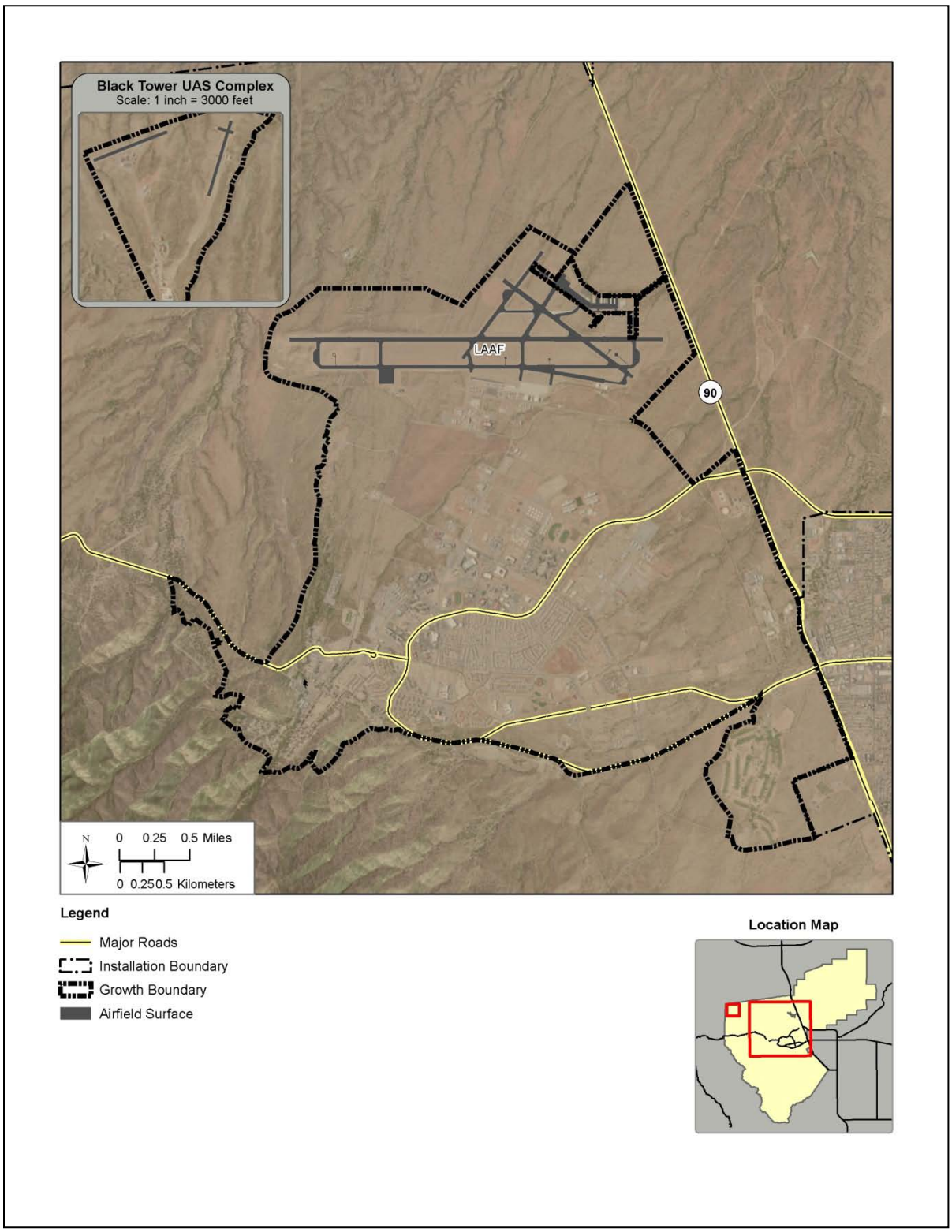

Figure 1-2. Cantonment Area and Black Tower UAS Complex Growth Boundaries

The RPMP is a programmatic document that identifies specific management goals and objectives for the Installation over a 20-year planning horizon. The intent of each goal is to be visionary, ideal, and general in character and to provide long-term guidance in defining the direction and purpose of the Installation's planning and development. Fully implementing the RPMP, adhering to established goals and objectives, supports the Army's sustainability strategy. The plan also incorporates natural and cultural resource preservation, healthy community planning, defensible planning, and capacity planning.

The Capital Investment Strategy of the RPMP identifies specific projects, including some submitted for the Future Years Defense Program, and how they will be prioritized. This PEA includes NEPA coverage for those projects, and a programmatic analysis of potential impacts for additional projects that may be sited in previously disturbed parts of the study area and infill areas within specified growth areas.

1.2.2 Need

Comprehensive land use and facilities planning helps establish a balance between mission readiness, growth, development, environmental stewardship and overall sustainability. The RPMP will be sufficiently flexible to permit Installation expansion, reduction, and changes in mission to ensure that Installation assets can meet mission requirements. The RPMP will guide growth and development in light of changing Command goals, mission objectives and policies as required by Army Regulation 210-20, *Real Property Master Planning for Army Installations.*

Changes are inevitable due to the National Strategy, resource constraints, mission changes, or changes in environmental, social, or political conditions. Since the last RPMP in 2008, many of the Fort's tenants experienced unprecedented mission growth. By 2013, the student throughput doubled, and other mission personnel increased by more than one third of the total preexisting employee population. As a result, many facilities proved to be inadequate or not ideal to support the rapid growth. In some cases, temporary, relocatable facilities were leased to meet needs and "exit strategies" will require construction to permanently address these facility shortages. Therefore, an updated RPMP is necessary. The RPMP should be revised and updated to reflect such changes in order to maintain its relevance as a useful planning and management tool. At a minimum, the RPMP should be reviewed annually and updated as mission requirements dictate.

While no significant reductions in the total employee or military student populations at Fort Huachuca are anticipated over the next 5 years, the U.S. Army Environmental Command completed a Supplemental PEA in June 2014 to assess the potential environmental impacts associated with the Army's proposed force reduction and realignment activities through 2020. The Supplemental PEA analyzes the potential for Fort Huachuca to experience a total force reduction of 2,700 individuals, including 1,726 Soldiers and 1,013 civilians (USAEC 2014). Due to the ever changing needs of the DoD and mission readiness capabilities, this force reduction may not occur to the extent evaluated. The 2020 force reduction is outside Fort Huachuca's control and does not negate the Installation's current need to implement their RPMP.

1.3 Regulatory Framework

Congress enacted NEPA in 1969 with accompanying regulations requiring federal agencies to consider potential impacts before taking actions that may impact the environment. The process is designed to provide the decision maker with an overview of the major environmental resources that may be affected, the interrelationship of these resources, and potential impacts to the human environment. The NEPA process is not intended to fulfill the specific requirements of other environmental statutes and regulations. The NEPA process:

- Helps to identify potential alternatives to the proposed action;
- Integrates other environmental processes;
- Summarizes technical information;
- Documents impact analyses and decisions;
- Interprets technical information for the decision maker and public; and
- Assists the decision maker in selecting a preferred action.

NEPA is intended to be incorporated in the early stages of the decision-making process to ensure that plans and decisions consider environmental values. The NEPA process enables the Army and stakeholders to gain a better appreciation of each other's needs to avoid unexpected confrontations later. In addition, NEPA compliance provides for ongoing evaluation of environmental effects for actions that will continue over time.

NEPA anticipated the need for evaluation of broad actions by including provisions for the development of programmatic documents. Subsequent environmental analyses for specific activities that fall within the broad area of analysis may “tier” from the programmatic documents and need only summarize the issues that are specific to the proposed action at hand. In these cases, it is only necessary to incorporate by reference any pertinent issues that were already addressed by an approved initial programmatic document or other relevant Environmental Assessments. In this regard, Fort Huachuca has prepared this PEA to evaluate the implementation of the Installation’s RPMP on a programmatic level. This PEA is intended to provide a programmatic review of development, particularly of infill and reuse projects and construction on previously disturbed grounds within the designated growth areas. Subsequent NEPA analysis may become necessary as specific projects are carried out in support of the RPMP.

In addition to NEPA, this PEA has been prepared in compliance with two DA regulations that provide guidance for environmental analyses:

- 32 Code of Federal Regulations (CFR) Part 651, *Environmental Analysis of Army Actions,* dated 29 March 2002, is designed to provide policy, responsibilities, and procedures for integrating environmental considerations into Army planning and decision making. It establishes criteria for determining which of five review categories pertain to a particular action, and thus the type of environmental document that should be prepared. If the proposed action is not covered adequately in any existing Environmental

Assessment, PEA, or EIS and cannot be categorically excluded from NEPA analysis, then a separate NEPA analysis must be completed prior to the commitment of resources (personnel, funding, or equipment) to the proposed action; and

- Army Regulation 200-1, *Environmental Protection and Enhancement,* dated December 2007, describes DA responsibilities, policies, and procedures to preserve, protect, and restore the quality of the environment. The regulation incorporates a wide range of applicable statutory and regulatory requirements.

The Army's NEPA guidance, 32 CFR 651, establishes a requirement that any Environmental Assessment that exceeds 25 pages should provide an explanation as to why an EIS is not required. This document exceeds the 25-page requirement because of the breadth of the environment potentially affected, and requirement for future use of the programmatic document in the analysis of individual components of the RPMP. Additionally, of the numerous proposed individual projects, the specific projects that may be funded through the military construction process are currently unknown. The impacts of the individual proposed projects are minimal due to the intentionally sustainable design principles used in the planning process. Likewise, the cumulative impacts, in the unlikely event that all the identified projects were to be funded and implemented, would not be significant.

1.4 Use of This Programmatic Environmental Assessment

This PEA analyzes and documents the potential for environmental impacts associated with the implementation of the Fort Huachuca RPMP relative to other alternatives, including a no action alternative. USAG Fort Huachuca will use this PEA to determine whether a Finding of No Significant Impact is appropriate or if a Notice of Intent to prepare an EIS should be issued.

1.5 Public Participation Opportunities

In keeping with established Army policy to provide a transparent and open decision-making process, USAG Fort Huachuca will make this PEA and draft decision document available to applicable federal and local agencies, stakeholders, and the general public for review and comment. A Notice of Availability will be published in the *Sierra Vista Herald* newspaper and a copy of the PEA will be made available on the internet at http://www.army-nepa.info and at the following library:

Sierra Vista Public Library
2600 E. Tacoma Street
Sierra Vista, Arizona 85635

Comments must be postmarked within 30 days of the publishing date of the Notice of Availability to be considered as part of the NEPA process. Comments should be submitted to:

NEPA Coordinator
3040 Butler Road, Building 22526
Fort Huachuca, Arizona 85613
Fax: (520) 533-3043

A final decision document in the form of a Finding of No Significant Impact or a Notice of Intent to complete an EIS will be issued following completion of the 30-day review period and will appropriately address comments received under this NEPA process.

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2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

The Proposed Action is the implementation of Fort Huachuca's RPMP. Three reasonable future development alternatives were evaluated against the Installation's mission, vision, goals and objectives as well as all long-range DoD and Army planning guidelines and development strategies. Installation-wide, alternative future development scenarios were identified and evaluated based on operational needs, transportation and utility systems, and existing Area Development Plans.

The evaluation process was designed to optimize Installation resources, factoring in future missions, existing functional constraints, infrastructure, environmental concerns, socioeconomic needs, and tenant partnerships. The evaluation addressed flexibility to meet future conditions and requirements, compatibility of on- and off-post land uses, and safety/noise impacts to adjacent populated areas. Ideal development potential was defined in the RPMP as areas within the cantonment area and Black Tower UAS Complex lacking in existing or identified nonfiscal constraints. Although development may occur outside areas designated as ideal, areas without development constraints should be considered first. The Fort Huachuca Master Planning Division, in cooperation with the Directorate of Plans, Training, Mobilization and Security, established an installation growth boundary around the cantonment area to focus development towards the core and preserve the periphery for ecological functions, testing and training, or other appropriate uses. This boundary will be reviewed every 5 years, and the Installation's capacity for growth will be determined within the area defined by the growth boundary.

2.1 Alternative One – Constrained Development (In-Fill and Re-Use Preference)

Alternative One is the Army's Preferred Alternative and was found to be in greater compliance with Fort Huachuca's mission, vision, goals and objectives as well as Army planning strategies and general requirements, planning principles, long-range planning guidelines, and strategies identified throughout the RPMP. Under this alternative, Fort Huachuca will not only confine future development to areas within the existing cantonment area and Black Tower UAS Complex growth boundaries but will also encourage future development to locate near or within existing mission areas and prioritize facility reuse opportunities early in the planning process. Use of vacant or peripheral lands will only be considered as a last option, and preference will be given to development in areas within 0.25 mile of the primary transportation loop network. Table 2-1 contains the future development projects that have been identified within the RPMP and Figure 2-1 shows the proposed locations of those projects. Note that projects 10 and 11 fall outside of the cantonment area and Black Tower UAS Complex growth boundaries, but because they affect the Bonnie Blink Housing Area in the cantonment area, they are considered part of the Preferred Alternative.

Table 2-1. Proposed Future Development Projects

#	Project	#	Project
1	Access Control West Gate	24	JITC Information Systems Testing Facility (old)
2	Site Maverick Village	25	Aircraft Fuel Storage LAAF
3	Fire Station # 4 Temporary Facilities	26	JITC Information Systems Test Facility
4	Fire Station # 4	27	Fire Station # 3
5	Dining Facility Black Tower	28	Fitness Center
6	Aircraft Maintenance Instruction Building	29	Ragatz Hall Expansion
7	CBP Operations Hangar	30	Intel Combat Training Facility
8	214th UAS Predator LRE Hangar	31	Military Working Dog Kennel
9	Access Control Main Gate	32	Commissary
10	Ammunition Supply Point Suspect Truck Lot	33	Post Exchange
11	Ammunition Supply Point	34	Vehicle Maintenance Facility
12	Fixed Wing Airstrip (Hubbard)	35	25 MW Solar Array System
13	East Range Runway	36	Nicholson Hall Expansion
14	Potable Water Tank	37	General Instruction Building
15	Military Police Station	38	Chapel
16	In/Out Processing Center	39	Power Substation
17	Combined Medical/Dental Clinic	40	Techno-Activities Center Warrior Zone
18	Privatized Army Lodging Hotel	41	Automation-Aided Instruction Bldg (HUMINT)
19	Army Community Services Facility	42	Student Health Clinic
20	Court Room	43	Band Training Building
21	EPG Test & Evaluation Center	44	ERMP Grey Eagle Simulator & Training Facility
22	EPG Vehicle Maintenance Facility	45	Access Control East Gate
23	EPG Auditorium	46	General Purpose Storage Installation

#	Project	#	Project
47	CIF Expansion	50	Cantonment Perimeter Fence
48	Solar Thermal Heat Plant	51	Lawton Widening
49	Runway 12-30 Extension		

CBP – Customs and Border Patrol; **UAS** – Unmanned Aircraft System; **LRE** – Launch and Recovery Element; **EPG** – Electronic Proving Ground; **JITC** – Joint Interoperability Test Command; **LAAF** – Libby Army Airfield; **MW** – Megawatt; **HUMINT** – Human Intelligence; **ERMP** – Extended Range/Multi-Purpose; **CIF** – Central Issue Facility

2.2 Alternative Two – Constrained Development

Fort Huachuca would confine future development within the existing cantonment area and Black Tower UAS Complex growth boundaries. However, this alternative would not encourage future development to locate near or within existing mission areas and prioritize facility reuse opportunities early in the planning process. Preference will not be given to development in areas within 0.25 mile of the primary transportation loop network and vacant or peripheral lands would not be considered only as last options.

2.3 Alternative Three – Unconstrained Development

Fort Huachuca would not confine future development within the existing cantonment area and Black Tower UAS Complex growth boundaries.

2.4 No Action Alternative

The No Action Alternative is required under the CEQ regulations implementing the NEPA and serves as a baseline or benchmark used to compare with the Proposed Action and alternatives. Under the No Action Alternative, Fort Huachuca would continue to operate under its current, outdated RPMP.

2.5 Alternatives Considered but Eliminated from Further Analysis

Other future development alternatives were evaluated but dismissed as either unreasonable, unrealistic, or beyond the control and/or planning horizon of Fort Huachuca. Examples of dismissed alternatives included Installation closure or significant mission reduction under future Base Closure and Realignment Commission and 2020 force structure realignment proceedings and the relocation or consolidation of major tenant organizations on the Installation.

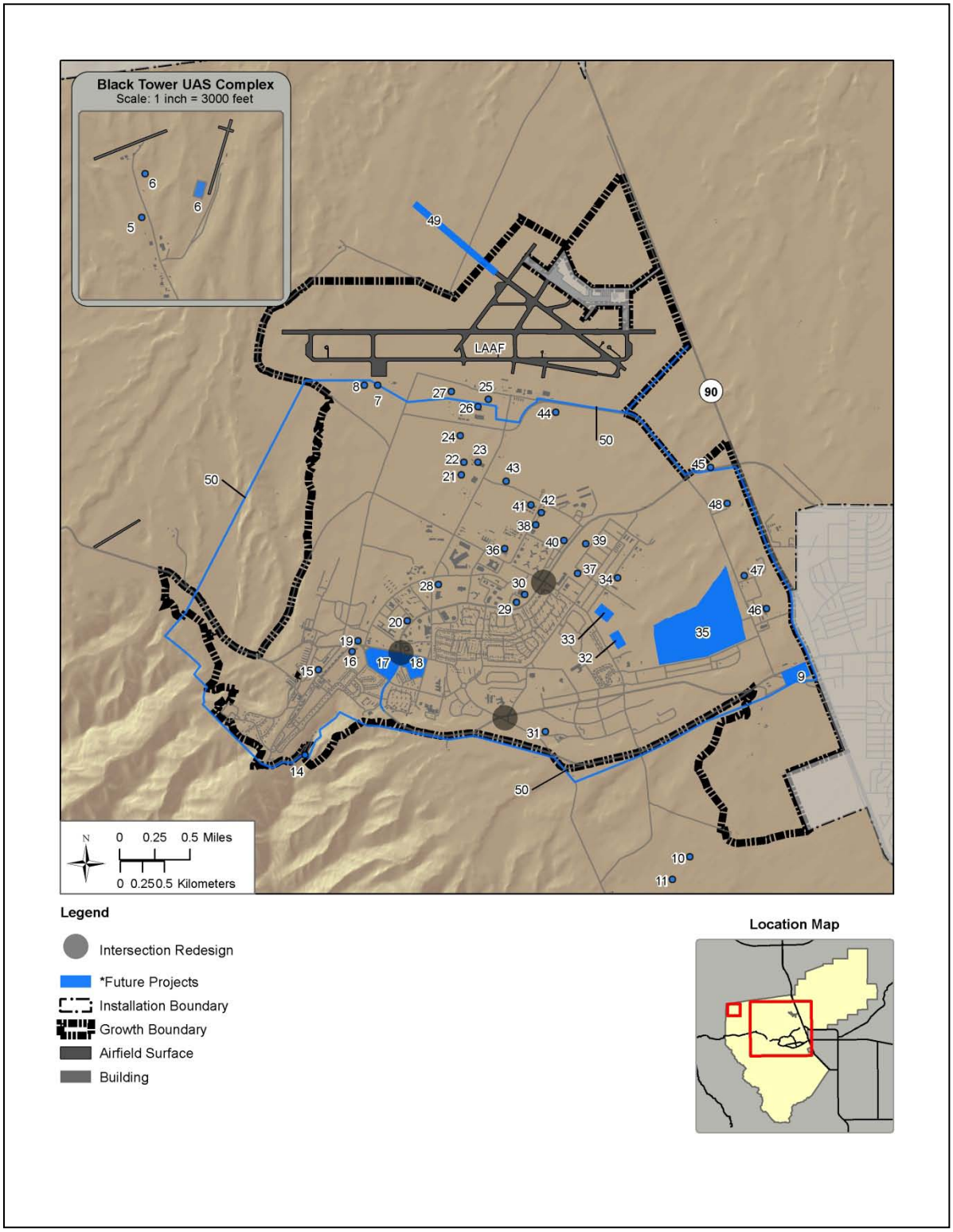

Figure 2-1. Proposed Project Locations

3.0 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

Section 3 describes conditions of, and possible impacts to, environmental resources potentially affected by the Proposed Action and alternatives. The description of existing conditions provides a baseline understanding of the resources from which any changes that may be brought about by the implementation of an alternative can be identified and evaluated. Baseline information provided in this section is consolidated and generalized to limit redundancy among published NEPA documents. Additional detailed information about USAG Fort Huachuca's Installation-wide baseline resources can be found in the 2009 *Environmental Assessment for Integrated Natural Resources Plan and Real Property Master Plan, Fort Huachuca, Arizona* (USAG Fort Huachuca [USAGFH] 2009). Additional baseline information can also be found within the 2014 *Real Property Master Plan*, subject to this PEA. The description of the potential impacts of the Proposed Action incorporates conservation measures that will be included in the project, if the project is implemented.

Following the description of environmental resources potentially affected, the potential changes or impacts to the resources are then described as environmental consequences. As stated in CEQ guidelines in 40 CFR 1508.14, the "human environment potentially affected" is interpreted comprehensively to include the natural and physical resources and the relationship of people with those resources. The term "environment" as used in this report encompasses all aspects of the physical, biological, social, and cultural surroundings of the Installation. In compliance with guidelines contained in NEPA and CEQ regulations, the description of the affected environment focuses only on those aspects potentially subject to impacts.

Cumulative impacts for each resource area are then addressed. Cumulative impacts are defined in the CEQ regulations (40 CFR 1500-1508) as those impacts attributable to the Proposed Action combined with other past, present, or reasonably foreseeable future impacts regardless of the source. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. However, to be considered a cumulative impact, the effects must:

- Occur in a common locale or region;
- Not be localized (i.e., they would contribute to effects of other actions);
- Impact a particular resource in a similar manner; and
- Be long term (short-term impacts would be temporary and would not typically contribute to significant cumulative impacts).

Analysis of cumulative impacts requires the evaluation of a broad range of information that may have a relationship to the Proposed Action and alternatives. A good understanding of the politics, sociology, economics, and environment of the region is vital to this analysis, as is an accurate evaluation of factors that contribute to cumulative impacts.

3.1 Land Use

3.1.1 Affected Environment

Fort Huachuca Military Installation encompasses 73,142 acres, which is divided into the East Reservation (28,544 acres) and the West Reservation (44,598 acres) by State Highway 90 (Figure 1-1). Land uses within these two reservations are generally classified as either open/operational or developed areas.

The East Reservation includes the East Range and multiple test facilities including the open air antenna testing range, Hubbard Landing Strip, and the Convoy Live Fire Range. The West Reservation includes the West Range, South Range, cantonment area (including LAAF), and the Black Tower UAS Complex (located in Training Area Juliet in the West Range). The cantonment area accounts for approximately 8 percent of the Installation's total area. Figure 3-1 shows land use within the cantonment area and Black Tower UAS Complex growth boundaries, which are the primary focus of the RPMP.

The majority of the buildings and facilities located on Fort Huachuca are within the cantonment area. These facilities and associated personnel provide the functions required to operate and maintain the Installation including wastewater treatment, solid waste management, transportation networks and infrastructure, Installation access points, power distribution, fuel distribution, and hazardous waste management. Military barracks, bachelor/guest quarters, transient billeting, and family housing, as well as associated support facilities including dining, health care, and other services, are also located within the cantonment area (U.S. Army Corps of Engineers [USACE] 2008). Two outdoor training facilities are also located within the cantonment area: an obstacle course and a confidence course.

LAAF is located in the northernmost corner of the cantonment area and consists of joint civilian-military runways and separate support facilities. The LAAF complex and Sierra Vista Municipal Airport are used for aviation-related training and both military and civilian aviation operations. Maintenance facilities and the City of Sierra Vista Municipal Airport air terminal are located on the north side of the airfield. To the south, the LAAF military support facilities include a flight control tower, navigational aids building, airfield operations building, and an airfield fire and rescue station. Hangars for both manned and unmanned aircraft maintenance and operations are located along the flightline south of the main runway. Storage buildings, U.S. Forest Service (USFS) tanker support facilities and Arizona Air National Guard facilities are also located along the southern side of the main runway and within the operational land use zone. LAAF occupies roughly 17.9 percent of the cantonment area.

The Black Tower UAS Complex is located approximately 6 miles west of the cantonment area, in the northwestern corner of the West Range. It is home to the Army's UAS Training Center and flight lines for medium tactical UAS flights.

To help ensure compatible land uses between on-post military activity and surrounding development, a Joint Land Use Study (JLUS) was developed through a collaborative effort

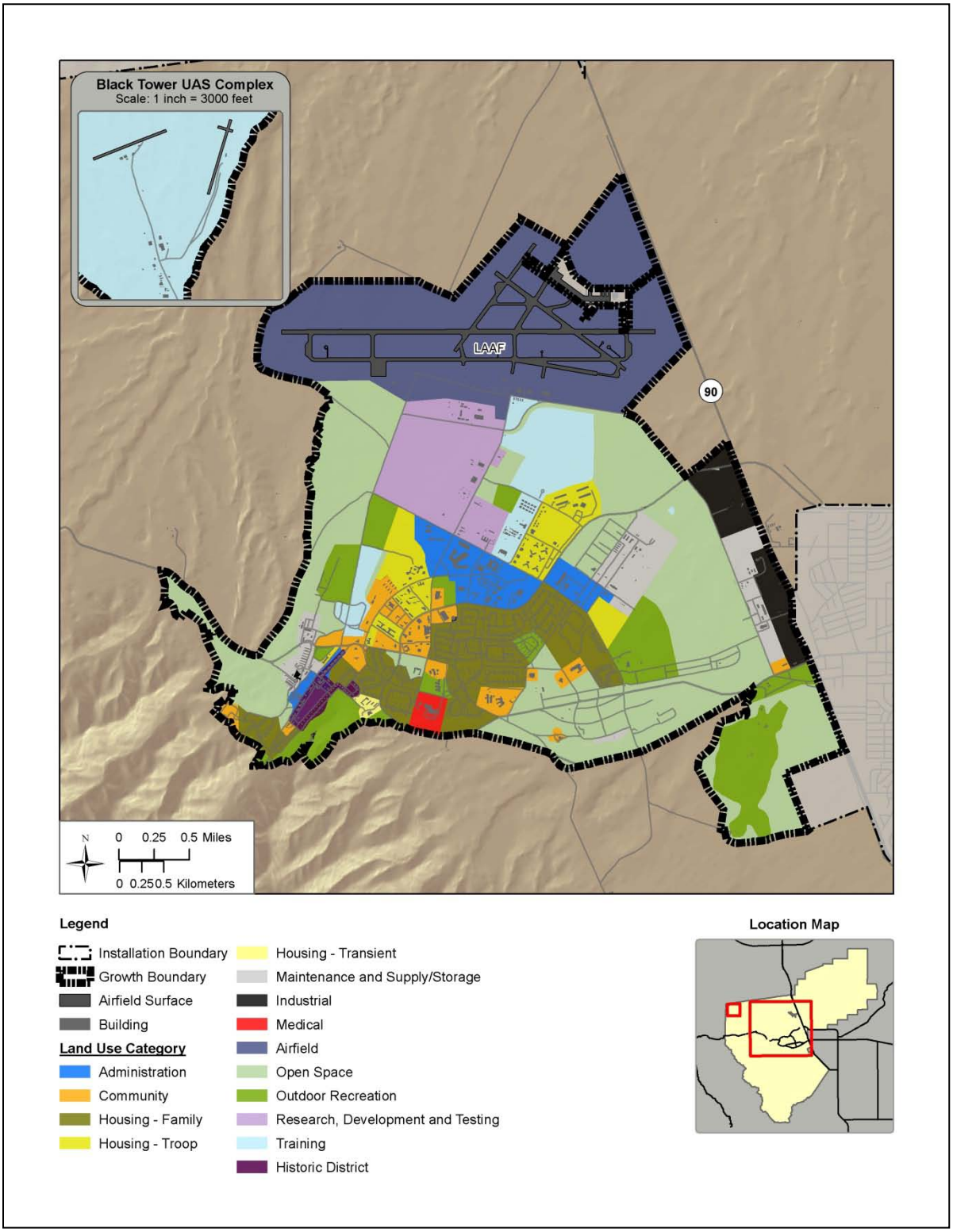

Figure 3-1. Cantonment Area and Black Tower UAS Complex Growth Boundaries Land Use Map

between Fort Huachuca and other stakeholders. The study was finalized in June 2007. Compatible land use agreements between all stakeholders are managed using a cooperative program of affected jurisdictions in Cochise and Santa Cruz counties that have the authority to implement land use regulations, along with Fort Huachuca and other interested parties (Arizona Department of Commerce 2007). The JLUS identified operations occurring at the Installation that extend beyond the boundaries of the Fort and into the surrounding communities, including uses of the electromagnetic (EM) environment.

The limited amount of developed land that surrounds the Installation provides an EM environment that is an unparalleled asset for testing and training operations carried out on the Installation. It is the only U.S. location where aggressive, offensive electronic warfare testing can be conducted and that has a frequency coordination zone protected by federal mandate (Arizona Department of Commerce 2007). The restricted airspace surrounding Fort Huachuca is a vital resource for military missions at Fort Huachuca and other military installations in Arizona and also for the aviation needs of other organizations and agencies. The restricted airspace extends well beyond installation boundaries and supports Fort Huachuca's aviation missions.

3.1.2 Environmental Consequences

Alternative One (Preferred Alternative)

The implementation of the Preferred Alternative would result in beneficial impacts on land use at Fort Huachuca. The RPMP incorporates nine principles of sustainable planning, including form-based planning; compact, low-impact, and in-fill development; horizontal and vertical mixed uses; connected transportation networks; sustainable landscape elements; and energy efficiency. These principles guide development in an effort to conserve land resources, and concentrate future development in previously developed/disturbed areas, using in-fill and re-use methods.

Under the Preferred Alternative, future development at Fort Huachuca would be confined to the cantonment area and Black Tower UAS Complex growth boundaries. All proposed projects would occur well within the Installation boundaries and would not affect land use in surrounding communities.

Future development may allow an additional need for training activities to occur within the restricted airspace and the electromagnetic field surrounding Fort Huachuca. However, the RPMP incorporates the Fort Huachuca JLUS into development strategies to ensure that impacts resulting from these changes in mission requirements would be minor.

Alternative Two

Implementation of Alternative Two would result in similar impacts as the implementation of Alternative One and would not be expected to result in any significant impacts. However, projects would not be encouraged to locate near or within existing mission areas, facility reuse opportunities would not be a priority, and development in areas within 0.25 mile of the primary

transportation loop network would not be preferred, so there may be a slight variation in impacts. The individual project's scope and location may result in less beneficial impacts than Alternative One.

Alternative Three

Implementation of Alternative Three would result in development outside of the cantonment area and Black Tower UAS Complex growth boundaries, which would not be consistent with the framework of the RPMP. At this time, no projects are proposed outside of the designated growth area. Should projects be relocated outside this area or new projects be identified outside this area, Fort Huachuca would still follow the RPMP guidance and the project planning and siting process would consider land use compatibility. Following the nine principles of the RPMP would eliminate and/or limit impacts to land use.

No Action Alternative

Under the No Action Alternative, current land use would continue at Fort Huachuca. The beneficial impacts associated with the Army's recently revised guidance for sustainable development incorporated in the Preferred Alternative would not be expected.

Cumulative Impacts

No cumulative impacts related to incompatible land use are anticipated to occur. Development outside the Installation's boundaries and within the JLUS study area is guided by the Fort Huachuca JLUS and local governance. The JLUS facilitates the implementation of compatible land uses critical to the Fort's mission and operations. The Fort carefully considers all projects early in the planning process in an effort to avoid significant impacts to existing and future land use. Siting would be coordinated with all appropriate Directorates and tenants, and local governance if appropriate, to ensure that projects do not conflict with existing land uses, or ongoing or reasonably foreseeable future projects.

3.2 Topography, Geology, and Soils

3.2.1 Affected Environment

Topography

Fort Huachuca is located in the Mexican highland section of the Basin and Range physiographic province. Topography of the Installation is depicted in Figure 3-2. The landscape consists of isolated mountain ranges and broad, relatively flat valleys or basins. The mountains are of fault-block origin and linear orientation, ranging in age from Precambrian to Cretaceous time periods. The Huachuca Mountains, which trend northwest to southeast, comprise a portion of the western boundary of the Fort, while the remainder lie southwest of the Installation. The Whetstone Mountains are located north of Fort Huachuca on the north side of the Babocomari River, which closely parallels the Fort's northern boundary. Elevations on Fort Huachuca range from approximately 3,925 feet above mean sea level (amsl) in the northeast corner of the East

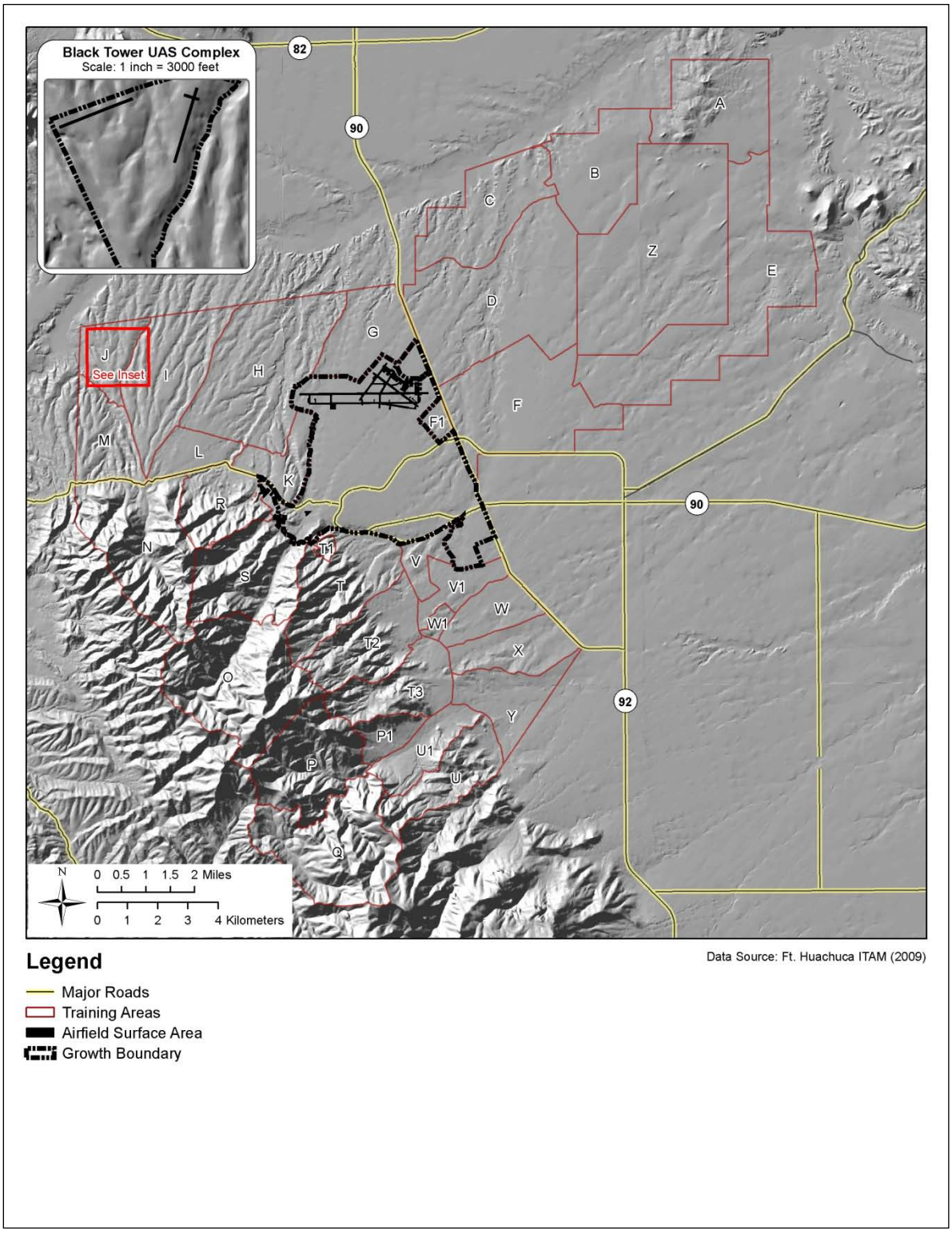

Figure 3-2. Topography of Fort Huachuca

Reservation near the San Pedro River to about 8,625 feet amsl at the crest of Sheelite Canyon in the Huachuca Mountains. Steep slopes in the Western Reservation transition to gradual slopes toward the San Pedro River east of the Installation (USACE 2008).

The cantonment area is relatively flat, with an approximate elevation of 5,050 feet amsl and a slope of roughly 2 percent. It is surrounded by foothills to the west with slopes of 70 percent and mountains beyond the foothills with slopes greater than 119 percent. Deeply incised ephemeral streambeds flow out of the mountains and across the cantonment area toward the San Pedro and Babocomari rivers (USACE 2008) The terrain within the Black Tower UAS Complex is highly dissected, with ridges and valleys draining north toward the Babocomari River. Facilities primarily occupy ridges.

The western portion of the South Range and the southern portion of the West Range consist of steep slopes and high elevations of the Huachuca Mountains. Eastern portions of the South Range and the northern and eastern portions of the West Range are generally level, with a slight gradual decrease in elevation moving toward the San Pedro and Babocomari rivers.

Geology

The unconsolidated and semi-consolidated sediments of the Upper San Pedro River Basin (USPB) consist of three layers. The lowest unit is a thick, cemented conglomerate (Pantano Formation) that is overlain by the lower basin fill unit, composed of weakly to strongly cemented layers of interbedded sandy clay, silty sand, and sandy gravel. This layer is approximately 235 feet thick in the vicinity where State Road 90 (SR 90) passes through Fort Huachuca . The upper basin fill unit in the vicinity of the Fort consists of very permeable, flat-lying layers of weakly compacted clay, gravel, sand, and silt of middle to late Pleistocene age that is approximately 650 feet thick. When combined, the upper and lower basin fill units form the USPB's principal groundwater reservoir. The floodplain alluvium overlying the upper basin fill in the San Pedro River Valley is composed of highly permeable unconsolidated gravel, sand, and silt.

The Huachuca Mountains along the southwestern edge of the Installation are comprised primarily of granitoid and sedimentary rocks. In some areas, such as the southwestern flank of the Huachuca Mountains, volcanic rocks are interbedded with classic sediments (U.S. Geological Survey [USGS] 2006).

Soils

Fort Huachuca has a diverse assortment of soil types (Figure 3-3). This diversity is directly related to very localized differences in climate, parent material and topography at the Installation. The soils exhibit wide variations in depth, texture, and chemical properties. Roughly 30 percent of the soils are less than 2 feet in depth over bedrock (USAGFH 2009).

The Soil Survey of Fort Huachuca (Natural Resources Conservation Service [NRCS] 1997) characterizes the types of soils that occur at the installation, locations of the soil types, and

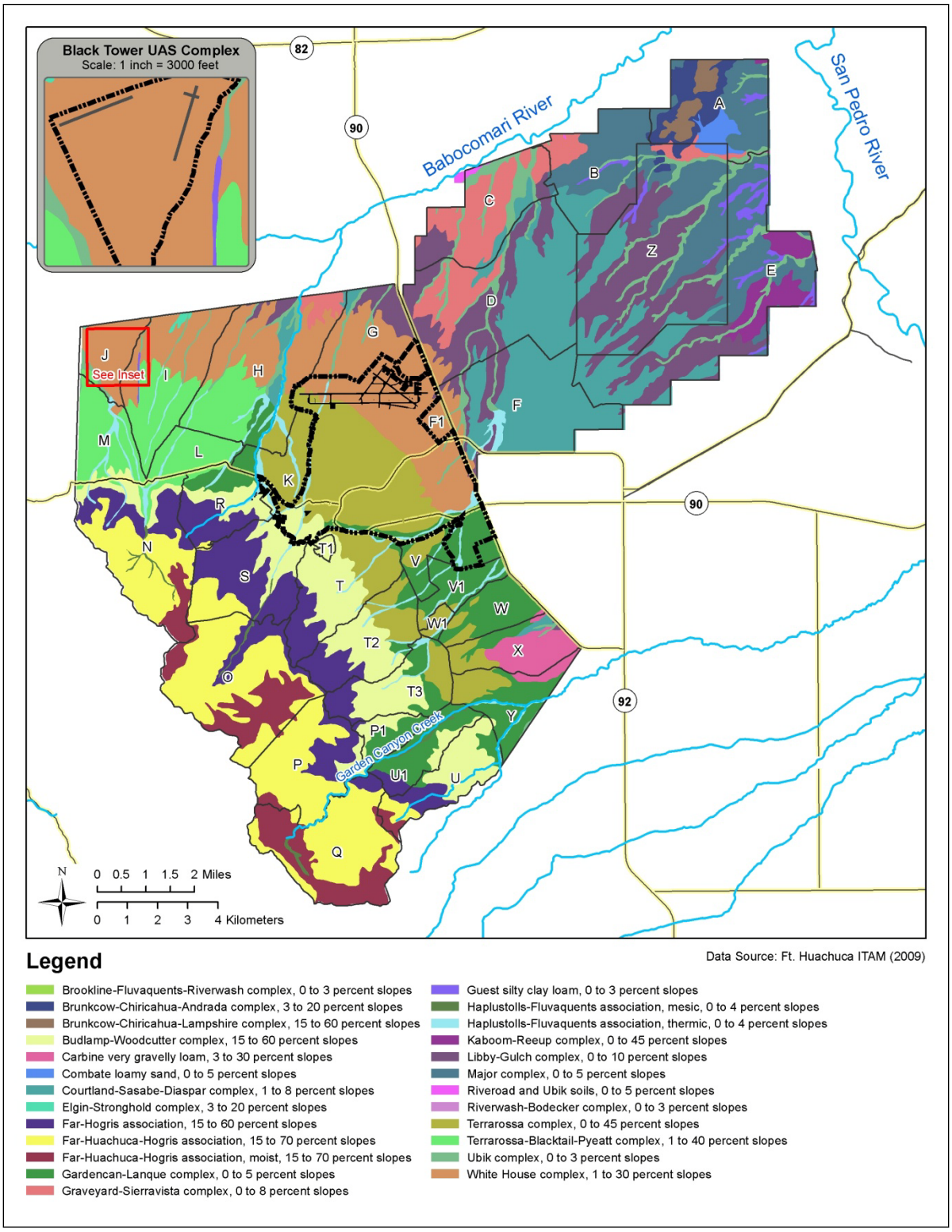

Figure 3-3. Soils of Fort Huachuca

potential constraints. This characterization classifies soils into one of four groups (Hydrologic Soil Groups A, B, C, and D) based upon infiltration capacity and ability to transmit water through them. Group D soils types have very slow infiltration rates when saturated and have an extremely low water transmission rate due to high percentages of clays, claypan or clay layers near the surface, or impervious bedrock near the surface. Group C soil types have moderate to slow infiltration rates when thoroughly wetted and slow water transmission rates. Storm-related runoff and stream flow are likely to occur with both Group C and D soil types. Conversely, Group A and B soil types have a high to medium (respectively) infiltration capability and water transmission rates. Fort Huachuca is dominated by soils classified in Group D with some types occurring in the Group C category, particularly on the South and West Ranges, while some of the East Range soils are classified as Group B and Group C (NRCS 2014).

Many soils in the hilly and mountainous areas, particularly on the South and West Ranges, are shallow with steep slopes; these soils tend to have a low available water capacity and are susceptible to erosion. The high sodium and gypsum contents of many soils on the East Range make these soils subject to gully erosion and piping; in addition, they are very corrosive to concrete and steel. The soil of the cantonment area consists of alluvial fan soils. Almost one-quarter of the post land area has deep red clay soils that have slow permeability and tend to be poorly drained. They become very slippery when wet and are susceptible to compaction. Other properties of soils on the Installation influencing land use and management are gravelly or rocky soils, soils with hard pans and deep, droughty, sandy soils (USAGFH 2004).

3.2.2 Environmental Consequences

Alternative One (Preferred Alternative)

No significant impacts to topography or soils are anticipated to occur as a result of implementing the Preferred Alternative. Minor short-term impacts would result during construction activities that require soil disturbance, but these impacts would be temporary in nature. No impacts to geology or topography are expected.

Soil types within the cantonment area present development challenges. The presence of unsuitable, often highly erodible, soil types in a large part of the cantonment area would increase construction costs. The most suitable soils for development are located in the southern portion of the cantonment area. Development should be limited in the southwestern portion of the cantonment area due to the sloping foothills. The Black Tower UAS Complex also presents development challenges. New construction is often very expensive due not only to the need for cut and fill to provide building sites, but also due to the expense of hauling materials long distances from sources. Project planners and engineers would need to account for these constraints during the project planning process.

Soil erosion within the installation is also a major issue, due to increased storm water runoff from development and heavy monsoon rains. New development within the cantonment area may exacerbate soil erosion; however, incorporation of erosion control measures would address and mitigate soil erosion issues. Engineer project managers must ensure that design

parameters for monsoonal storms are properly incorporated into facility, landscape and area designs.

All construction disturbances in excess of one acre require (by law) a Stormwater Pollution Prevention Plan. Appropriate stormwater control and best management practices (BMPs) will be implemented during construction activities and throughout the long-term use of each project site, thereby limiting erosion. These BMPs may include installing silt fencing, limiting construction activities during heavy rains, performing dust control, and planting native grasses.

Alternative Two

Implementation of Alternative Two is expected to result in similar impacts as Alternative One. The individual project's scope and location may result in slight variations of the impacts associated with Alternative One. However, impacts would still be expected to be less than significant by implementing previously described BMPs.

Alternative Three

Under Alternative Three, projects may be sited outside of the RPMP's specified growth boundaries. However, all projects would be evaluated individually to ensure that project design was compatible with site topography and soils. Projects consistent with the RPMP would not be expected to result in any significant adverse impacts to topography or soils. No impacts to geology are anticipated.

No Action Alternative

The No Action Alternative would not result in any significant impacts to topography, geology, or soils. Fort Huachuca would continue to operate under the existing RPMP, which requires consideration of topography and soils compatibility.

Cumulative Impacts

The Fort actively takes measures to reduce the effects of erosion on the Installation. These practices include promoting grass establishment through mesquite mastication and extraction, removal of invasive woody vegetation via chemical treatment, revegetating upland areas, installing gabions and erosion control structures, prohibiting vehicle traffic except on designated roads, limiting operations during periods of heavy rains and wet soils, and retiring unnecessary roads and fire breaks.

Based on the Fort's continued efforts to reduce erosion, no significant cumulative impacts to the Installation or regional topography, geology, or soils are anticipated. Proposed projects are planned to utilize existing developed/disturbed land. Erosion control methods and BMPs during any new construction would limit the amount of soil disturbance. All construction activities would be short term, and any associated impacts would be temporary. Site-specific stormwater controls designed for each project would minimize the potential for a contribution to cumulative impacts.

3.3 Hydrology and Water Resources

3.3.1 Affected Environment

Floodplains

Floodplains within Fort Huachuca are not represented on Federal Emergency Management Agency maps. However, available data indicates that an unofficial network of floodplains surrounds the main developed portion of the cantonment area, most being open space, training, or recreation areas. The RPMP identifies the need for an updated study and delineation of floodplains so appropriate avoidance and mitigation measures can be taken within affected areas to prevent issues with land development.

Groundwater

The Arizona Department of Water Resources has divided the USPB into subwatersheds to better define and manage available water resources. Fort Huachuca, Sierra Vista, and most of the San Pedro Riparian National Conservation Area (SPRNCA) occur within the Sierra Vista subwatershed (USAGFH 2004).

Groundwater within the USPB is potable. Wells within the basin are used to meet all the water needs of the communities within the basin. In an effort to reduce the impacts associated with regional groundwater withdrawal, Fort Huachuca has implemented a broad spectrum of water conservation, recharge, and reuse measures.

Fort Huachuca has reduced pumping of groundwater on the fort by more than 60 percent since 1995 despite increases in personnel living and working of the Fort. The Installation pumps approximately 1,000 acre-feet of water per year. Fort Huachuca accomplished the on-post water conservation by implementing a water conservation policy for all water use on the installation including residents. Measures that the Fort has implemented to accomplish water efficiency and savings include fixture upgrades (e.g. replacement of high water use plumbing fixtures with low water use fixtures), facility infrastructure removal/consolidation (e.g. demolition of facilities), aggressive leak detection and repair, water conservation education, xeriscaping including the use of artificial turf and replacing turf areas with gravel and implementation of a strict landscaping watering policy in the military family housing area.

The Fort has entered into agreements and partnerships with other groups and agencies for the purpose of reducing water use in the USPB. Agricultural pumping has decreased as a result of the retirement of agriculture associated with creation of the SPRNCA and through the purchase of conservation easements by Fort Huachuca in partnership with The Nature Conservancy and Cochise County. In addition, Fort Huachuca is an active member of the Upper San Pedro Partnership (USPP), a consortium of 21 agencies that collaborates to meet water needs in the region while protecting the San Pedro River (USPP 2014). All of these water conservation measures and projects result in a savings of approximately 7,879 acre-feet per year (USAGFH 2014).

Surface Water

Fort Huachuca occurs within the Sierra Vista subwatershed of the USPB (USGS Cataloging Unit: 15050202). The headwaters of the San Pedro River are located in Mexico. The river flows north through Arizona for approximately 100 miles before converging with the Gila River. The SPRNCA encompasses approximately 40 miles of the Upper San Pedro River (USACE 2008). To the north of Fort Huachuca is the Babocomari River. This river drains the Mustang Mountains, Canelo Hills, and the north end of the Huachuca Mountains and carries this water to its confluence with the San Pedro River.

A majority of the surface water features on Fort Huachuca are ephemeral streams that consist of dry washes, arroyos, or continuous and discontinuous gullies. Ephemeral streams are usually dry and only flow in response to precipitation that is significant enough to achieve runoff conditions. Ephemeral streams on Fort Huachuca are typically narrow channels with a sand and gravel layer at the bottom of the channel. Some of these channels are deeply entrenched. The channels serve to carry runoff to larger drainage systems (USAGFH 2000).

Fort Huachuca has approximately 4.5 miles of perennial streams, 3.5 miles that occur in Garden Canyon and another 0.75 mile in Huachuca Canyon. Minor lengths of perennial reaches also occur in McClure and Blacktail Canyons. In addition, there are 16 ponds covering approximately 32 acres on Fort Huachuca. The perennial streams are typically fed by one or more of the Installation's 39 springs (USACE 2008). Most of the ponds are dry and only retain water during heavy rains. No surface water is used to meet Fort Huachuca's water needs.

The alluvial fans south of the Babocomari River Valley within the West Range are dissected by three major drainages: Blacktail Canyon, Slaughterhouse Canyon and Huachuca Canyon. Within the East Range, the primary drainage is Soldier Creek. These drainages are intermittent and flow in response to rainfall. Huachuca Canyon Creek serves as a major stormwater interceptor for Huachuca Canyon and the Fort's cantonment area (USAGFH 2004). Figure 3-4 depicts the surface waters located on Fort Huachuca.

3.3.2 Environmental Consequences

Alternative One (Preferred Alternative)

No significant adverse impacts to floodplains, groundwater, or surface water are anticipated as a result of implementing the Preferred Alternative. Some minor beneficial impacts to groundwater pumping may occur as new permanent structures with better water conservation technologies replace temporary or older permanent facilities. Some long-term beneficial impacts to water quality are also anticipated as a result of the Preferred Alternative, as new construction would meet Leadership in Energy and Environmental Design (LEED) Silver standards, including green building stormwater design. Improved stormwater designs would reduce impervious surface, increase on-site infiltration, and minimize or eliminate pollution from contaminated stormwater runoff.

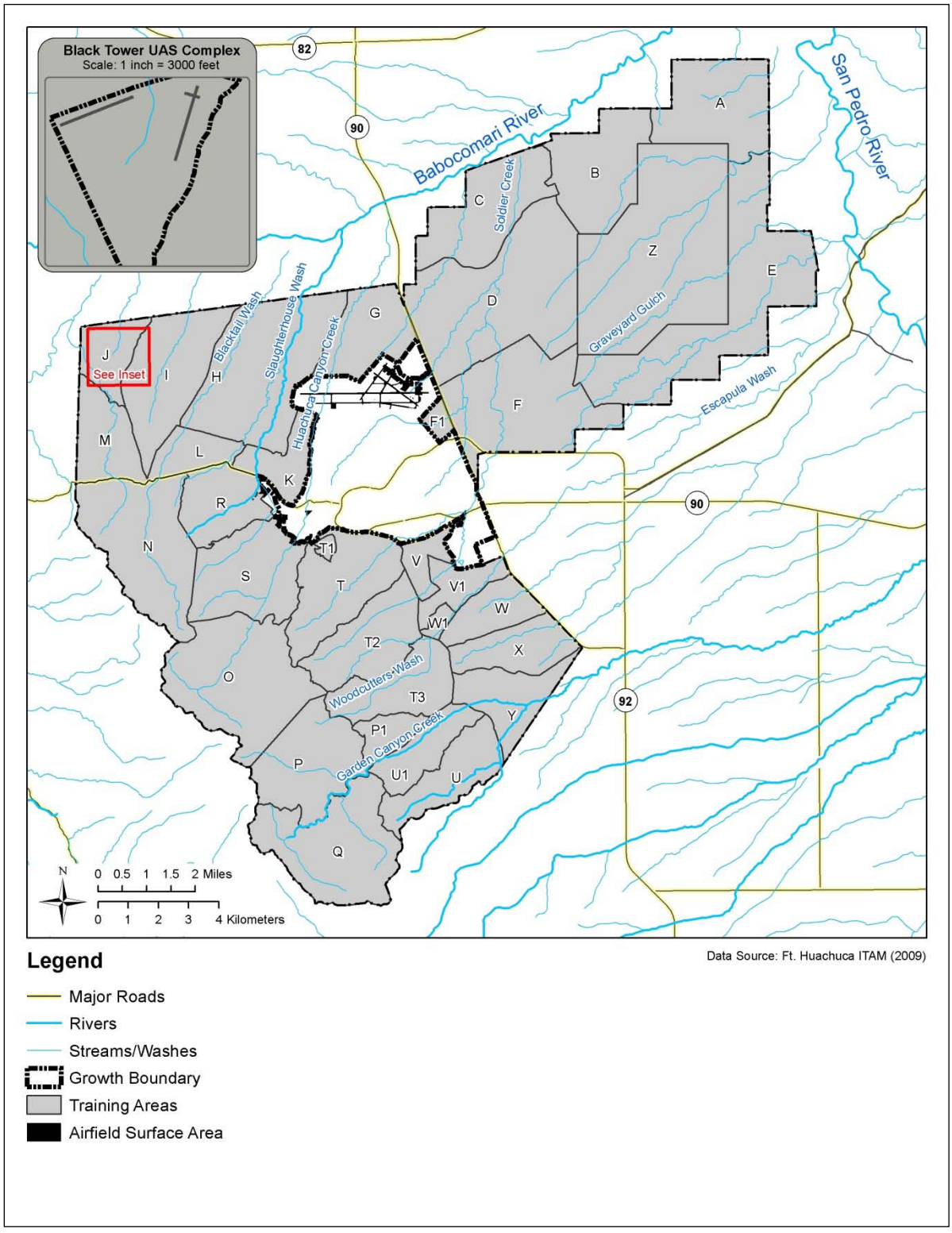

Figure 3-4. Surface Waters on Fort Huachuca

The RPMP identifies that development within any floodplain should be avoided and mitigated if necessary. During project planning, should all or portions of the proposed project site be determined to be within a floodplain, necessary mitigation measures will be implemented. Therefore, the Preferred Alternative is not anticipated to result in any significant impacts to floodplains.

Surface application of water may be used as a dust palliative for projects that require ground disturbance during construction. This impact would be minor in context and intensity. The application of water would discontinue at the end of the earthmoving phase of construction and consequently the impact would also cease. Only a minor temporary direct impact on groundwater would occur as a result of using water to suppress dust during the earthwork portion of construction.

Development of a Stormwater Pollution Prevention Plan and use of BMPs would minimize potential impacts to surface water resources resulting from grading and earthwork that would occur during construction. The BMPs would reduce stormwater runoff and the transport of sediments from the construction sites into receiving bodies of water.

Construction will comply with the DA's Memorandum for *Managing Stormwater with Low Impact of Development,* which requires that all new facilities mitigate potential flooding and erosion and provide safe and efficient collection and control of stormwater at the site of development. Site development for all projects of 5,000 square feet or greater shall retain predevelopment site hydrology in accordance with Energy and Independence Security Act 2007, Section 438, and Technical Guidance UFC 3-210-10.

Alternative Two

Implementation of Alternative Two would be expected to have similar impacts as the Preferred Alternative. The individual project's scope and location may result in slight variations of the impacts associated with Alternative One. However, impacts would still be expected to be less than significant by implementing previously described BMPs.

Alternative Three

Under Alternative Three, projects may be sited outside of the RPMP's specified growth boundaries. However, all projects would be evaluated individually to ensure that project design was compatible with site hydrology and water resources. Projects consistent with the RPMP would not be expected to result in any significant adverse impacts to hydrology or water resources.

No Action Alternative

There would be no significant impacts to hydrology or water resources under the No Action Alternative. Projects would continue to proceed under the existing RPMP and planning process, which provides for water conservation measures.

Cumulative Impacts

No cumulative impacts to water resources are anticipated to occur as a result of any of the alternatives. The potential for short-term surface water quality changes during construction of the proposed projects could combine with other impacts to surface water quality already occurring on the Installation, such as erosion. Given the short duration of the added impact, it is unlikely that the effect of the temporary change in water quality will result in any lasting damage to the surface water system.

3.4 Biological Resources

3.4.1 Affected Environment

Vegetation

The 12 plant communities documented on Fort Huachuca vary according to gradient, moisture regime, and elevation. These communities consist of shrubland, open grassland, mesquite-grass savanna, oak-grass savanna, pine woodlands, mesquite woodlands, oak woodlands, mixed woodlands, deciduous woodlands, mahogany woodlands, pinyon-juniper woodlands, and urban and built land (U.S. Army Intelligence Center and USAGFH 2006). Development across southeastern Arizona has increased grassland fragmentation and conversion, while fire suppression has allowed shrub encroachment onto the landscape. Grasslands in the region have been steadily converted to shrublands and woodlands. As a result, much of what were semidesert grasslands now appear and function as shrublands (USAGFH 2005). The cantonment area has had a long history of disturbance. Portions of the cantonment area and Black Tower UAS Complex that are not considered urban or built-up land consist of grassland and shrubland.

Wildlife

A variety of fauna including mammals, reptiles, birds, fish, amphibians, and invertebrates are present at Fort Huachuca. Of the almost 500 species of birds found in southeast Arizona, approximately 313 species occur on Fort Huachuca (Ireland 1981, Taylor et al. 1995).

Approximately 18 species of reptiles, 18 species of small terrestrial mammals, 5 species of large mammals, 18 species of bats, 6 species of amphibians, and more than 180 species of invertebrates have been documented on Fort Huachuca (Bailowitz and Upson 1997, USAGFH 2010b). Nonnative fish are the only fish species that have been documented on Fort Huachuca since 1893 due to stocking and introductions for recreational fishing.

Special Status Species

The Endangered Species Act (ESA) protects federally listed animal and plant species and their critical habitats. The U.S. Fish and Wildlife Service (USFWS) maintains a listing of species that are considered threatened, endangered, proposed, or candidates under the ESA. An endangered species is defined as any species in danger of extinction throughout all or a

significant portion of its range. A threatened species is defined as any species likely to become an endangered species in the foreseeable future. Candidate species are those that the USFWS has enough information on file to propose listing as threatened or endangered, but listing has been precluded by other agency priorities. Although Fort Huachuca is not required by the ESA to consider candidate species, Army Regulation (AR) 200-1 requires the Army to consider candidate species in all actions that may affect them. The Bald and Golden Eagle Protection Act provides federal protection to bald and golden eagles, including their parts, nests, or eggs.

Ten federally protected species have been documented on Fort Huachuca:

- Federal candidate species, including the Arizona treefrog (*Hyla wrightorum*) and Huachuca springsnail (*Pyrgulopsis thompsoni*);
- The federally proposed threatened yellow-billed cuckoo (*Coccyzus americanus*);
- The federally threatened Mexican spotted owl (*Strix occidentalis lucida*), Northern Mexican gartersnake (*Thamnophis eques magelops*), and Chiricahua leopard frog (*Lithobates chiricahuensis*); and
- The federally endangered Huachuca water umbel (*Lilaeopsis schaffneriana* var*. recurva*), ocelot (*Leopardus pardalis*), Sonora tiger salamander (*Ambystoma tigrinum stebbinsi*), and the migratory lesser long-nosed bat (*Leptonycteris yerbabuenae*).

Parry's or Palmer's agaves (*Agave parryi* and *A. palmeri*) occur sporadically throughout certain sections of the cantonment area. Agave are a major food source for the federally endangered migratory lesser long-nosed bat, which is known to roost from July to November on Fort Huachuca. Fort Huachuca is located within the lesser long-nosed bat's migratory corridor, which is used during the southward seasonal movement of post-maternity disbursal of juveniles and adult females. With its favored food source present, this federally protected species has the potential to occur in areas sited for proposed projects, foraging at night when agaves are flowering, primarily from July through November (USAGFH 2010a).

The 2010 Integrated Natural Resources Management Plan helps Fort Huachuca comply with federal and state laws, including laws associated with environmental documentation, wetlands, special-status species and wildlife management, by coordinating policy and program implementation (USAGFH 2010a).

Habitat for Protected Species

Critical habitat is a specific geographic area deemed essential for the conservation of a threatened or endangered species and may require specific management and protection. Critical habitat may include areas that are not currently occupied by the species but are needed for its recovery (USFWS 2014). On-post, 3.8 miles of critical habitat is designated for Huachuca water umbel (HWU) in the Garden Canyon watershed.

Eleven Mexican spotted owl (MSO) Protected Activity Centers (PACs) on Fort Huachuca encompass approximately 6,729 acres of high quality MSO habitat that is currently occupied by owls, or that was occupied in the recent past. PACs will generally incorporate nest sites, several

roost sites, and highly used foraging areas. The intention of the creation of these PACs was not to permanently set aside these lands, but to protect this habitat until it can be demonstrated that quality replaceable habitat can be created through active management (USFWS 1995).

Lesser long-nosed bats (LLNBs) feed solely upon the pollen and nectar of Palmer's agave late in the summer after saguaro and organ pipe cactus stop flowering. It is their only source of food in the United States in the late summer and early fall (Sidner 2006). Fort Huachuca created Agave Management Areas (AMAs) in the 1990s to protect the feeding habitat of the endangered LLNB. AMAs are located on the South and West Ranges where abundant Palmer's agave stands are found. Maintaining a sufficient number of self-sustaining natural populations of Palmer's agave is a primary goal of AMAs (USAGFH 2010b). AMAs totaling 6,209 acres are identified on-post.

Wetlands and Aquatic Habitat

The U.S. Congress enacted the Clean Water Act (CWA) in 1972 to restore and maintain the chemical, physical, and biological integrity of the nation's waters (Title 33 United States Code Section 1251 [33 USC 1251], et seq.). Section 404 of the CWA delegates jurisdictional authority over wetlands to the USACE and the U.S. Environmental Protection Agency (EPA).

Fort Huachuca contains 64 acres of wetlands and 770 acres of riparian habitat that are protected by the CWA (USACE 2008). The acreage amounts to 1 percent of the Installation's total area. The predominant types of the wetlands on Fort Huachuca are palustrine unconsolidated bottom wetlands (42 acres) and palustrine emergent wetlands (13 acres). The predominant riparian type is emergent alkali sacaton (188 acres). Garden, Huachuca, and McClure canyons support most of the riparian habitat on Fort Huachuca.

3.4.2 Environmental Consequences

Alternative One (Preferred Alternative)

Implementation of the Preferred Alternative is anticipated to result in less than significant direct and indirect impacts to biological resources. Some of the Preferred Alternative's proposed projects will require the clearance of vegetation. However, once construction is complete, all remaining disturbed areas will be reseeded with native grasses or otherwise stabilized. Construction equipment has the potential to bring invasive plant species to the construction site; however, proper equipment cleaning and use, and post-disturbance treatment will mitigate the extent of the impact. Therefore, impacts to vegetation will be short term and would not result in any long-term negative effects.

Construction activities will have short-term effects on wildlife that use the site, as they may be deterred by the equipment and vehicles. However, given the temporary nature of those impacts, they are expected to be less than significant.

Protection areas for agave stands, in the form of AMAs, have been designated on Fort Huachuca to protect this vital food source for the lesser long-nosed bats. None of the AMAs are

located within the cantonment area growth boundary. Portions of AMAs do occur within the Black Tower UAS Complex growth boundary. However, there are no proposed projects in or immediately adjacent to the AMAs, and no impacts are anticipated.

Growth at the Black Tower Complex may result in minor adverse impacts to wildlife, including the lesser long-nosed bat, because of the increase in the amount of lighting associated with proposed construction in this remote area. However, these impacts would be expected to be less than significant, because new construction would comply with the lighting guidelines set forth in the Installation's Planning Standards, which meets "dark sky" compliance standards. Light pollution would be minimized as much as possible, without compromising mission, safety, or security.

None of the other special status species on Fort Huachuca are expected to occur within any of the proposed project sites. Fort Huachuca does not contain suitable nesting habitat for the bald eagle, the southwestern willow flycatcher, or the yellow-billed cuckoo; therefore the Preferred Alternative is not likely to impact these species. Habitat for Huachuca springsnail, Chiricahua leopard frogs, Arizona treefrogs, Mexican spotted owl, Sonora tiger salamander, Huachuca water umbel, ocelot, and Northern Mexican garter snake does not occur within any of the proposed project sites. Therefore, no impacts to these species are anticipated.

The Migratory Bird Treaty Act of 1918 (6 USC 703-712) as amended makes it illegal to take and possess any migratory bird, or parts, nests, or eggs of a bird except under the terms of a valid permit from the USFWS. Migratory birds protected by this act may occur on proposed project sites, and the Preferred Alternative is expected to have minor impacts to these species and their habitat. Loss of foraging and nesting habitat is expected occur, but the impact will not be significant since the acreage of lost habitat is small within the entire breeding range of these species. To avoid "take" of migratory species and their nests, it is recommended that vegetation clearing prior to construction be done during the nonbreeding season for grassland bird species known to occur on Fort Huachuca (October through March). If vegetation clearing occurs during the breeding season, a preconstruction survey will be necessary. If nesting migratory birds are found in the area to be cleared and "take" is anticipated, the Fort will consult with the USFWS Division of Migratory Bird Management.

Alternative Two

Implementation of Alternative Two would be expected to have similar impacts as Alternative One. The individual project's scope and location may result in slight variations of the impacts associated with Alternative One. However, impacts would still be expected to be less than significant since as all projects would be confined within the cantonment area and Black Tower Complex growth boundaries.

Alternative Three

Although implementation of Alternative Three could result in development outside of the cantonment area and Black Tower UAS Complex growth boundaries, no significant impacts

would be anticipated. All projects would be reviewed by the Installation's Environmental and Natural Resources Division (ENRD) during the planning process. All appropriate coordination and any necessary mitigation would be completed prior to the start of the project, thereby eliminating or limiting any adverse impacts to biological resources. One of the goals of the RPMP's sustainable planning is to protect and conserve the natural environment. Following the guidelines of the RPMP, any adverse impacts to biological resources would be expected to be less than significant.

No Action Alternative

Under the No Action Alternative, no direct adversely impacts biological resources would be expected.

Cumulative Impacts

Threats to regional biological resources resulting from the conversion of rangelands to residential and commercial uses are expected to continue in and around Fort Huachuca. Several federal and state agencies and numerous nongovernmental organizations are active in the protection and conservation of special status and wildlife species in the area. Fort Huachuca is committed to the stewardship of biological resources on post and off post and is actively engaged in regional partnerships to mitigate potential impacts resulting from its ongoing mission.

The Fort's Integrated Natural Resources Management Plan provides benefits to biological resources from habitat restoration and enhancement, removal of nonnative species, buffers, and cooperative agreements with conservation agencies and organizations. The Fort has partnered with The Nature Conservancy and the Bureau of Land Management to purchase conservation easements, including 63,776 acres of grasslands, through the Army Compatible Use Buffer Program to assist the Fort in implementing endangered species management as well as recovery programs on the Fort and within the SPRNCA and the Sierra Vista subwatershed (Rohr 2014 and USAGFH 2010b). The Nature Conservancy and Fort Huachuca have worked successfully in the past to buy conservation easements to reduce regional groundwater pumping and development and preserve traditional land uses (USACE 2008).

Given the sustainable planning guidelines in the RPMP, other management plans, and partnerships, overall positive cumulative impacts to biological resources are anticipated with the implementation of the Preferred Alternative.

3.5 Cultural Resources

3.5.1 Affected Environment

Cultural resources is a broad term that includes all aspects of human activities, including material remains of the past and the beliefs, traditions, rituals, and cultures of the present. As mandated by law, all federal installations and personnel must participate in the preservation and stewardship of archaeological and cultural resources and must consider potential impacts to

these resources prior to any installation undertaking. Resources include historic properties as defined by the National Historic Preservation Act, cultural items as defined by the Native American Graves Protection and Repatriation Act, archaeological resources as defined by the Archaeological Resources Protection Act, sacred sites as defined by Executive Order 13007 to which access is provided under the American Indian Religious Freedom Act, significant paleontological items as described by 16 USC 431-433 (Antiquities Act of 1906) and collections as defined in 36 CFR 79, *Curation of Federally Owned and Administrated Archaeological Collections* (DA 2007).

The National Historic Preservation Act of 1966 and AR 200-1 constrain land uses and development where cultural resources are affected. The Fort Huachuca Integrated Cultural Resources Management Plan (ICRMP), dated July 2008, guides the Installation's Cultural Resources Management Program. Specific guidance and procedures for managing and maintaining historic buildings is provided in Technical Manual 5-801-1, *Historic Preservation Administrative Procedures,* and Technical Manual 5-801-2, *Historic Preservation Maintenance Procedures.*

The ICRMP indicates that 53,414 acres of the Fort has been surveyed for prehistoric and archaeological sites. Surveys have identified 426 archaeological sites, consisting of 3 paleontological sites, 273 prehistoric sites, 84 historic period sites, 46 multicomponent sites and 20 undated sites. The "Old Post" of Fort Huachuca is listed in the National Register of Historic Places (NRHP) and as a National Historic Landmark (NHL) District. The "Old Post" area includes 57 acres and contains 86 buildings, two sites and two structures. There are 122 buildings located outside of the NHL that are considered historic. Five sacred sites have been identified on Fort Huachuca by federally recognized Indian tribes, including: the Garden Canyon Site, the Garden Canyon Pictographs Site, the Rappel Cliffs Rockshelter Site, the Apache Flats and the Apache Scout Camp (USAGFH 2007). These surveys account for approximately two-thirds of the Installation. Therefore, additional surveys are necessary in some areas.

Fort Huachuca is steward to an abundance of cultural and archaeological resources. Implementation of the ICRMP ensures that current management complies with applicable laws and regulations and effectively combines with public interests to promulgate a plan of action that sacrifices neither the integrity of the Installation's mission nor that of the archeological and cultural resources. Many requirements include consultation with affected parties before a planned action, as well as allowing maximum time for treatment efforts, alternative plans, or avoidance actions to be implemented. Determination of effects and decisions regarding appropriate treatment are specific to individual actions.

3.5.2 Environmental Consequences

Alternative One (Preferred Alternative)

Implementation of the Preferred Alternative is not anticipated to adversely affect any historical or archaeological resources. All proposed projects would be conducted following the standard operating procedures identified in the Fort Huachuca ICRMP. Proposed projects would be

evaluated on an individual basis to ensure compliance with the National Historic Preservation Act. Any project determined to affect known historic or archaeological resources will include appropriate coordination or consultation with the State Historic Preservation Office (SHPO), Tribes, other applicable agencies, and interested parties. Should previously undiscovered archaeological materials be encountered during construction or operation, work will cease and the site will be protected until an evaluation has been completed. Additionally, all projects within the NHL District would comply with standards set forth in *The Secretary of the Interior's Standards for Rehabilitation and Guidelines for Rehabilitating Historic Buildings*, published by the U.S. Department of the Interior.

Alternative Two

Implementation of Alternative Two would be expected to have similar impacts as the Preferred Alternative. The individual project's scope and location may result in slight variations of the impacts associated with Alternative One. However, impacts would still be expected to be less than significant since as all projects would be confined within the cantonment area and Black Tower Complex growth boundaries.

Alternative Three

Implementation of Alternative Three would be expected to have similar impacts as the Preferred Alternative.

No Action Alternative

The No Action Alternative would not result in any significant impacts to cultural resources. Projects would continue to be implemented under the existing RPMP and would be subject to a review of cultural resources during the planning stages.

Cumulative Impacts

The Sierra Vista and San Pedro River basins have a rich and diverse cultural history. Numerous cultural sites have been identified, many of which are located on and protected by Fort Huachuca. Many of these sites and properties are currently being preserved as well as registered through national programs. Within Fort Huachuca, the ICRMP and the SHPO dictate the treatment and preservation of all cultural resources. Based on the available data, there are no projected projects that would contribute to an increased potential for cumulative impacts. Therefore, cumulative impacts to cultural resources/historic properties are not significant.

3.6 Air Quality

3.6.1 Affected Environment

An air quality region is either in "attainment" or "nonattainment" of the National Ambient Air Quality Standards (NAAQS) established under the Clean Air Act. Depending on the pollutant

and averaging time, nonattainment status is classified as extreme, severe, serious, moderate, marginal, or submarginal (listed from most significant to least significant).

Fort Huachuca is located in the Southeast Arizona Air Quality Control Region, which includes Cochise, Graham, Greenlee, and Santa Cruz counties. The region benefits from favorable wind patterns and a lack of major pollutant sources (e.g., heavy industry and fossil fuel power plants) (Joint Interoperability Test Command 2004). As a result, Fort Huachuca and the immediate vicinity lie within an attainment area for all NAAQS and is not subject to a General Conformity Analysis, which only applies to federal actions on property that lies within a nonattainment area.

Greenhouse Gases

The EPA made an endangerment finding stating that "current and projected concentrations of the six key well-mixed greenhouse gases (GHGs) (carbon dioxide, methane, nitrous oxide, hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride) in the atmosphere threaten the public health and welfare of current and future generations" (EPA 2011). This finding has opened the door for the regulation of GHG emissions published in 75 Federal Register (FR) 31514 (3 June 2010), which led to what is known as the prevention of significant deterioration (PSD) and Title V GHG Tailoring Rule (FR 2010). For the purposes of PSD and Title V, this rule has set a major source emission threshold of either 75,000 or 100,000 tons per year (tpy) of carbon dioxide equivalent (CO_2e) depending upon circumstances (FR 2010).

In addition, on 22 September 2009, the Administrator of the EPA signed the Final Mandatory Reporting of the GHG Rule, known as the Mandatory Reporting Rule (MRR). The final rule was published in 40 CFR 98 on 30 October 2009. The final rule requires reporting of GHG emissions from identified stationary sources that emit 25,000 metric tons of CO_2e or more per year.

Fort Huachuca emits GHGs. Based on the data in the Installation's most recent air emissions inventory, it is unlikely that the Fort will meet the emission thresholds outlined in the Tailoring Rule as it relates to permitting, or the 25,000 tpy threshold established by the MRR as it relates only to reporting. The MRR also establishes an emissions calculation to estimate the emissions for general stationary fuel-combustion sources, including boilers, heating units, and water heaters. It is assumed that the Fort's heating units will produce most GHG emissions emanating from the Installation. Based on the amount of natural gas Fort Huachuca uses to fire its heating units, approximately 13,400 tpy of CO_2e will be emitted. While this doesn't include all the GHG emissions generated by Fort Huachuca, the combination of all other sources is insignificant in comparison.

3.6.2 Environmental Consequences

Alternative One (Preferred Alternative)

Implementation of the Preferred Alternative is not anticipated to result in any significant adverse impacts to local or regional air quality. In fact, some proposed projects would result in a long-term beneficial indirect impact by reducing the demand for energy from outside sources, which

is primarily produced by nonsustainable resources, such as fossil fuels. For example, the energy produced by the proposed solar array system would reduce air emissions produced during generation of electricity used at traditional power plants, including nitrogen oxides (NO_x), sulfur dioxide (SO_2), particulates, and GHGs such as carbon monoxide (CO) and methane. Solar energy systems produce no air pollution or GHGs.

Construction activities associated with the proposed projects would result in emissions of vehicle exhaust from construction equipment and construction personnel vehicles. The limited use of these construction vehicles and equipment is not anticipated to impact regional or local air quality conditions. Air emissions are not expected to exceed *de minimis* threshold levels or contribute emissions in violation of any federal, state, or local air quality regulations.

Dust emissions during construction of some of the proposed projects would consist primarily of large particles that generally settle on nearby surfaces rather than becoming airborne for any great distance. Fugitive dust control shall be employed in accordance with the Arizona Administrative Code. Methods shall be recorded and reported by construction contractors to the Fort's Air Quality Control Program on a monthly basis. Emissions resulting from construction will be short term and cease at the end of construction. Given the short duration and use of measures to minimize emissions, the potential impact will be less than significant.

The renewable energy projects proposed for construction would result in long-term beneficial impacts to regional air quality due to the reduction in the amount of fossil fuels used for energy production from as far away as Tucson. Additionally, the proposed improvements to the public transit network and reconfiguration of the road networks to better accommodate bicycle and pedestrian traffic would reduce the high dependence on personal motorized vehicles. The reduction of motorized vehicles would result in fewer emissions on the Installation.

Alternative Two

Implementation of Alternative Two would be expected to have similar impacts as the Preferred Alternative.

Alternative Three

Implementation of Alternative Three would be expected to have similar impacts as the Preferred Alternative related to new facilities operational emissions. However, greater short-term impacts would be expected, because development spread out in more remote locations of the Installation would require traffic traveling to/from construction sites to commute further distances and use more unpaved roads, which would increase the amount of dust and require more dust suppression. Additionally, it would likely require the use of generators, since electrical connections are not available in much of the area outside of the cantonment area and Black Tower UAS Complex growth boundaries. The generators would increase the amount of construction-related emissions.

No Action Alternative

The No Action Alternative would not result in significant impacts to local or regional air quality. Projects would continue to be implemented in accordance with the existing RPMP and air quality impacts would be reviewed as part of the planning process.

Cumulative Impacts

Construction activities will result in minor, temporary adverse impacts to local air quality, and will not be likely to significantly affect regional air quality, even when combined with other past or future actions. For most projects, these transient impacts will not be noticed off the Installation.

The proposed improvements to the public transit network and reconfiguration of the road networks to better accommodate bicycle and pedestrian traffic would reduce the high dependence on personal motorized vehicles. The reduction of motorized vehicles would result in fewer emissions and thereby provide beneficial impacts to local and regional air quality.

Beneficial minor but regional cumulative impacts to air quality are anticipated from the Preferred Alternative as a result of the mandatory nationwide increase in the use of renewable energy sources within the federal government. The combined reduction in the use of energy generated by traditional sources using fossil fuels throughout the federal government would be expected to reduce the air emissions produced during generation of the electricity used at traditional power plants, including NO_x, SO_2, particulates, and GHGs such as CO and methane. Additionally, reseeding the project site with native grasses, combined with the Fort's ongoing efforts to reestablish native grasslands on several of the ranges on the Installation, will result in a beneficial impact to air quality.

3.7 Noise

3.7.1 Affected Environment

Noise, by definition, is sound that is loud or unpleasant or that causes a disturbance. When sound interrupts daily activities such as sleeping or conversation, it becomes noise. The degree to which noise will become disruptive is dependent on the way that it is perceived by the people (receptors) living or working in the affected area. Noise is measured in decibels (dB) with zero being least perceptible sound to more than 130 dB at which noise becomes a health hazard. Because the human ear is more sensitive to certain ranges of the sound spectrum, a weighted scale has been developed to more accurately reflect what the human ear perceives. These measurements are adjusted into units known as A-weighted decibels (dBA) (USAGFH 2000).

According to AR 200-1 (DA 2007), sensitivity to noise varies by the time of day, with receptors being more sensitive at night. To reflect this sensitivity, ambient noise measurements are normally adjusted by adding 10 dB to actual measurements between the hours of 2200 and 0700. Decibel levels adjusted in this way are known as day-night decibel (Ldn) measurements. Averaging noise levels over a protracted time period does not generally adequately assess the probability of noise complaints coming from receptors in the nearby community. Therefore, the

risk of noise complaints from large caliber impulsive noise resulting from testing and training activities (e.g., machine guns, mortars and demolition activities), in terms of either peak sound pressure level (PK 15 (met)) or C-weighted day-night level (CDNL) must also be assessed (DA 2007).

Chapter 14 of AR 200-1 (DA 2007) outlines the major goals of the Army's noise program, which include:

a. Control operational noise to protect the health and welfare of people, on- and off- post, impacted by all Army produced noise, including on- and off-post noise sources.
b. Reduce community annoyance from operational noise to the extent feasible, consistent with Army training and materiel testing mission requirements.
c. Actively engage local communities in land use planning in areas subject to high levels of operational noise and a high potential for noise complaints.

Activities that have the potential to produce noise at Fort Huachuca include construction, military and private vehicle use, aircraft operations, weapons discharge, and dismounted training (USACE 2008).

Military vehicles use a mixture of public roads, on-post roads, and military vehicle trails and vehicle type and speed influence noise levels produced. Vehicle speeds are relatively low on unpaved roads during vehicle maneuvers. Noise levels generated by high-mobility multipurpose wheeled vehicles and two-axle military trucks are comparable to noise from medium trucks (about 65 to 70 dBA at 50 feet). Multi-axle heavy trucks would generate noise levels comparable to other heavy duty trucks (about 78 to 80 dBA at 50 feet). On average, peak noise levels drop by 15 dBA at a distance of 500 feet from the travel path (USACE 2008).

3.7.2 Environmental Consequences

Alternative One (Preferred Alternative)

The implementation of the Preferred Alternative would have little impact on sensitive noise receptors on or off Fort Huachuca. Construction projects identified within the RPMP would occur within the cantonment area and Black Tower UAS Complex growth boundaries. Construction noise would be perceived by more people given the proximity to schools, residences, and administrative land uses in these areas. However, the proposed developments identified in the RPMP would be constructed over time, minimizing the potential for multiple construction projects to occur in the same area simultaneously. Further, many of the proposed development projects are located in outlying areas within the cantonment area growth boundary. Construction would be performed during daylight hours when noise tolerance is greatest. The noise impacts associated with the implementation of the RPMP are anticipated to be temporary in duration and minor in context and intensity.

Operational noise associated with the RPMP's proposed projects is not anticipated to result in any significant impacts. DoD Instruction (I) 4165.57 provides direction on Air Installations

Compatible Use Zones (AICUZ) and directs the Army to apply Operational Noise Management Program day-night average sound level designations. The RPMP provides a detailed land use compatibility matrix and recommendations for Fort Huachuca personnel to use for project planning and to engage with local governments to foster compatible land use development. None of the proposed projects are anticipated to generate noise at levels that would be incompatible within the Black Tower UAS Complex or cantonment area growth boundaries.

Alternative Two

Implementation of Alternative Two would be expected to have similar impacts as the Preferred Alternative. The individual project's scope and location may result in slight variations of the impacts associated with Alternative One. However, impacts would still be expected to be less than significant since as all projects would be confined within the cantonment area and Black Tower Complex growth boundaries.

Alternative Three

Implementation of Alternative Three would be expected to have similar impacts as the Preferred Alternative. The minor impacts to the noise environment may be less noticeable than with the Preferred Alternative if projects are located outside of the cantonment area and Black Tower UAS Complex growth boundaries, because noise receptors would be farther away from the source of the noise.

No Action Alternative

Under the No Action Alternative, no significant impacts to the noise environment would be expected. Current operations and future projects would be subject to the existing RPMP and noise impacts would be evaluated during the project planning process.

Cumulative Impacts

Construction-related noise generated by the implementation of the Preferred Alternative will be temporary and minor in context and intensity. Other activities at Fort Huachuca that generate noise include aircraft operations, training noise, and vehicle noise associated with training and general traffic. Construction noise and noise from other sources attenuate within short distances of the source. While small surges in noise may occur when, for example, an aircraft passes over a construction site, the average noise levels will not be anticipated to exceed acceptable thresholds (greater than 65 Ldn) for nearby sensitive receivers. The combined noise may result in a temporary annoyance during a surge, but will be less than significant given the short duration.

3.8 Visual Resources

3.8.1 Affected Environment

Much of Fort Huachuca consists of open space and areas of natural habitat that provide an aesthetically pleasing landscape from both within and outside the Installation boundaries.

The cantonment area is the primary urban core of the Installation and includes housing, commercial districts, recreation areas, open space, community facilities and support services, and utility infrastructure (USACE 2008). Approximately 110 acres in the cantonment area are dedicated to the “Old Post Area,” which is designated as a NHL. There are many significant buildings in the Historic District, including the Pershing House, an adobe building constructed in 1884; the Post Commander's quarters; the "Old Post" Barracks, built in 1882-1883; Leonard Wood Hall, a large two-storied building used as the hospital; and the Fort Huachuca Historical Museum, an adobe and stone building originally used as the post chapel (National Park Service 2014).

The Black Tower UAS Complex is in a remote area of the West Range and has far less visibility than the cantonment area, as it is surrounded by undeveloped land. Development on the Installation is guided by the Installation Planning Standards to ensure that buildings and structures are uniform in construction and conform to the overall aesthetics of the area.

3.8.2 Environmental Consequences

Alternative One (Preferred Alternative)

Fort Huachuca’s commitment to sustaining the environment includes preserving the natural beauty of the Installation and viewscape of the Huachuca Mountains. Under the Preferred Alternative, minor, short-term adverse impacts to visual quality within Fort Huachuca would result from proposed construction, renovation, and demolition projects outlined in the RPMP. However, in time, a long-term beneficial impact to the visual quality within the Installation would occur due to the development of updated structures in accordance with the Installation Planning Standards of the RPMP. During construction, fencing, equipment, staging and debris would dominate the construction and staging areas. This would result in a temporary decrease in the visual experience that is limited in extent. The proposed projects are sited in the cantonment area growth boundary, which is already developed, and within the area of the Black Tower UAS Complex growth boundary that is already developed.

Growth at the Black Tower Complex may result in minor adverse impacts because of the increase in the amount of lighting associated with proposed construction in this remote area. However, these impacts would be expected to be less than significant, because new construction would comply with the lighting guidelines set forth in the Installation’s Planning Standards, which meets “dark sky” compliance standards. Light pollution would be minimized as much as possible, without compromising mission, safety, or security.

Alternative Two

Implementation of Alternative Two would be expected to have similar impacts as the Preferred Alternative. However, since projects would not be encouraged to locate near or within existing mission areas, prioritize facility reuse opportunities, and preference would not be given to development in areas within 0.25 mile of the primary transportation loop network, there may be

a slight variation in impacts. The individual project's scope and location may result in less beneficial impacts than Alternative One.

Alternative Three

Implementation of Alternative Three may result in more significant impacts to visual resources, because proposed projects would not be confined to the cantonment area and Black Tower UAS Complex growth boundaries. New construction in undeveloped areas, would likely create long-term, adverse impacts, and the extent of those impacts would be relative to the individual project location.

No Action Alternative

The No Action Alternative would not result in any significant impacts to visual resources. Projects would be implemented under the existing RPMP and visual impacts would be evaluated during the environmental review process.

Cumulative Impacts

The Preferred Alternative, combined with known proposed future development on the Installation and in the surrounding area, is not anticipated to have a significant cumulative impact to visual resources. Overall, long-term, beneficial impacts to visual resources would result from the implementation of the RPMP, as all new construction would be subject to the Installation Planning Standards.

3.9 Socioeconomics

3.9.1 Affected Environment

Socioeconomic resources are defined as basic attributes associated with the human environment, primarily population and economic activity. Population encompasses the magnitude, characteristics, and distribution of people, and economic activity refers to employment distribution, business growth, and individual income. The region of influence (ROI) subject to this analysis includes Cochise and Santa Cruz counties.

According to the Fiscal Year 2012 Army Stationing and Installation Plan for Fort Huachuca, major tenants comprise approximately 44 percent (6,910) of the Installation's total employment of 15,670 personnel (USAGFH 2012). The other 56 percent (8,670 personnel) are civilian employees, consisting of DoD government employees and contractors. Historically, the Installation's population has fluctuated by about 3,000 personnel to meet changing mission requirements and account for training cycles.

The employment status drives the economic and social behavior on post. The installation as a whole is a major employer in Arizona and a major economic contributor to the State of Arizona. Fort Huachuca contributes approximately one billion dollars to the Cochise County economy, and approximately 2.8 billion to the Arizona economy. The economic downturn since 2008 and

force realignments as conflicts in southwest Asia have scaled back have reduced the Fort economic contributions to the local economy, but significantly less than in other parts of Arizona.

The City of Sierra Vista's unemployment rate for the year was 8.0 percent in 2013 according to the Arizona Office of Employment and Population Statistics (AZSTATS 2014), which is lower than the 2013 Cochise County rate of 8.8 percent, equal to the state rate of 8.0 percent, and higher than the national rate of 7.4 percent (AZSTATS 2014; Bureau of Labor Statistics 2014).

Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, ensures fair treatment and meaningful involvement of all people regardless of race, color, national origin or income, with respect to the development, implementation and enforcement of environmental laws, regulations and policies. Fort Huachuca is not located in an area that has a disproportionately high concentration of minority or low income populations.

3.9.2 Environmental Consequences

Alternative One (Preferred Alternative)

The Proposed Action would not result in any significant socioeconomic or environmental justice impacts. Minor short- and long-term beneficial impacts will result from the increase in construction and renovation activities on the Installation proposed in the updated RPMP. Beneficial impacts to the local economy would result from additional employment opportunities and sales volume from construction activities. There may be additional sales volume from an increase in the number of individuals coming to the Installation for training as they will be using services provided by the surrounding communities. Construction impacts would be temporary and would discontinue at the completion of construction. However, construction projects would be phased out over many years, resulting in a long-term benefit.

The Proposed Action is not expected to result in any significant changes in population. Future development may result in expanded employment opportunities, which could result in an increase in population if new jobs were filled by persons outside of the ROI. However, these increases would be expected to be minimal.

Because these projects are contained on a federal installation with buffer zones between facilities and the civilian populace, there would be no disproportionate adverse environmental or health effects on low income or minority populations as a result of the Proposed Action. No environmental justice impacts are anticipated.

Alternative Two

Implementation of Alternative Two would be expected to have similar impacts as the Preferred Alternative.

Alternative Three

Implementation of Alternative Three would be expected to have similar impacts as the Preferred Alternative.

No Action Alternative

Implementation of the No Action Alternative would not result in any impacts to the local or regional population or economy.

Cumulative Impacts

No significant cumulative impacts are anticipated as a result of the implementation of the RPMP. No significant increase or decrease in employment or on-post population is anticipated as a result of this action, so no cumulative impacts to the ROI's population would be expected. The beneficial impacts to the local economy associated with the Preferred Alternative will have only minor, short-term beneficial impacts when combined with other existing economic activities on and around the Installation.

3.10 Transportation and Circulation

3.10.1 Affected Environment

The main highway access to Fort Huachuca is SR 90, which divides the Installation into the East and West Reservations. The East Gate control point is located on Hatfield Road, west of its intersection with SR 90. The Main Gate is located west of the intersection of Buffalo Soldier Trail and Fry Blvd in the City of Sierra Vista. The West Gate is located on the Installation's West Range. The West Gate provides access through the Installation to individuals living in remote rural areas west of the Installation, reducing their drive to the nearest emergency services in Sierra Vista by approximately 30 minutes. A North Gate also exists on the Installation but is not used regularly, occasionally being opened for oversized loads or during closures of other gates.

Improvement projects identified in the previous RPMP for the Main, East, and West gates were completed approximately 3 years ago. The projects brought gates into compliance with anti-terrorism force protection (AT/FP) requirements and increased the number of inbound and outbound lanes to improve traffic flow on to and off of the Installation. Commercial truck traffic is now rerouted from the Main to the East Gate to improve traffic flow and lessen risks at the Main Gate. Reconfiguration of the East Gate allowed Brainard Road North to be open during high traffic periods in the morning and open both directions when the East Gate barrier, located at the original old guard house, is closed for holidays and weekends.

The existing road network (Figure 3-5) on Fort Huachuca provides access to all operational and residential areas on the Installation. There are approximately 200 miles of paved roadways, 130 miles of gravel roads, and 150 miles of firebreak roads and trails located on the Installation. Overall, the road network is adequate to support the traffic on the Installation. However, focus groups have identified areas with inadequate parking.

Traffic studies have shown that traffic volumes are greatest during two, one hour-long periods in the morning and evening as people report to and from work, with peak hours occurring between 0645-0745 and 1600-1700. A third peak travel time occurs around 1200 as a result of lunch hour traffic. Overall, the Installation has little to no congestion and minimal delays (USACE 2008).

Primary roads are the main routes that connect the cantonment area with the off-post transportation network and provide access between different land uses on the Installation. The primary roads carry the highest traffic volumes and often allow for higher travel speeds. Primary roads within the Installation include Allison Road, Hatfield Street, Lawton Road, Smith Avenue, Squire Avenue, and Winrow Avenue. Winrow Avenue provides the main access to and from the Main Gate. Installation traffic is controlled at intersections using a variety of means, including traffic circles, stop signs, and traffic signals (USACE 2008).

Roads serving the training areas within the three ranges are mostly unpaved. Due to the erosive character of the soils on the Fort, the condition of the unpaved roads varies, and in some cases, the roads are severely eroded. In addition, a number of roads within the ranges have been closed, but have not been rehabilitated. These roads channel surface runoff in some cases, with gullying and headcutting occurring.

Military vehicles use a combination of public roads, Installation roads, and military vehicle trails. Vehicle convoys using public roads typically are limited to no more than 24 vehicles in a group. Vehicles within a convoy group (also called convoy serials) usually are spaced about 165 to 330 feet apart. Convoy serials are spaced at least 15 to 30 minutes apart. These convoy procedures reduce noise levels and prevent the convoy vehicles from dominating local traffic flow for long periods of time (USACE 2008).

Airfield activities primarily occur at LAAF/Sierra Vista Municipal Airport which has three intersecting runways (Runway 08/26, Runway 12/30, and Runway 03/21). The LAAF is one of the busiest airfields in the Army, with approximately 150,000 flight operations each year. Runway 08/26 is the primary runway, accounting for about 90 percent of total operations. Occasional general aviation arrivals and departures use Runway 12. Additionally, the airfield also has four helipads along Taxiway P (West, Charlie, Delta, and Echo). LAAF/Sierra Vista Municipal Airport operates Monday through Friday 07:00 to 23:00 and other times via NOTAM. Outside of these hours, the airfield is uncontrolled but open. With the exception of R-2312, the restricted airspace is controlled only during these hours. During monsoon season, the operating hours change to avoid late afternoon thunderstorms and high winds.

Other airfield activities occur on the range and training lands outside of the cantonment area and include operations at Hubbard landing strip on the East Range; Rugge-Hamilton and Pioneer landing strips within the Black Tower UAS Complex; and a few helipads used primarily for emergencies such as firefighting (USACE 2008). The airstrips at the Black Tower UAS Complex operate during the same hours as LAAF/Sierra Vista Municipal Airport and flights are also managed by LAAF air traffic control.

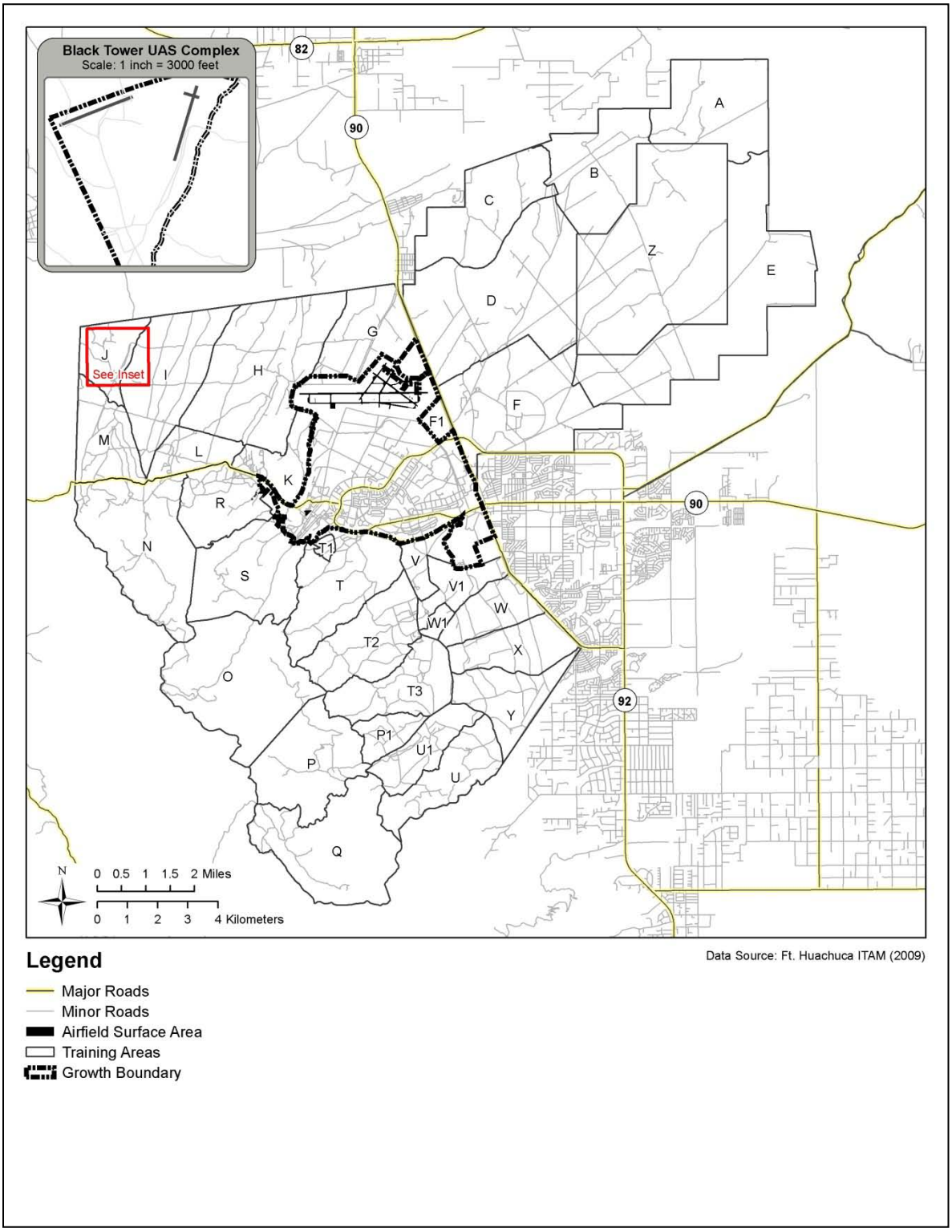

Figure 3-5. Fort Huachuca Roadway Network

No rail service to Fort Huachuca is available. The closest rail service is located in Benson, Arizona, which is approximately 30 miles north of the Installation. The City of Sierra Vista Public Transit System provides daily bus transportation to the public, with stops located throughout the City of Sierra Vista and two stops on the Installation.

3.10.2 Environmental Consequences

Alternative One (Preferred Alternative)

The Preferred Alternative would result in both short-term and long-term minor adverse impacts and a long-term beneficial impact to traffic on the Installation and in the immediate area surrounding Fort Huachuca. Short-term impacts would occur due to an increase in construction-related traffic and construction delays that could result from detours, partial closures, and waits associated with trucks moving from construction associated with the proposed projects. This impact would cease at the conclusion of each construction project. Additionally, projects would be spread out over many years, so although there would be a longer duration, the short-term impacts would be less intense than if they were all performed at the same time.

On-post roads are designed to handle the traffic created by military vehicles and convoys and can support the construction vehicles and equipment that would be expected. Most of the heavy equipment and machinery would remain on the proposed project sites for the duration of construction and would not be transported to and from the site numerous times. Passenger vehicles traveling to and from the proposed project sites on a daily basis during construction are not expected to increase traffic flow to an extent that will create a significant impact. These negligible impacts will be short term and will only last during construction.

The proposed projects are not expected to result in any significant increase in personnel at the Fort, so traffic volume associated with long-term operations would not be expected to result in any adverse impacts to transportation or traffic flow. There may be additional minor, short-term impacts associated with the increase in the number of individuals coming to the Installation for training as they may contribute to the daily traffic volume; however, these increases are would not result in any significant impacts. Additionally, the proposed improvements to the public transit network and reconfiguration of the road networks to better accommodate bicycle and pedestrian traffic would reduce the high dependence on personal motorized vehicles. A decrease in the amount of motorized vehicles would reduce traffic congestion and improve circulation.

The RPMP includes proposed improvements for Main and East gates and potential improvements at the West Gate. The RPMP also includes improvements to the road infrastructure, such as widening existing roadways, redesigning sub-optimal intersections, and improving the bicycle and pedestrian networks. These improvements would result a long-term beneficial impact by improving circulation and improving the linkage of similar land uses. Additionally, the RPMP identifies the need for further evaluation of the parking issues identified by the focus groups and for a new traffic safety study, as the last study was conducted in 1999.

These studies will benefit the Fort by identifying additional deficiencies, if any, and recommending improvements.

Alternative Two

Implementation of Alternative Two would be expected to have similar impacts as the Preferred

Alternative. Slight variations in the impacts would occur, based on the site locations of the proposed projects, but since they would still be located within the cantonment area and Black Tower UAS Complex growth boundaries, those impacts would not be expected to result in any additional significant impacts.

Alternative Three

Implementation of Alternative Two would be expected to have greater impacts on transportation and circulation than the Preferred Alternative. Development would not be confined to the cantonment area and Black Tower UAS Complex growth boundaries, so additional transportation and traffic impacts could result based on the location of the project. If new facilities are constructed outside of the cantonment area and Black Tower Complex growth boundaries, additional road improvements would be necessary to accommodate the increase in traffic to the remote locations. Additionally, construction in remote areas would require personnel to drive to the sites, instead of walking or riding bikes; thereby not helping in reducing the dependency on motorized vehicles. However, the RPMP guidelines for project siting address impacts to traffic and transportation, and projects would be developed in a manner that would minimize adverse impacts to transportation resources. Therefore, no significant impacts would be expected.

No Action Alternative

The No Action Alternative would not result in any direct impacts to transportation or circulation on or around the Installation. However, if transportation improvements within the RPMP are not completed, there would likely be long-term, adverse impacts because the need for improvements would not be met.

Cumulative Impacts

Interstate 10 and Arizona State Route 90 will continue to serve as the main vehicular access to the community. A network of smaller roads connects other parts of Cochise County to Sierra Vista and Fort Huachuca. The existing immediate roadways adequately serve the needs of the surrounding civilian communities and the mission of Fort Huachuca.

The RPMP for Fort Huachuca provides a list of identified transportation-related improvements to be addressed in future years to keep pace with development trends and provide a safe on-post environment. Since proposed projects would be completed over a period of many years, the impacts would be spread out, lessening the intensity of the impacts, but extending the longevity.

The *Northwest Cochise County Long-Range Transportation Plan Final Report* includes projects to address future deficiencies on Arizona State Route 90 and projects to provide better connectivity within the immediate county area. Plans in place already anticipate growth in transportation needs for the Sierra Vista area, Fort Huachuca, and the state; therefore, proposed projects within the RPMP are not anticipated to contribute to adverse cumulative impacts to transportation at the local or regional level.

3.11 Utilities

3.11.1 Affected Environment

Tucson Electric Power and Sulphur Springs Valley Electric Cooperative supply electrical power to Sierra Vista, Fort Huachuca, and the surrounding area. The Installation is served by six underground distribution circuits, which transfer to overhead poles. The existing distribution system adequately supports the current and future needs of the Installation (USACE 2008). Existing renewable energy systems located on the Fort include solar hot water heaters; photovoltaic flat panels and combined integrated systems; daylighting; photovoltaic parking lot lighting; solar walls; a methane digester processer; a wood chip burner; geothermal heat pumps at new barracks; a wind tower; and a wind turbine. Additionally, a 25 MW solar array system is currently under construction in the cantonment area growth boundary.

Natural Gas is provided to the Installation by Southwest Gas. Gas is delivered via two 400 pounds-per-square-inch supply lines and distributed throughout the Installation. The system capacity is adequate to support current and future demands.

Solid waste accumulated at the Installation is transported off-post and primarily disposed of at the Huachuca City landfill. A small amount of solid waste is directed to the Elfrida landfill, which is also located in Cochise County.

The current potable water supply at Fort Huachuca is groundwater from the Sierra Vista subwatershed regional aquifer. Fort Huachuca's water system is operated and maintained by an Installation service contractor. There are eight operational groundwater production wells on the Installation. Water is treated prior to entering the supply lines and the quality of the water is generally suitable for all uses. The greatest demand on the water supply comes from the Installation's housing area. A water conservation program was developed to educate the Installation residents and personnel on methods to conserve the water supply. Other conservation methods are also implemented at Fort Huachuca, including the use of treated wastewater effluent rather than potable water for irrigation and recharge. Water supply and storage at Fort Huachuca is adequate to meet current and future demands. However, future development within the Black Tower UAS Complex growth boundary may require upgrades to the potable water lines to provide additional capacity for fire flow.

The Fort Huachuca wastewater collection and treatment system is operated and maintained by an Installation service contractor. Installation wastewater is directed to a single treatment facility. Most wastewater naturally flows to the treatment facility; however some areas, such as a small

portion of the housing in the southeastern cantonment area, require wastewater to be pumped through a lift station. After treatment, wastewater is directed to seven effluent recharge basins located on the East Range or reused as irrigation water for the golf course. A few remote facilities with low occupancy continue to operate on septic systems due to the high cost of extending the primary collection lines. The current wastewater system at Fort Huachuca is adequate for current flows and proposed future development.

The existing storm drainage system at Fort Huachuca is made up of natural drainage ways, channelized improvements and open culverts under roadways. Evaluations of the system have identified undersized channels, constricted culverts and portions of the cantonment area that periodically flood. The RPMP identifies the need for a comprehensive study to evaluate and subsequently improve the system.

3.11.2 Environmental Consequences

Alternative One (Preferred Alternative)

Long-term minor adverse and beneficial effects on Fort Huachuca utility systems would be expected. Beneficial effects would be expected from utility system upgrades and the replacement of outdated utilities with newer, more energy-efficient equipment associated with the proposed construction on Fort Huachuca. Adverse effects would result from the generation of additional municipal solid waste and construction debris at Fort Huachuca and its effect on local landfills. When siting new construction, preference shall be given to previously developed lands with existing utilities infrastructure, to eliminate and/or minimize the need to extend utilities to new sites.

The existing potable water infrastructure is sufficient to support the Preferred Alternative. New construction and improvements would use energy-efficient design and material. No impact to potable water supply or quality is anticipated. Similarly, the infrastructure on Fort Huachuca is capable of accommodating proposed increases in wastewater associated with the Preferred Alternative. No impact to either system is anticipated.

The current electrical system adequately supports the current needs of the Installation and could support additional usage. All new facilities would be energy efficient, constructed to a minimum LEED Silver standard. Sustainable construction would reduce the impact of development by employing environmental control strategies that decrease the energy demand of buildings. Therefore, the construction of additional facilities would not create an adverse impact to the electrical system. Additionally, there would be no significant impacts to the natural gas system.

Solid waste would be generated during both construction and operation of the new facilities under the Preferred Alternative. Department of the Army requires that at least 50 percent by weight of total construction and demolition waste be diverted from landfill disposal. This can be achieved by reusing, recycling, or reselling construction debris (DA 2006). Construction and demolition activities would result in a minor long-term adverse impact on local landfills.

Operational solid waste generation would not be substantial in terms of overall monthly or yearly quantity or area landfill capacity and is not anticipated to adversely affect local landfills.

Alternative Two

Implementation of Alternative Two would be expected to have similar impacts as the Preferred Alternative. The individual project's scope and location may result in slight variations of the impacts associated with Alternative One. However, impacts would still be expected to be less than significant since as all projects would be confined within the cantonment area and Black Tower Complex growth boundaries.

Alternative Three

Implementation of Alternative Three would be expected to have similar impacts as the Preferred Alternative in relation to new demands on the utilities systems as a result of the proposed projects. However, since projects would not be confined to the cantonment area and Black Tower UAS Complex growth boundaries, it is likely that projects would require greater need for the extension of utilities, as utility connections may not be available in the less developed area of the Installation.

No Action Alternative

Under the No Action Alternative, no significant impacts would be expected. Some repairs or upgrades to existing utility infrastructure would likely occur as required to maintain adequate service to the Installation. However, the long-term benefits that the proposed projects would provide to the utilities infrastructure would not occur.

Cumulative Impacts

The growth and development on and around the Installation continues to increase the demand for utilities such as those providing electricity, telecommunications, water, and wastewater. Fort Huachuca is continuously working to reduce the Installation's demand for nonrenewable resources, as documented in its 2010 *Renewable Energy Resources Programmatic Environmental Assessment* (USAGFH 2010a).

The Fort has already completed numerous projects that collectively provide long-term, beneficial impacts to the utilities infrastructure and natural environment. These projects have included demolishing abandoned buildings and capping leaky water lines; installing artificial turf on most athletic fields; installing water-saving showerheads, waterless fixtures, and front-loading washers in residential housing; installing waterless urinals in nonresidential buildings; and converting the Mountain View golf course to a desert course and upgrading the irrigation system to more efficiently reuse treated effluent.

The solar array that is currently under construction is expected to result in a long-term beneficial impact by reducing the demand for energy from outside sources and insulating the Installation from losses of power resulting from outages along the external power grid. Producing energy

from the solar array will help the Army satisfy multiple goals and constraints while securing its energy supplies with high reliability and minimum vulnerability to interruption from natural or intentional causes.

The Fort has entered into agreements and partnerships with other groups and agencies for the purpose of reducing water use in the USPB. In addition, Fort Huachuca is an active member of the Upper San Pedro Partnership, a consortium of 21 agencies that collaborates to meet water needs in the region while protecting the San Pedro River (USACE 2008). The Fort's and surrounding communities' reduction in water use and increased use of renewable energy sources is not only beneficial to the environment, but also decreases the demand on existing utilities and necessity for new utilities. The less than significant impacts expected from implementation of any of the alternatives are not expected to result in any cumulative adverse impacts to utilities.

3.12 Hazardous and Toxic Substances

3.12.1 Affected Environment

Hazardous Materials

Hazardous materials (HAZMAT) is a term referring to any item or agent (biological, chemical, and physical) that has the potential to cause harm to humans, animals, or the environment, either by itself or through interaction with other factors. Across the Army, the Hazardous Material Management Program (HMMP) is used to integrate the accountability for HAZMAT into day-to-day decision-making, planning, operations, and compliance across all Army missions, activities, and functions. The HMMP policies, including its objectives and goals, are set forth in AR 200-1 (DA 2007). A complete list of federally-recognized hazardous substances, as well as their reportable quantities, is provided in 40 CFR 302.4. There are many other substances, which are not on this list that may be considered hazardous according to their ignitability, corrosivity, reactivity, or toxicity as defined by 40 CFR 261.20-24.

The Hazardous Material Control Center (HMCC) stores a variety of hazardous materials such as paints, lubricants, epoxies, solvents, sealants, adhesives, greases, cleaners, cements, thinners, etc, for issue and receipt from end users.

Hazardous Waste

There are numerous constraints associated with the collection, treatment, storage, transportation, and disposal of hazardous waste. The Resource Conservation and Recovery Act (RCRA) is the primary regulatory driver for hazardous waste management on the Installation. The goal of RCRA is:

- To protect human health and the environment from the potential hazards of waste
- disposal;
- To conserve energy and natural resources through waste recycling and recovery;
- To reduce the amount of waste generated; and

- To ensure that wastes are managed in an environmentally sound manner.

Fort Huachuca is an EPA-registered large quantity generator, which is defined as any source that generates 1,000 kilograms per month or more of hazardous waste, more than 1 kilogram per month of acutely hazardous waste, or more than 100 kilograms per month of acute spill residue or soil. Vehicle and aircraft maintenance activities produce the majority of hazardous wastes generated at Fort Huachuca; however, facility maintenance may also contribute to the total. Hazardous substances typically associated with these operations such as fuels, antifreeze, paints, cleaners and petroleum, oil and lubricants (POL) are stored, transported and disposed of in accordance with applicable laws and regulations. The Hazardous Waste Management Program at Fort Huachuca complies with Occupational Safety and Health Administration (OSHA) hazardous communications standards; USACE Safety and Health Requirements Manual (EM 385-1-1), Section 14; the Installation Spill Contingency Plan (ISCP); the Installation Hazardous Waste Management Plan; Department of Transportation regulations; and the Directorate of Public Works (DPW) Environmental Office (USACE 2008).

The Fort operates one 90-day accumulation area (Building 90403) regulated by 40 CFR 262.34(a), approximately 20 satellite accumulation areas regulated by 40 CFR 262.34(c), and an HMCC. The 90-day area may store accumulated hazardous wastes for up to 90 days before having it hauled off to an approved treatment, storage, and disposal facility. Satellite areas may accumulate up to 57 gallons of hazardous waste, or 1 quart of acute hazardous waste, in containers that are located at or near the point of generation and are under the control of the operator. The HMCC provides a process for collecting and withdrawing usable hazardous materials from around the Installation. Frequent inspections of these different facilities are conducted by the DPW Environmental Office as well as state and federal regulatory agencies. The Defense Reutilization and Marketing Office (DRMO) provides contract service to transport and dispose of hazardous waste off-post.

The Hazardous Waste Accumulation Points (HWAPs) store a variety of hazardous waste for up to 90 days, which include oil contaminated soil, rags absorbents, batteries, mercury containing lamps and equipment, P-listed waste and containers, etc., awaiting disposal through DRMO.

Petroleum, Oil, and Lubricants

POL is a broad term that includes petroleum, oil, and lubricants used at Fort Huachuca. Facilities that store, transport, dispose of, or utilize POLs at the Fort are strictly regulated by Federal and DoD regulations. The fundamental purpose of Federal and DoD regulations is to prevent or limit the accidental release of POL materials to surface water, groundwater, or soils at Fort Huachuca. Specific areas of regulatory focus are spill prevention plans, POL transfer operations, POL storage in containers, and used oil. The policy defined by AR 200-1 requires Fort Huachuca to “manage tank systems used to store oil and hazardous substances in an environmentally safe manner, prevent spills of these substances, and rapidly respond to spills.” Among other things, AR 200-1 requires the development of an ISCP as well as a Spill

Prevention Control and Countermeasures Plan for storage tank systems that hold POLs or hazardous substances.

Installation Restoration Program

The Army's Installation Restoration Program (IRP) is a comprehensive program to identify, investigate, and clean up contamination at Army Installations to eliminate risks to human health and the environment. The IRP includes, but is not limited to, the cleanup of Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances, POLs, hazardous wastes and hazardous waste constituents, and low-level radioactive materials or wastes. Historically, there have been 58 IRP sites at Fort Huachuca (USACE 2008). The Fort Huachuca Installation Action Plan, dated 2011, identifies two remaining IRP sites in long-term management and two sites pending a No Further Action (NFA) determination from the Arizona Department of Environmental Quality (ADEQ).

The South Range Landfill (FTHU-10) is an approximately 100-acre closed landfill site located two miles southeast of the main cantonment facilities. The landfill was used from 1940 to 1975 as a dump site for household garbage, pesticides, herbicides and sodium arsenite. Initial investigations at the site were performed in 1993 and semi-annual, groundwater monitoring and reporting have occurred since 1999. Analysis of the groundwater samples taken from five monitoring wells at the site have detected elevated levels of heavy metals and pesticides (USACE 2008). Fort Huachuca continues to work with ADEQ to conduct and review groundwater monitoring on the site.

The East Range Mine Shaft (FTHU-65) is located in the remote East Range. The mine shaft was believed to be used from the 1940's to an undetermined point in time for disposal of garbage, POLs, aircraft parts and possibly unexploded ordnance (UXO). Lead contamination in soil and groundwater is a potential issue. Fort Huachuca continues to work with ADEQ to conduct and review groundwater monitoring on the site.

Greely Hall underground storage tank (UST) Release site (FTHU-85) is located in the rear southern service area of Greely Hall (Building 61801) in the cantonment area. Fuel to power the emergency generators at Greely Hall was historically stored in USTs at the site. The piping system was estimated to be leaking diesel fuel for approximately ten or more years. Elevated levels of total petroleum hydrocarbon (TPH) confirmed soil contamination at the site. A bioremediation system was installed at the site in 1997 and bio-venting occurred until remediation was complete. The system has been removed and the Fort is working with the ADEQ to receive a NFA determination (USAEC 2011).

Greely Hall Gasoline Release site (FTHU-90) is also located at the rear southern area of Greely Hall. A gasoline UST that was used until the 1970s to provide fuel to emergency generators was removed in 1995. Elevated levels of benzene confirmed soil contamination from years of gasoline spillage at the site. A soil vapor extraction (SVE) system was installed in 2000. The SVE operated until cleanup standards were met. The system has been removed and the Fort is working with the ADEQ to receive a NFA determination (USAEC 2011).

3.12.2 Environmental Consequences

Alternative One (Preferred Alternative)

The Preferred Alternative includes the storage, handling, and use of hazardous and toxic substances and generation of hazardous wastes during demolition, construction, and operation. Development constraints resulting from the locations of such sites would limit or restrict certain land uses and development due to potential public safety hazards. Only compatible land uses should be sited near existing hazardous sites, and new facilities should incorporate Bay Area Defense Conversion Action Team technology in material storage and waste accumulation sites within designs for new facilities.

Construction-related activities associated with the project will not result in any significant impacts from the use of hazardous or toxic substances. The construction contractor will be responsible for properly maintaining construction vehicles and equipment, along with any hazardous materials used in their operation, in compliance with applicable laws and regulations. The contractor will also be responsible for the appropriate disposal of all wastes generated during construction in compliance with applicable laws and regulations. Since projects are phased to be completed over several years, no significant impacts are anticipated as a result of increases in hazardous wastes generated by the Preferred Alternative.

Prior to repair, renovation, or demolition of buildings, a determination as to whether hazardous materials are present and necessary arrangements for proper abatement and removal, if necessary, would be made. If hazardous materials are inadvertently discovered during construction, work would cease and applicable regulatory agencies would be notified before work would resume. All work would be completed in compliance with applicable Fort Huachuca plans and programs and local, state and federal laws and regulations.

There are no projects proposed in the RPMP that would adversely affect the known contaminated sites at Fort Huachuca. Additionally, if a spill were to occur, procedures established in the Installation Spill Contingency Plan would be implemented, and contaminated soil and other waste will be disposed of properly.

Alternative Two

Implementation of Alternative Two would be expected to have similar impacts as the Preferred Alternative. The individual project's scope and location may result in slight variations of the impacts associated with Alternative One. However, impacts would still be expected to be less than significant since as all projects would be confined within the cantonment area and Black Tower Complex growth boundaries.

Alternative Three

Implementation of Alternative Three would be expected to have similar impacts as the Preferred Alternative.

No Action Alternative

Under the No Action Alternative, there would be no impacts due to hazardous or toxic substances.

Cumulative Impacts

Fort Huachuca has a Hazardous Waste Management Program along with several other hazardous-materials-handling programs and manuals to direct the use of these materials. Fort Huachuca additionally has a Hazardous Material Control Center to keep track of materials and remove them safely from the post.

Fort Huachuca's Installation Spill Contingency Plan describes the procedures to be implemented in the event of a spill of hazardous materials or petroleum, oil, and lubricants. Due to the extensive policies and procedures in place for potential spills and mishandling of hazardous and toxic substances, it is anticipated that the Proposed Action will not result in a cumulative local or regional impact from the use of hazardous and toxic substances.

3.13 Human Health and Safety

3.13.1 Affected Environment

Health and safety services can be obtained both on Fort Huachuca and within the surrounding communities. Law enforcement is provided by community police forces and Arizona Department of Public Services off-post. On Fort Huachuca, the law enforcement division of the Directorate of Emergency Services (DES) has primary responsibility for the enforcement of rules and regulations and the security of the Installation.

Medical services on Fort Huachuca can be received at the Raymond W. Bliss Army Health Center. This center provides services to active and retired military personnel and their families. Services include primary care, internal medicine, general surgery referral and followup, orthopedics, physical therapy, optometry (active duty only) and preventive medicine. Off-post, emergency medical services can be obtained at the Sierra Vista Regional Health Center. This facility has an 88-bed acute care center, is staffed by 62 active, 60 courtesy, and 16 Advance Practice Professionals, and serves more than 7,600 patients annually (Sierra Vista Regional Health Center 2014). A new, larger facility with expanded services is expected to open in 2015.

Agreements between Fort Huachuca, Sierra Vista, Cochise County and the USFS are in place to provide mutual assistance. The Sierra Vista Fire Department has three fire stations (City of Sierra Vista 2014). The Cochise County Fire District responds to calls occurring in the county and can provide additional assistance to other agencies when needed. The Fry Fire District has one station located within Sierra Vista and two additional stations in outlying areas within the county (Fry Fire District 2009). Fort Huachuca also has three stations. Personnel from these stations respond to emergencies on the Fort, at LAAF, and in the surrounding area.

The USFS operates and maintains additional fire suppression facilities on Fort Huachuca that are available to respond to forest and range fires within the Coronado National Forest, including lands within Fort Huachuca, pursuant to a cooperative agreement between the Installation and the USFS. The USFS has established a fire protection unit at LAAF and other units are stationed adjacent to Fort Huachuca (USAGFH 2004).

Fort Huachuca and the surrounding area have an active fire regime and wildland fires occur regularly. Fire management on the Fort is directed to meet the goals and objectives identified in the Fort Huachuca Integrated Wildland Fire Management Plan (U.S. Army Intelligence Center and USAGFH). These goals include protecting life as the highest priority, protecting the Installation and personal property, managing fire to support military training, managing fire to protect natural and cultural resources and coordinating fire operations with neighboring land owners. The plan addresses the management of both wildfires and prescribed burns as well as the treatment of areas supporting sensitive resources (natural and cultural). Fort Huachuca, the USFS, and the National Parks Service are also working together on the Huachuca FireScape Project. This project coordinates fire and fuel reduction activities between the three agencies. This project is intended to increase fire management flexibility, efficiency, and consistency across about 400,000 acres of adjoining federal land (U.S. Department of Agriculture/Forest Service 2009).

Range Control is responsible for coordinating and regulating activities on the ranges, supported by the DES and Fire Department. Ranges are secured and patrolled by the DES, while the Fire Department is responsible for fighting and extinguishing range fires and the scheduling of prescribed burns in conjunction with the ENRD and USFS. In addition, the DPW assists in maintaining fire breaks. Range Control regulations and standard operating procedures identify allowable range practices and precautions that must be taken (USAGFH 2004).

3.13.2 Environmental Consequences

Alternative One (Preferred Alternative)

Implementation of the Preferred Alternative is not anticipated to result in any significant adverse impacts to human health and safety. The RPMP identifies new construction and/or renovation of fire stations, a military police station, and medical/dental facilities, which would benefit human health and safety. Planners will incorporate health considerations and opportunities for physical activity based on advice from representatives from the Installation's medical staff. When feasible, planners will include Installation health representatives in visioning sessions and planning charrettes.

Construction and operation crews associated with the proposed projects will be exposed to some health and safety risks during construction, but those risks will be minimized through careful planning, worker training, and regular maintenance of new facilities and infrastructure. Construction contractors and Installation maintenance staff will comply with all applicable safety and occupational health regulations.

Given the developed nature of the cantonment area and areas within Black Tower UAS Complex growth boundaries proposed for construction, it is not likely that UXO exists there. However, in the unlikely event that evidence of UXO is encountered on the site during construction or operation, all work will immediately cease and remain stopped until the Fort's Range Control has been notified and appropriate clearance procedures have been completed.

Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, recognizes a growing body of scientific knowledge that demonstrates that children may suffer disproportionately from environmental health risks and safety risks. The executive order directs federal agencies to make it a high priority to identify and assess environmental health risks and safety risks that may disproportionately affect children. The Preferred Alternative will not result in any impacts that disproportionately affect children.

Additionally, the renewable energy projects proposed for construction would result in long-term beneficial impacts to human health and safety due to the reduction in the amount of fossil fuels used for energy production. Air quality has a direct impact to human health, and particulate matter in the air has been shown to affect cardiovascular and respiratory health and exacerbate existing conditions such as asthma. Using renewable energy sources that produce little or no air pollution improves air quality and, as a result, human health.

Alternative Two

Implementation of Alternative Two would be expected to have similar impacts as the Preferred Alternative. The individual project's scope and location may result in slight variations of the impacts associated with Alternative One. However, impacts would still be expected to be less than significant since as all projects would be confined within the cantonment area and Black Tower Complex growth boundaries.

Alternative Three

Implementation of Alternative Three would be expected to have similar impacts as the Preferred Alternative. Since proposed projects would not be confined to the cantonment area and Black Tower UAS Complex growth boundaries, there may be a slightly greater risk that UXO could be encountered in previously undeveloped areas of the Installation. However, if necessary, site-specific UXO surveys would be conducted prior to any ground-disturbing activities, and clearance would be obtained before construction. Therefore, there would be no significant impacts expected.

No Action Alternative

The No Action Alternative would not result in any direct impacts to human health and safety. However, indirect impacts would result if the Fort does not carry out the proposed projects. The RPMP identifies the need for new facilities, the renovation of aging facilities, transportation improvements, and renewable energy sources, all of which would improve health and safety. Without these improvements, health and safety conditions would continue deteriorate and

become outdated, and would result in adverse impacts to the health and safety on the Installation.

Cumulative Impacts

No adverse cumulative impacts are anticipated to occur with regard to human health and safety. Long-term, beneficial cumulative impacts to human health and safety would be expected as described in the No Action Alternative.

3.14 Electromagnetic Spectrum

3.14.1 Affected Environment

The EM spectrum is the entire range of EM radiation, characterized by frequency and wave length. The EM spectrum extends from radio waves, which have the longest wavelengths and lowest frequencies, to gamma rays, which have the shortest wavelength and highest frequencies.

One of Fort Huachuca's unique operational roles for the DoD includes EM testing and training. The metal-bearing mountain chains surrounding Fort Huachuca create a unique topographic "bowl" that blocks external electromagnetic interference (EMI) within the basin. This creates an ideal location for electronics testing and training. The natural topography provides the flexibility of using both military and commercial spectrum for operational and developmental testing.

The peculiar topography and limited developed land surrounding the Installation provides an internationally unique EM environment for the Army's testing. Due to this setting, the communications and electronic equipment testing function of the EPG moved to Fort Huachuca in 1954. An area surrounding Fort Huachuca known as the Buffalo Soldier Military Electromagnetic Range is one of the only U.S. locations where regional electronic equipment testing can be effectively conducted. The Military Electromagnetic Range is a frequency coordination zone protected by federal mandate (Arizona Department of Commerce 2007). The EM environment is also a critical resource for many other tenants and organizations operating on the Installation and plays a vital role in the success of training and testing missions.

Spectrum-related activities associated with Fort Huachuca are subject to the policies and procedures of several federal agencies. At the highest level, the spectrum management authority for all federal agencies is the National Telecommunications and Information Administration, part of the Department of Commerce. The policies and procedures for spectrum use by federal agencies are contained in the *Manual of Regulations and Procedures for Federal Radio Frequency Management,* commonly referred to as the *National Telecommunications and Information Administration Manual.* In addition to the manual, the DoD has well-established and detailed policies and procedures for the use of the EM spectrum by DoD agencies. Finally, the U.S. Army has its own policies and procedures guiding the spectrum-dependent activities of Army entities. Regulations and procedures relevant to Army spectrum management issues are addressed in AR 5-12.

3.14.2 Environmental Consequences

Alternative One (Preferred Alternative)

Implementation of the Preferred Alternative is not anticipated to be a significant source of EMI and no significant adverse impacts to the EM spectrum would be anticipated. Careful consideration would be given during the siting process for all proposed projects to reduce the potential for impacts to ongoing and future electronic testing and aviation training missions and programs.

Alternative Two

Implementation of Alternative Two would be expected to have similar impacts as the Preferred Alternative. The individual project's scope and location may result in slight variations of the impacts associated with Alternative One. However, impacts would still be expected to be less than significant since as all projects would be confined within the cantonment area and Black Tower Complex growth boundaries.

Alternative Three

Implementation of Alternative Three may result in more impacts to the EM spectrum than the Preferred Alternative, depending on the project location. Construction of new facilities that emit frequencies that can affect the EM environment in areas that are currently undeveloped and free from EMI, would have a greater affect than development confined within the cantonment area and Black Tower UAS Complex growth boundaries.

No Action Alternative

Implementation of the No Action Alternative would not create a significant source of EMI or result in adverse impacts to the EM spectrum at Fort Huachuca. Projects would be planned under the current RPMP and impacts to the EM spectrum would be evaluated under the environmental review process for each project.

Cumulative Impacts

None of the alternatives would result in a significant increase in EMI; therefore, no cumulative impacts to the EM spectrum are anticipated.

4.0 FINDINGS AND CONCLUSIONS

A summary of the potential impacts and measures to minimize adverse impacts is provided in Table 4-1. Based on the analysis contained herein, this PEA concludes that the implementation of Alternative One (Preferred Alternative), Alternative Two, Alternative Three, nor the No Action Alternative would constitute a major federal action with significant impact to human health or the environment. It is recommended that a Finding of No Significant Impact be issued to complete the NEPA documentation process.

Table 4-1. Summary of Potential Impacts and Measures to Minimize Impacts for the Proposed Action

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than Significant	No Impact	
Land Use		X		Long-term, beneficial impacts would be anticipated as a result of implementing the Proposed Action under all alternatives. The RPMP guidelines specify that land use compatibility be considered during the planning process of all projects. Projects should be sited in previously developed areas, and should be compatible with surrounding land use. Variations in the impacts to land use may vary slightly depending on which alternative is implemented. However, no significant impacts are anticipated as a result of the implementation of any of the alternatives, as long as the RPMP guidelines are followed.
Topography, Geology, and Soils		X		Minor short-term impacts are anticipated for soil resources during construction activities associated with the Proposed Action under all alternatives. Best management practices such as silt fencing, performing dust control, and plating native grasses would limit the impact. No impacts to topography or geology are expected.
Hydrology and Water Resources		X		No significant adverse impacts to floodplains, groundwater, or surface water are anticipated as a result of implementing the Proposed Action under all alternatives; however, some long-term beneficial impacts to water quality are anticipated.
Biological Resources		X		Minor, short-term and long-term impacts to wildlife and vegetation are expected during construction activities associated with the Proposed Action under all alternatives. Alternative Three would allow development outside the cantonment area and Black Tower UAS Complex growth boundaries, which may result in a greater chance to impacts biological resources than Alternatives One and Two. However all projects would be reviewed by the Fort's Environmental and Natural Resources Division (ENRD) to ensure that effects are identified, proper coordination and mitigation are performed if necessary. Additionally, all Fort projects must also comply with other approved management plans, including the Integrated Natural Resources Plan. Therefore, no significant impacts are anticipated.

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than Significant	No Impact	
Cultural Resources		X		No adverse impacts are expected as a result of the implementation of the Proposed Action under all alternatives. However further evaluation of potential impacts to cultural resources would be undertaken in areas where improvements would occur. All projects would be reviewed by the ENRD to ensure that effects are identified, and proper coordination and mitigation are performed if necessary.
Air Quality		X		Short-term and long-term impacts to air quality would occur as a result of the implementation of the Proposed Action under all alternatives. Minor short-term, adverse impacts would be associated with construction activities. Short-term, minor impacts would be expected to be greater under Alternative Three, due to the increased use of unpaved roads and need for generators at remote sites. Best management practices during construction, such as dust control and limiting equipment idle time would help minimize the impact. Minor long-term impacts would result from operating new facilities. However, new facilities would be constructed to meet Leadership in Energy and Environmental Design (LEED) Silver standards. Improvements to the transportation network would decrease the high dependency on personal, motorized vehicles, reducing the amount of air emissions on the Installation. Therefore, long-term beneficial impacts to local and regional air quality are expected.
Noise		X		Minor short-term impacts are expected during construction activities associated with the Proposed Action under all alternatives. However, these impacts would be temporary in nature, only occurring during construction.
Visual Resources		X		Minor short-term impacts are anticipated during construction activities associated with the Proposed Action under all alternatives. Alternative Three would be expected to result in greater impacts to visual resources, because it would more likely involve development in previously undeveloped areas. However, the guidelines within the Installation Planning Standards would be implemented for all new construction and renovation projects to ensure that buildings and structures are uniform and conform to the Fort standard.
Socioeconomics		X		No adverse impacts are expected as a result of the implementation of the Proposed Action under all alternatives. Short and long-term beneficial impacts to the local economy would be expected. Short-term impacts would result from construction activities. Long-term impacts would result from improvements that would allow for an increase in number of individuals training at the installation and contributing to local sales volumes. Impacts are expected to be less than significant.
Transportation and Circulation		X		Short-term, minor adverse impacts during construction are expected on and around Fort Huachuca as a result of the Proposed Action under all alternatives. Long-term, adverse impacts may result from the potential increase in the number of individuals training at the installation and contributing to the amount of daily traffic. However, these impacts would be temporary and are expected to be less than significant. Alternative Three would be expected to result in greater long-term impacts to transportation and circulation, because projects would be sited outside of the cantonment area and Black Tower Complex growth boundaries and

Resource Area	Level of Anticipated Impact			Summary of Potential Impacts and Measures to Minimize Impacts
	Significant	Less than Significant	No Impact	
				involve additional road improvements and result in greater commute distances and traffic volume to new facilities. Improvements to roadways and gates would result in beneficial impacts to the transportation and circulation on the Installation.
Utilities		X		Minor long-term impacts would result from the additional amount of solid waste produced during construction activities associated with the implementation of the Proposed Action under all alternatives. However, these impacts would not significantly affect the amount of solid waste being disposed of in local landfills. Long-term beneficial impacts are expected due to the upgrades to the utility infrastructure and construction of renewable energy sources. All new construction should be sited in areas with existing utility connections or close to connections, to minimize the need for utility extensions. Alternative Three would result in an increased need for utilities extension, because projects would be sited outside of the cantonment area and Black Tower UAS Complex growth boundaries.
Hazardous and Toxic Substances		X		Minor short-term impacts are anticipated as a result of the implementation of the Proposed Action under all alternatives. Short-term impacts that would result from construction activities include handling or disposing of hazardous materials. Complying with Fort Huachuca hazardous waste plans and programs and local, state, and federal laws and regulations would minimize the potential for adverse impacts.
Health and Human Safety		X		No significant adverse impacts to human health and safety are expected as a result of the implementation of the Proposed Action under all alternatives. Proposed improvements would result in a long-term indirect beneficial impact to human health and safety due to improved transportation and open space networks.
Electromagnetic Spectrum		X		Fort Huachuca's Encroachment Board, Installation Real Property Planning Board, and the Installation Spectrum Managers review project locations and specifications as needed and determine whether projects would interfere with the electromagnetic spectrum surrounding the Installation. Implementation of the Proposed Action under all alternatives is not expected to cause any significant impacts to the spectrum. Alternative Three may result in greater EMI, because projects would be sited outside of the cantonment area and Black Tower UAS Complex growth boundaries.

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6.0 PREPARERS AND CONTRIBUTORS

Dan Becker
GIS Analyst
Vernadero Group Incorporated
8540 Executive Woods Drive, Suite 500
Lincoln, Nebraska 68512-9225
Project role: map preparation

Karen Collins
NEPA Specialist
Vernadero Group Incorporated
P.O. Box 433
Ladysmith, Virginia 22501
Project role: existing environment, impact analysis, technical review

Michael Collins, PhD
Program Manager
Vernadero Group Incorporated
4422 E. Indian School Road, Suite 101
Phoenix, Arizona 85018
Project role: program management, technical review

Maggie Fulton
Technical Editor
Vernadero Group Incorporated
4422 E. Indian School Road, Suite 101
Phoenix, Arizona 85018
Project role: technical editing, formatting

Cris Howard
Project Manager
Vernadero Group Incorporated
4422 E. Indian School Road, Suite 101
Phoenix, Arizona 85018
Project role: project management, technical review

Sara Jackson
Conservation Program Manager
Vernadero Group Incorporated
P.O. Box 121143
West Melbourne, Florida 32912-1143
Project role: technical review

Gretchen Kent
Quality Control Supervisor
Vernadero Group Incorporated
119 N. 6th Street
Sierra Vista, Arizona 85635
Project role: technical review and quality control

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7.0 DISTRIBUTION LIST

Federal Agencies

Bureau of Land Management
San Pedro National Riparian
Conservation Area
1763 Paseo San Luis
Sierra Vista, Arizona 85635

Bureau of Reclamation
300 W. Congress FB37
Tucson, Arizona 85701

Coronado National Forest
Sierra Vista Ranger District
5990 S. Highway 92
Hereford, Arizona 85615

Environmental Protection Agency,
Region 9
Office of Federal Activities
75 Hawthorne Street
San Francisco, California 94105

National Park Service
Coronado National Memorial
4101 E. Montezuma Canyon Road
Hereford, Arizona 85615

United States Air Force
ACC AMIC/PCEV, Attn: Ms. Murray
11817 Canon Boulevard, Suite 306
Newport News, Virginia 23606

United States Fish and Wildlife Service
Arizona Ecological Services,
Tucson Suboffice
201 North Bonita, Suite 141
Tucson, Arizona 85745

United States Fish and Wildlife Service
2321 W. Royal Palm Road, Suite 103
Phoenix, Arizona 85021

United States Geological Survey
520 N. Park Avenue, Suite 221
Tucson, Arizona 85719

Tribal Governments

Ak-Chin Indian Community
42507 W. Peters and Nall Road
Maricopa, Arizona 85239

Fort Sill Apache Tribe
Route 2, Box 121
Apache, Oklahoma 73006

Gila River Indian Community
P.O. Box 97
Sacaton, Arizona 85147

Hopi Tribe
P.O. Box 123
Kykotsmovi, Arizona 86039

Mescalero Apache Tribe
101 Central Avenue
Mescalero, New Mexico 88340

Pascua Yaqui Tribe
7474 S. Camino De Oeste
Tucson, Arizona 85746

Pueblo of Zuni
Zuni Tribal Council
P.O. Box 339
Zuni, New Mexico 87327

Salt River Pima-Maricopa Indian
Community
10005 E. Osborn Road
Scottsdale, Arizona 85256

San Carlos Apache Tribe
Natural Resources Building,
Airport Road
San Carlos, Arizona 85550

Tohono O'Odham Nation
P.O. Box 837
Sells, Arizona 85634

White Mountain Apache Tribe
P.O. Box 1150
Whiteriver, Arizona 85941

State Agencies

Arizona Department of
Environmental Quality
1110 W. Washington Street
Phoenix, Arizona 85007

Arizona Department of Water Resources
3550 N. Central Avenue
Phoenix, Arizona 85012

Arizona Game and Fish Department
5000 W. Carefree Highway
Phoenix, Arizona 85086

Arizona Game and Fish Department
Tucson Regional Office
555 N. Greasewood Road
Tucson, Arizona 85745

Arizona State Land Department
1616 W. Adams Street
Phoenix, Arizona 85007

Arizona State Parks
State Historical Preservation Officer
1300 W. Washington Street
Phoenix, Arizona 85007

Local Governments

City of Bisbee
118 Arizona Street
Bisbee, Arizona 85603

City of Sierra Vista
1011 N. Coronado Drive
Sierra Vista, Arizona 85635

Cochise County Board of Supervisors
1415 Melody Lane, Building G
Bisbee, Arizona 85603

City of Tombstone
613 E. Allen Street
Tombstone, Arizona 85638

Town of Huachuca City
500 N. Gonzales Boulevard
Huachuca City, Arizona 85616

Hereford Natural Resources
Conservation District
2136 N. Truman Road
Huachuca City, Arizona 85616

Organizations

Center for Biological Diversity
P.O. Box 1178
Flagstaff, Arizona 86002-1178

Huachuca Audubon Society
3327 Eagle Ridge Drive
Sierra Vista, Arizona 85650

Sierra Vista Chamber of Commerce
21 E. Wilcox Drive
Sierra Vista, Arizona 85635

Sierra Vista Public Library
2600 E. Tacoma Street
Sierra Vista, Arizona 85635

The Nature Conservancy
1510 E. Fort Lowell
Tucson, Arizona 85719

8.0 LIST OF INDIVIDUALS AND AGENCIES CONSULTED

Kacey Carter, Master Planner, DPW, USAG Fort Huachuca, Arizona

Dan Haws, Office of the Staff Judge Advocate, USAG Fort Huachuca, Arizona

Christopher Higgins, ENRD, DPW, USAG Fort Huachuca, Arizona

Betty Phillips, NEPA Coordinator, ENRD, DPW, USAG Fort Huachuca, Arizona

Dawn Rohr, Chief, Conservation Branch, ENRD, DPW, USAG Fort Huachuca, Arizona

Randee Sieracki, Environmental Compliance Specialist, ENRD, DPW, USAG Fort Huachuca, Arizona

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