

DRAFT FINDING OF NO SIGNIFICANT IMPACT (FNSI)
U.S. Army Intelligence Center Future Development Planning
Fort Huachuca, Arizona
November 2004

Title of the Proposed Action: U.S. Army Intelligence Center, Fort Huachuca Future Development Planning.

Introduction: An Environmental Assessment (EA) dated November 2004 has been prepared to support the decision-making process of the U.S. Army regarding foreseeable changes to the training and testing mission at U.S. Army Intelligence Center, Fort Huachuca (USAIC, FH). This EA was prepared in compliance with the National Environmental Policy Act (NEPA) (Public Law 91-190, 42 USC 4321-4347, as amended), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 CFR 1500-1508), and AR 200-2, Environmental Effects of Army Actions (USA 1988). The EA is incorporated by reference in this FNSI.

Description of the Proposed Action: The Proposed Action includes foreseeable changes to the training and testing mission of USAIC, FH. Associated with these anticipated changes, certain site development activities on Fort Huachuca are currently being proposed. Finally, environmental and natural resource conservation measures currently in force at Fort Huachuca and those specifically identified to reduce the impact of anticipated changes at Fort Huachuca as a result of its changing mission are incorporated. Collectively these actions are referred to as the Proposed Action and are fully described in Section 2 of the EA.

Alternatives Considered: Three alternatives to the Proposed Action were considered. Alternative One included those aspects of the Proposed Action with additional site development and facility utilization, larger permanent party authorizations, greater conservation easement acreage, and restricted airspace restructuring. Alternative Two is similar to the Proposed Action but with less redevelopment in the cantonment area and Libby Army Airfield, smaller permanent party increases, and fewer acres of conservation easements. Alternative Three is the no action alternative.

Anticipated Environmental Effects: The EA documents that less than significant impacts to the availability of recreational hunting opportunities at the Fort would result from proposed site development and use. Beneficial impacts from the provision of additional track and field facilities would result. Adverse impacts to visual resources, local air quality, and soil conditions from construction activities and increased training and operational activities were found to be temporary and less than significant. Minor and less than significant increases in noise levels would result from temporary construction activity and additional utilization of training ranges across the Fort. The construction areas are not near human residential areas and the associated noise will not interfere with on-going military training activities.

Additional water use of 110.4 ac-ft per year is estimated with the Proposed Action, 263.7 ac-ft for Alternative One, 26.4 ac-ft for Alternative Two; status quo for Alternative Three. Due to conservation and reuse efforts and specific mitigation for this action, the installation's annual water withdrawal from the local aquifer is anticipated to continue declining. The acquisition of conservation easements and the restriction of future water pumping from these easements are anticipated to provide additional long-term reductions in water pumping in the subwatershed. The proposed site development supports this reduction trend by incorporating water conservation technologies and allowing for additional conservation technology to be installed to offset potential

water use increases from additional personnel. In addition, USAIC, FH will continue to educate its workforce on water conservation and enforce water mitigation policy.

Up to 75 acres of disturbed grasslands and another 63 acres of other vegetation could be lost during construction activities under the Proposed Action (100 acres and 103 acres under Alternative One; 35 and 63 acres under Alternative Two). No significant impact to existing wildlife (including federally-listed threatened and endangered species) is anticipated under the Proposed Action, Alternative Two or Alternative Three. No significant impact to historic or cultural resources is anticipated. Less than significant impacts on the availability of utilities, health and safety of military personnel and civilians, ground and air transportation system, and generation and transportation of hazardous wastes, materials and substances would result under the Proposed Action, Alternative Two, and Alternative Three.

The total construction cost for all facilities would be approximately \$140 million under the Proposed Action (\$210 million under Alternative One and \$70 million under Alternative Two), of which a large percentage would be spent on construction materials. A net increase of approximately 335 additional positions are required as a result of the Proposed Action to accomplish the USAIC mission (950 positions for Alternative One and 98 positions for Alternative Two). An estimated 50% of all civilian employees and contractors would relocate to the area. An additional annual payroll of \$14,753,534 would be realized once all positions were filled under the Proposed Action; \$46,222,220 for Alternative One; \$4,860,286 for Alternative Two. These additional contributions are not anticipated to represent a significant impact on the local economy.

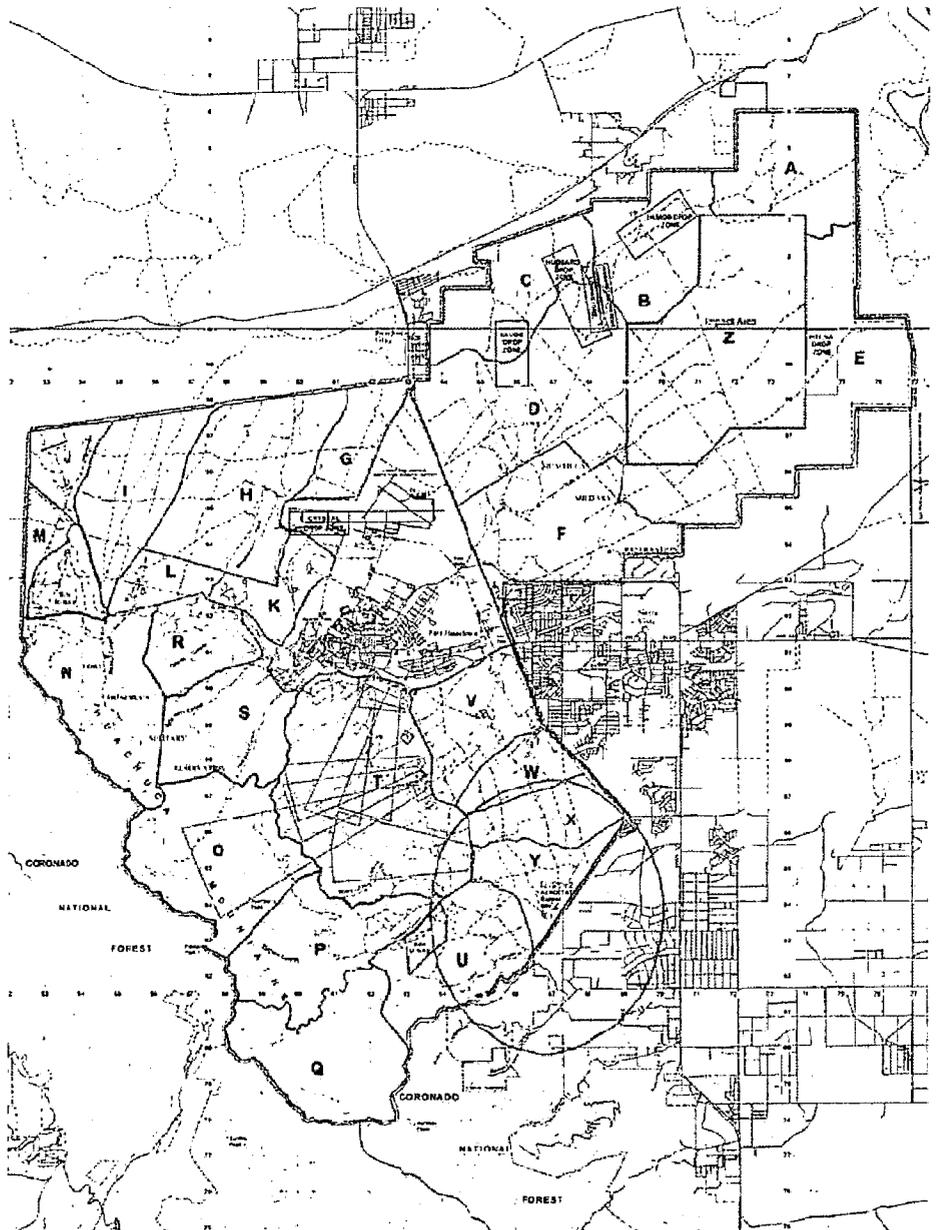
Findings (Draft): Based on the analysis contained in the EA, I have decided that implementation of either the Proposed Action, Alternative Two or Alternative Three does not constitute a major federal action significantly affecting the quality of the human environment. Consequently, implementation of the Proposed Action, Alternative Two, or Alternative Three does not require the preparation of an Environmental Impact Statement. Additional environmental analysis will be conducted if locations for additional development activities discussed in Alternative One are selected with an intent toward implementation.

Public Comments: The Army invites interested or affected parties to review and comment on this Draft FNSI within 30 days of publication by writing to Commander, U.S. Army Garrison, ATTN: ATZS-ISB (Ms Kent), Fort Huachuca, Arizona 85613-6000 or fax to (520) 533-3043. To obtain a copy of the EA, contact (520) 533-3120 and leave a name and address, or write to: U.S. Army Garrison, ATTN: ATZS-ISB (USAIC, FH EA), Fort Huachuca, Arizona 85613-6000. Copies of the EA may also be reviewed at the Sierra Vista public library or on line at: <http://huachuca-www.army.mil/USAG/DIS/DISHOME.HTM#ENRD>

Approval authority: Warner I. Sumpter, Brigadier General, ARNG, Commanding

PROGRAMMATIC ENVIRONMENTAL ASSESSMENT

Future Development Plan
U.S. Army Intelligence Center, Fort Huachuca
Fort Huachuca, Arizona



Prepared by:

Environmental and
Natural Resource Division
Directorate of Installation Support
U.S. Army Garrison, Fort Huachuca



November 2004

FCFH01735

HOW THIS ENVIRONMENTAL ASSESSMENT IS ORGANIZED

The EXECUTIVE SUMMARY briefly describes the proposed action and alternatives. Impacts and conclusions are summarized.

- SECTION 1 PURPOSE AND NEED discusses the purpose and need for the proposed action, the regulatory background surrounding the project, and the scope of this Environmental Assessment.
- SECTION 2 DESCRIPTION OF PROPOSED ACTION (PA) AND ALTERNATIVES discusses the Proposed Action and alternatives addressed in this Environmental Assessment.
- SECTION 3 AFFECTED ENVIRONMENTS AND CONSEQUENCES describes the existing environment within the Region of Influence. It also provides a comparison of environmental consequences associated with the different alternatives. Conservation and mitigation measures are also addressed in this section.
- SECTION 4 FINDINGS AND CONCLUSIONS
- SECTION 5 ACRONYMS AND ABBREVIATIONS
- SECTION 6 COMBINED REFERENCES provides bibliographical information for sources cited in the text of this Environmental Assessment and appendices.
- SECTION 7 LIST OF PREPARERS, CONTRIBUTORS, AND INDIVIDUALS CONTACTED
- APPENDICES

RECOMMENDED CITATION

USAGFH (U.S. Army Garrison, Fort Huachuca). 2004. Programmatic Environmental Assessment Future Development Plan, U.S. Army Intelligence Center, Fort Huachuca. Fort Huachuca: AZ. Environmental and Natural Resource Division. November.

FOR ADDITIONAL INFORMATION

For additional information relating to this document please contact the U.S. Army Garrison Public Affairs Office at Fort Huachuca, telephone number (520) 533-1287.

**PROGRAMMATIC
ENVIRONMENTAL ASSESSMENT**

Future Development Plan
U.S. Army Intelligence Center, Fort Huachuca
Fort Huachuca, Arizona

Prepared by:

Environmental and Natural Resources Division
Directorate of Installation Support
U.S. Army Garrison, Fort Huachuca

JOHN RUBLE
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Commanding

November 2004

1

EXECUTIVE SUMMARY

2 The U.S. Army Intelligence Center, Fort Huachuca (USAIC, FH) is transforming to meet the needs of the
3 nation. The USAIC, FH trains and educates military intelligence (MI) professionals, develops doctrine,
4 defines and validates MI capabilities, develops organization structures, develops MI training, anticipates
5 future MI requirements, and participates in new MI systems and equipment development.

6 This Environmental Assessment (EA) was prepared to analyze the potential for significant environmental
7 impact associated with currently foreseeable changes to the training and testing mission of USAIC, FH.
8 Associated with anticipated changes in training and testing mission requirements, certain site
9 development activities on Fort Huachuca are currently being proposed. Finally, environmental and natural
10 resource conservation measures currently in force at Fort Huachuca and those specifically identified to
11 reduce the impact of anticipated changes at Fort Huachuca as a result of its changing mission are
12 incorporated. Collectively these actions are hereafter referred to as the Proposed Action and are fully
13 described in Section 2 of this document.

14 The U.S. Army is the federal government proponent for the action and as such is required to comply with
15 applicable federal law and Army Regulations. Specifically, this EA is prepared in accordance with the
16 following regulations and directives:

- 17 • National Environmental Policy Act (NEPA) (42 USC 4321 et seq.)
- 18 • Council for Environmental Quality (CEQ) Regulations (40 CFR 1500-1508)
- 19 • U.S. Army Regulation 200-2, Environmental Analysis of Army Actions (32 CFR 651)

20 This assessment is intended to be a concise public document that provides sufficient evidence and
21 analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No
22 Significant Impact (FNSI). NEPA requires that agencies of the federal government implement an
23 environmental impact analysis program in order to evaluate "...major federal actions significantly
24 affecting the quality of the human environment." A federal action may include projects financed,
25 assisted, conducted, regulated, or approved by a federal agency that have the potential to significantly
26 affect the human environment. This EA was also prepared in order to meet the requirements of an
27 effective and coordinated environmental planning process. Because of the ever-changing MI requirements
28 this evaluation must also incorporate the following assumptions:

- 29 • Fort Huachuca remains open after 2005 Base Realignment and Closure (BRAC) proceedings;
- 30 • This EA does not include any potential gains or losses from USAIC during the 2005 BRAC; and
- 31 • This EA includes Training Requirements Arbitration Panel (TRAP) FY03 student increases and
32 permanent party gains as minimum baseline for future training loads.

33 Recent scoping sessions for other environmental analyses have indicated consistent concerns from both
34 pro-growth and environmentally-concerned groups and individuals. The issues raised include those from
35 local residents who are concerned about their continued employment related to Fort Huachuca as part of
36 the local economic base. Other individuals and groups were concerned about the impact of groundwater
37 pumping on the local aquifer, and the possible indirect effects of pumping on the San Pedro River and its
38 threatened and endangered species. These issues are addressed throughout this EA under the various and
39 applicable "Environmental Consequences" sections.

40

41

1 The Proposed Action includes the following:

- 2 • Increased training range utilization;
- 3 • Permanent party increases to 90% of the approximated Table of Distribution and Allowances
- 4 (TDA) related to USAIC activities at Fort Huachuca;
- 5 • Increased dismounted cross-country pedestrian movement;
- 6 • Increased UAV testing and training flight hours;
- 7 • Increased East Range company-level cadre training;
- 8 • Pursuit of 15,000 acres of conservation easements;
- 9 • Site development activities within the cantonment area and Libby Army Airfield (LAAF),
- 10 Training Areas India, Juliet, Lima, Papa and Victor;
- 11 • Creation of a Mounted Reaction Course (MRC) in Training Areas Hotel and Lima; and
- 12 • Refurbishment of small arms live fire ranges on the South Range.

13 Alternative One includes all aspects of the Proposed Action plus the following additional or modified
14 activities:

- 15 • Restructured restricted airspace;
- 16 • Development and operation of an additional UAV runway in the vicinity of LAAF;
- 17 • Facility improvement and runway extension at Demonstration Hill;
- 18 • Pursuit of 25,000 acres of conservation easements;
- 19 • New live fire ranges on the South and East Ranges;
- 20 • Additional redevelopment of the Cantonment Area and LAAF;
- 21 • Additional Training Area Juliet and India facility development and operation; and
- 22 • Permanent party increases to equal 100% of the approximated TDA related to USAIC activities at
- 23 Fort Huachuca plus an additional 400 contractors.

24 Alternative Two includes fewer actions and activities than the Proposed Action. This alternative is similar
25 to the Proposed Action with the exception of the following:

- 26 • Less redevelopment in the cantonment area and LAAF;
- 27 • Permanent party increases to equal 85% of the approximated TDA related to USAIC activities at
- 28 Fort Huachuca plus 50 contractors; and
- 29 • Pursuit of 5,000 acres of conservation easements.

30 Alternative Three is included to establish the environmental and socioeconomic baseline applicable to the
31 action and its anticipated impacts at Fort Huachuca and in the surrounding area. Inclusion of the No-
32 Action Alternative is prescribed by the CEQ regulations. The No-Action Alternative includes training of
33 the increasing number of students attending various MI training courses at Fort Huachuca, erecting
34 temporary single soldier housing (SSH), and constructing up to 400 rooms of permanent SSH as
35 described in USAGFH 2001a, but does not include any additional permanent construction or future
36 increase of staff and faculty to meet additional or sustained training requirements.

37 The Proposed Action and alternatives were evaluated for their potential direct, indirect, and cumulative
38 impacts on the human environment. Table ES-1 summarizes anticipated impacts resulting from the
39 Proposed Action and three alternatives evaluated in this EA.

40

Table ES-1 Comparison of Anticipated Impacts

Resource Area	Proposed Action	Alternative One	Alternative Two	Alternative Three
Land Use	less than significant impacts	insufficient information to make determination ¹	less than significant impacts	less than significant impacts
Visual Resources	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Topography, Soils or Geology	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Hydrology and Water Resources	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Biological Resources	less than significant impacts	insufficient information to make determination ¹	less than significant impacts	less than significant impacts
Historic and Cultural Resources	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Transportation and Circulation	less than significant impacts	insufficient information to make determination ¹	less than significant impacts	less than significant impacts
Air Quality	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Noise	less than significant impacts	insufficient information to make determination ¹	less than significant impacts	less than significant impacts
Hazardous Waste, Substances and Materials	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Population, Housing and Economic Conditions	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Health and Safety	less than significant impacts	insufficient information to make determination ¹	less than significant impacts	less than significant impacts
Utilities and Services	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts

¹ Insufficient information is available to determine the potential for significant impact associated with this resource. Additional analysis or information is required prior to any determination of anticipated significance associated with Alternative One.

Based on the analysis, it is the conclusion of this EA that neither the Proposed Action, Alternative Two (Reduced Training Capacity), or Alternative Three (No Action) would constitute a major federal action with significant impact on the human environment, and that a Finding of No Significant Impact (FNSI) for the Proposed Action and Alternatives Two and Three should be issued to conclude the NEPA documentation process. Insufficient evidence was available to determine the extent and potential significance of impacts related to Alternative One. Consequently, it was concluded that further analysis related to Alternative One would need to be completed prior to any level of impact determination.

1 PURPOSE AND NEED

2 1.0 INTRODUCTION

3 The U.S. Army Intelligence Center, Fort Huachuca (USAIC, FH) is transforming to meet the needs of the
4 nation. The USAIC, FH trains and educates military intelligence (MI) professionals, develops doctrine,
5 defines and validates MI capabilities, develops organization structures, develops MI training, anticipates
6 future MI requirements, and participates in new MI systems and equipment development.

7 This Environmental Assessment (EA) was prepared to analyze the potential for significant environmental
8 impact associated with currently foreseeable changes to the training and testing mission of USAIC, FH.
9 Associated with anticipated changes in training and testing mission requirements, certain site
10 development activities on Fort Huachuca are currently being proposed. Finally, environmental and natural
11 resource conservation measures currently in force at Fort Huachuca and those specifically identified to
12 reduce the impact of anticipated changes at Fort Huachuca as a result of its changing mission are
13 incorporated. Collectively these actions are hereafter referred to as the Proposed Action (PA) and are fully
14 described in Section 2 of this document.

15 1.1 PURPOSE AND NEED FOR THE PROPOSED ACTION (PA)

16 USAIC, FH provides and enhances capabilities for the training of MI personnel from across the
17 Department of Defense (DoD), other federal agencies, and Allied nations. This includes initial entry
18 training, training in specialty areas, cohort training of reset MI organizations, Mobile Training Teams
19 (MTTs) for deployed and deploying units, new and upgraded systems, mid-career courses, and additional
20 throughput in existing and possible future courses to meet operational demands. USAIC, FH's role and
21 responsibilities in identifying and defining new intelligence, surveillance, and reconnaissance (ISR)
22 platforms is expanding to support resetting the Army. Training is updated frequently based on lessons
23 learned and the needs of the Army.

24 With the transformation of the Army into a more modular deployable force, USAIC, FH is being required
25 to provide increased testing and training actions related to the MI mission of the DoD and the changing
26 international situation. This transformation includes the integration of lessons learned to combat and
27 training development, experimentation, and new-systems training. The need for some new facilities at
28 Fort Huachuca has been identified for supporting the training environment. Site development, personnel
29 increases and infrastructure improvements identified in this EA are anticipated to provide the additional
30 training capacity needed at USAIC, FH to meet its changing mission requirements.

31 1.2 FRAMEWORK FOR ANALYSIS

32 The U.S. Army is the federal government proponent for the action and as such is required to comply with
33 applicable federal law and Army Regulations. Specifically, this EA is prepared in accordance with the
34 following regulations and directives:

- 35 • National Environmental Policy Act (NEPA) (42 USC 4321 et seq.)
- 36 • Council for Environmental Quality (CEQ) Regulations (40 CFR 1500-1508)
- 37 • U.S. Army Regulation 200-2, Environmental Analysis of Army Actions (32 CFR 651)

38 This assessment is intended to be a concise public document that provides sufficient evidence and
39 analysis for determining whether to prepare an Environmental Impact Statement (EIS) or a Finding of No
40 Significant Impact (FNSI). NEPA requires that agencies of the federal government implement an
41 environmental impact analysis program in order to evaluate "...major federal actions significantly
42 affecting the quality of the human environment." A federal action may include projects financed,
43 assisted, conducted, regulated, or approved by a federal agency that have the potential to significantly

1 affect the human environment. This EA was also prepared in order to meet the requirements of an
2 effective and coordinated environmental planning process. Because of the ever-changing MI requirements
3 this evaluation must also incorporate the following assumptions:

- 4 • Fort Huachuca remains open after 2005 Base Realignment and Closure (BRAC) proceedings;
- 5 • This EA does not include any potential gains or losses from USAIC during the 2005 BRAC; and
- 6 • This EA includes Training Requirements Arbitration Panel (TRAP) FY03 student increases and
7 permanent party gains as minimum baseline for future training loads.

8 1.3 PREVIOUS DOCUMENTS INCORPORATED BY REFERENCE AND RELEVANT TO THE ANALYSIS 9 CONTAINED IN THIS EA

10 The following documents contain data and present information relevant to the evaluation of impacts at
11 Fort Huachuca resulting from the PA and alternatives and are hereby incorporated by reference into this
12 EA:

- 13 • Programmatic Biological Assessment for Ongoing and Programmed Future Military Operations
14 and Activities at Fort Huachuca, Arizona. U.S. Army Garrison, Fort Huachuca, July 2002
15 (referenced as USAGFH 2002). This biological assessment (BA) evaluated ongoing and
16 programmed military operations at the Fort and was the basis for the August 2002 biological
17 opinion (BO) from the U.S. Fish and Wildlife Service (USFWS) (see below). A large amount of
18 information on the Fort's special-status species and the Fort's operational effects on these species
19 is provided by this 2002 document and only summarized as applicable herein.
- 20 • Biological Opinion, Fort Huachuca Ongoing and Programmed Future Military Operations and
21 Activities. Arizona Ecological Services Field Office, U.S. Fish and Wildlife Service, August 23,
22 2002 (referenced as USFWS 2002b). This BO was in response to the Fort's request for
23 consultation with the USFWS pursuant to section 7 of the Endangered Species Act of 1973, as
24 amended, on impacts that may result from activities authorized, carried out, or funded by the
25 Department of the Army (DA) at and near the Fort. This 2002 BO provides a detailed listing of
26 specific obligations that the Fort has agreed to for special-status species protection on the Fort
27 and within the Fort's region of influence (ROI). The 2002 BO documents the USFWS position
28 that ongoing and proposed military operations and activities at Fort Huachuca would not
29 jeopardize the continued existence of any special-status species protected under the 1973 Act.
- 30 • Environmental Assessment, Increase in Training Load, U.S. Army Intelligence Center, Fort
31 Huachuca, Arizona. U.S. Army Garrison, Fort Huachuca, December 2001 (referenced as
32 USAGFH 2001a). This EA evaluated a proposed increase in training load at the USAIC which
33 would increase the number of students and instructor personnel at the Fort to the baseline levels
34 anticipated following the 2001 terrorism. Potential impacts related to this increased training load
35 at the Fort were determined to be less than significant during the NEPA process. Student training
36 levels proposed in the 2001 EA are considered as baseline levels for the purposes of this analysis.
- 37 • Fort Huachuca Future Development Master Plan Environmental Impact Statement. U.S. Army
38 Garrison, Fort Huachuca, January 2000 (referenced as USAGFH 2000a). This EIS provides a
39 large volume of information and data related to baseline environmental conditions at the Fort as
40 of its publication date. Relevant baseline environmental conditions found in, and historical trend
41 information from, the EIS are summarized in this document. The reader is invited to review the
42 2000 EIS as referenced in this EA for a more detailed discussion.
- 43 • Environmental Assessment, Comprehensive Unmanned Aerial Vehicle Testing and Training at
44 Fort Huachuca, Arizona. U.S. Army Garrison, Fort Huachuca, June 2000 (referenced as
45 USAGFH 2000b). This EA evaluated the ongoing and proposed new testing and training of
46 unmanned aerial vehicles (UAV) at the Fort as well as additional ground-related site

1 development, range utilization and ancillary field training. Potential impacts related to increased
2 UAV testing and training at the Fort were determined to be less than significant during the NEPA
3 process. UAV testing and training operations and level of activities proposed in this 2000 EA are
4 considered as baseline levels for the purposes of this analysis.

- 5 • Environmental Assessment, Purchase, Transfer and Management of Conservation Easements in
6 the Southern Upper San Pedro Basin of Arizona, June 2001 (referenced as USAGFH 2001). This
7 EA describes the Conservation Easement concept, and goals for easements purchased by Fort
8 Huachuca.

9 1.4 PUBLIC INVOLVEMENT

10 Recent scoping sessions for other environmental analyses have indicated consistent concerns from both
11 pro-growth and environmentally-concerned groups and individuals. The issues raised include those from
12 local residents who are concerned about their continued employment related to Fort Huachuca as part of
13 the local economic base. Other individuals and groups were concerned about the impact of groundwater
14 pumping on the local aquifer, and the possible indirect effects of pumping on the San Pedro River and its
15 threatened and endangered species. These issues are addressed throughout this EA under the various and
16 applicable "Environmental Consequences" sections.

17 In keeping with established Army policy regarding an open decision-making process, this EA will be
18 made available to applicable federal, state, and local agencies and the general public for review and
19 comment. A Notification of Availability (NOA) will be published in the Sierra Vista Herald and Arizona
20 Daily Star (Tucson) newspapers. Copies of this document are available at the Sierra Vista, Bisbee, and
21 Huachuca City Public Libraries and at the U.S. Army Garrison Public Affairs Office at Fort Huachuca,
22 telephone number (520) 533-1287. Copies may also be reviewed or obtained at the Environmental and
23 Natural Resources Division (ENRD) Office at Fort Huachuca, telephone number (520) 533-3120.

24 Comments from the public on the findings of this EA are welcome. Public comments must be
25 postmarked within 30 days from the publication of the NOA to be considered in the NEPA process.
26 Comments can be addressed to:

27 **Commander, U.S. Army Garrison**
28 **Environmental and Natural Resources Division**
29 **ATTN: ATZS ISB (Ms Kent)**
30 **Fort Huachuca, Arizona 85613-7010**

31 Comments may also be faxed (to the attention above) to (520) 533-3043. Upon completion of the 30-day
32 review period and after the Army has considered all comments and taken all appropriate actions, a
33 decision document in the form of a FNSI or a Notice of Intent (NOI) to complete an EIS will be issued.

2 DESCRIPTION OF PROPOSED ACTION (PA) AND ALTERNATIVES

This section provides a description of the PA and alternatives considered in an effort to identify potentially affected environments and potential impacts to these environments.

2.0 PROPOSED ACTION – MODIFIED TRAINING CAPACITY

The PA includes several related actions and activities on Fort Huachuca that are being proposed to support the changing training and testing mission of USAIC, FH. Together these actions and activities are evaluated in a programmatic context for direct, indirect, and cumulative impacts. Together the actions described in Section 2.0 and its subsections are hereafter referred to as the PA.

Details about specific locations for proposed new training facilities are omitted from this document for security purposes. General locations for proposed facilities are provided. Sufficient information related to potential site-specific impacts is provided in this EA to support and justify the determinations reached.

2.0.1 Currently Proposed Programmatic Changes

A number of programmatic changes could occur at the Fort for which site-specific details are presently unknown. For the purposes of this analysis, and based on the best available understanding of potential changes at the Fort from USAIC's changing mission requirements, the following items are included in the PA and potential impacts resulting from their occurrence is estimated to the extent possible.

Increased Training Range Utilization. The PA includes a projected increase in use of all active training ranges on the Fort. This represents an increase in existing levels of operation and number of exercises to be conducted on the Fort for which previous environmental analysis has been conducted.

Permanent Party Increases. This alternative includes the addition of personnel to equal 90% of the approximated Table of Distribution and Allowances (TDA) related to USAIC activities at Fort Huachuca.

Increased Dismounted Cross-Country Pedestrian Movement. Soldiers will conduct an increased number of situational training exercises (STXs) on Fort Huachuca using dismounted cross-country pedestrian movement and blank ammunition. This STX training could occur within any training range or area currently permitted for such activities. Additional unarmed, dismounted training may also occur in other rural and urban settings. This may include training both on and off the Fort. The purpose of the training is to learn to assess and inventory fixed facilities. Rural training is described by USAIC as training in rural movement, communications and area assessment skills and would take place approximately 6 to 8 times a year in one of two designated off-post locations. Urban Training is described by USAIC as training in urban resourcefulness, transportation assessment, communications and area assessment skills and would take place approximately 6 to 8 times a year in various locations in an around nearby urban centers.

Increased UAV Testing and Training Flight Hours and Launch and Recovery Operations. Baseline UAV activity as well as descriptions of the various UAV operations at Fort Huachuca are outlined in USAGFH 2000b. An updated projection of the flying hours for the next five years is shown in Table 2.0-1.

Table 2.0-1 Anticipated UAV Testing and Training Flight Hours (FY05 - FY09)

Aerial Vehicle	FY05	FY06	FY07	FY08	FY09
Special Electronic Mission Aircraft (SEMA)	3600	3600	3600	3600	3600
Shadow UAV	2764	3652	3652	1876	1876
Hunter UAV	6364	6364	6364	6364	6364
Extended Range/Multi Purpose (ER/MP) UAV	0	2500	2500	2500	2500
Fire Scout UAV	0	0	0	1250	1250

1 UAV operations would continue at existing facilities but at a higher frequency. No new UAV launch and
2 recovery facilities would be operated under the PA.

3 Increased East Range Company-level Cadre Training. Company-level cadre training operations within the
4 East Range would continue and include convoy operations on established and maintained paved and dirt
5 roads, dismounted cross-country pedestrian movement, sensor operations, land navigation, radar
6 operations, and basic tactical operations center and bivouac operations (vehicles, shelters, tents,
7 generators). Instead of digging fighting positions personnel would transport sand to the training sites and
8 fill sand bags to build up defensive positions. No maintenance of vehicles would occur beyond operator-
9 level maintenance. Refueling operations would occur with existing Brigade assets. Training areas to be
10 used include Alpha, Bravo, Delta, and Foxtrot. Exercises would typically occur for 10-12 day periods 3-4
11 times per year. No field kitchens would be authorized and food would be delivered from dining facilities
12 on the main post. No field showers would be authorized.

13 Protection of up to 15,000 Acres through Conservation Easements. Under the PA a total of up to 15,000
14 acres of off-post land would be protected through conservation easements. Selected conservation
15 easement within 5 miles of the Fort would be purchased from willing sellers using federal funds. The
16 specific types of conservation easements could include restrictions on rights to subdivide property into
17 smaller plots. Actual property may either remain in ownership by the original private owner with reduced
18 ability to irrigate or subdivide parts of the property; or may be sold to a willing private buyer to use in
19 activities compatible with reduced-density land uses. Additional information on the concept is contained
20 in the Environmental Assessment entitled: Purchase, Transfer and Management of Conservation
21 Easements in the Southern Upper San Pedro Basin of Arizona, June 2001.

22 23 **2.0.2 Currently Proposed Site Development Activities**

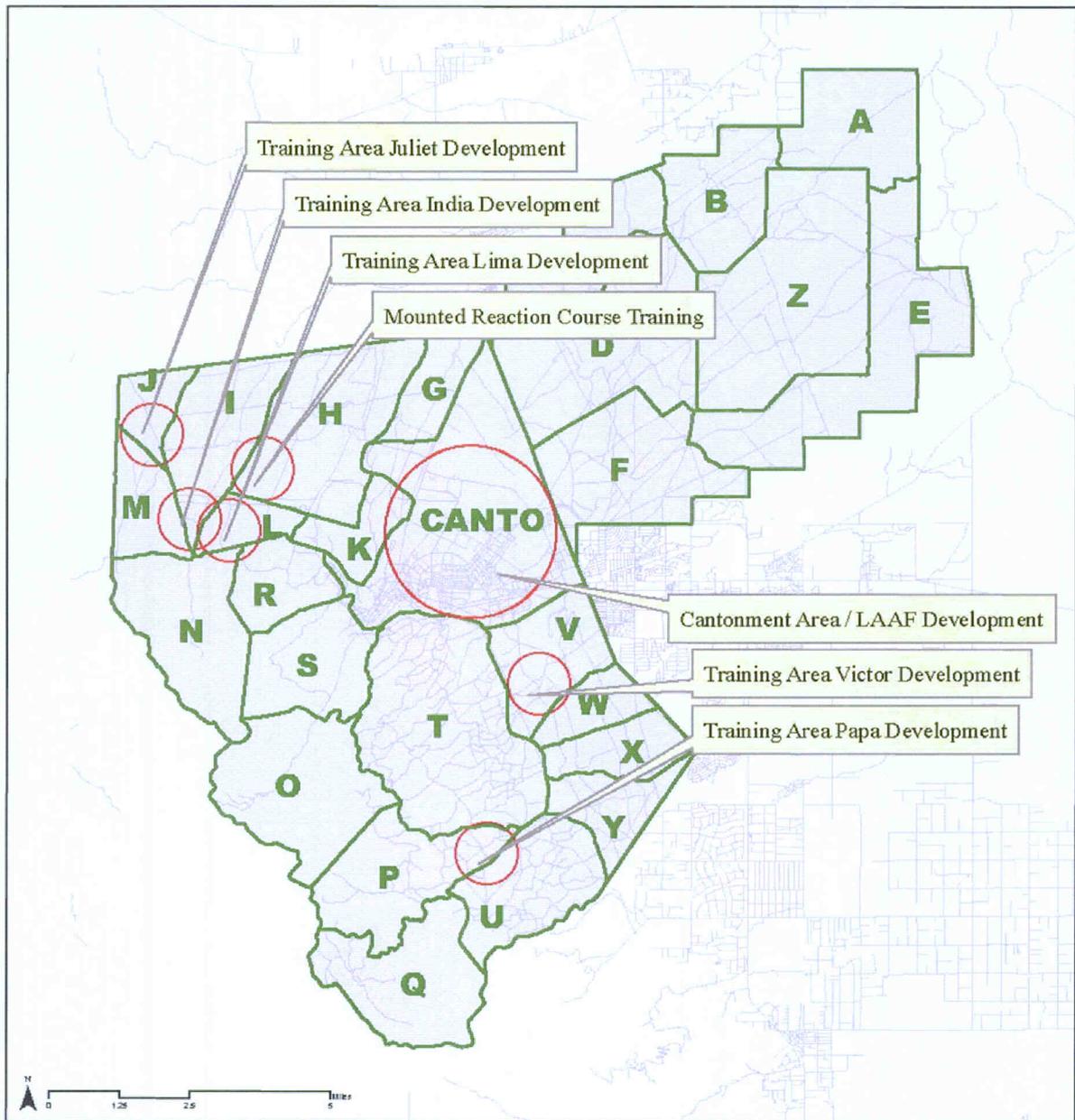
24 Certain site development activities have been identified as a part of the PA. The general locations of these
25 activities are identified in Figure 1 with further detail as follows.

26 Cantonment Area and Libby Army Airfield. The PA includes the redevelopment (construction) and use of
27 up to 75 acres and/or up to 1 million gross sq. ft. of real property inside the cantonment area and Libby
28 Army Airfield (LAAF). The specific locations for development are not presently known, but would be
29 limited to previously disturbed areas.

30 Training Area India. The PA includes the development and use of up to 20 acres in Training Area India.
31 The site could provide a MI testing and training campus for ongoing or future MI systems. Site
32 development and improvements may include buildings, concrete or asphalt equipment pads, ground
33 control pads, a service drive to the complex, a parking area, local traffic control, and on-site erosion
34 control and roof-top storm water collection systems. Utilities would be extended to the site from nearby
35 systems. The entire site would be surrounded by an 8 to 10' chain link fence topped with barbed wire.

36 Training Area Juliet. The PA includes the development and use of up to 10 acres in Training Area Juliet
37 (located on the West Range) adjacent to the existing Black Tower UAV Complex. The site could include
38 administrative, dining, or recreational facilities and provide additional fire fighting, security or
39 operational infrastructure. New parking areas could be established. Utilities would be extended to the site
40 from nearby utility easements along the roadway. Additional vehicle traffic to and from the site would
41 result on established paved roads.

42 Training Area Lima. The PA includes the development and use of up to 5 acres in Training Area Lima
43 (West Range) adjacent to an existing training facility. The enlarged facility would remain similar to other
44 sites and training village locations on Fort Huachuca using a combination of temporary and permanent
45 facilities and infrastructure. Utilities would be extended to the site from nearby systems along an existing
46 utility easement that was recently disturbed during underground telephone cable installation. Additional
47 vehicle traffic to and from the site would result on established roads.



Legend

- Generalized Development Locations
- Training Areas
- Roads

Figure 1

Fort Huachuca

1 Training Area Papa. The PA includes the development and use of up to 6 acres in Training Area Papa
2 (South Range) in an area of moderately disturbed grassland (there are existing roads and other man-made
3 improvements). This development would be a duplication of existing Site Uniform. Site development
4 would include a number of small buildings, paved and unpaved roadways, observation points, with
5 associated training activities outside the fenced areas. Utilities would be extended to the site. The entire
6 site would be surrounded by an 8-10' chain link fence topped with barbed wire. Access roads to and
7 surrounding the site may require the installation of water-bars and turn-outs and additional maintenance
8 due to local topographic variations and storm water flows.

9 Training Area Victor. The PA includes the development and utilization of up to 20 acres within Training
10 Area Victor (located on the South Range) in an area of moderately disturbed grassland (there are existing
11 dirt roads, stockpiled dirt mounds and a lightning shelter). Proposed site development would include a
12 new Military Operations on Urban Terrain (MOUT) training site.

13 The area would require site preparation and development to accommodate an artificial urban training
14 environment for MI and other personnel to conduct mounted and dismounted tactical training. The site
15 would require power and potable water. Sanitation would be accomplished through portable toilets (port-
16 a-pots). Initially, the site could consist of several buildings surrounded by an 8-10' chain link fence
17 topped with barbed wire.

18 Mounted Reaction Course. An existing loop of unpaved roads (approximately 3.75 miles) in Training
19 Areas Lima and Hotel would be converted into an STX lane for mounted reaction course training
20 exercises to simulate real world conditions. The course would include the placement of training aids such
21 as huts, derelict cars/trucks, debris piles, and other hiding places for mock aggressor forces along the lane
22 within 75 feet of the roadway. These items would be temporary in nature and not permanent facilities.
23 Ground disturbance from dismounted pedestrian movement could also result in this area. Simulated
24 improvised explosive devices (IED) could also be used on the interior of the STX lane using established
25 Range Control guidelines and restrictions for the use of pyrotechnics on Fort Huachuca. The specific
26 locations for the use of IEDs would meet Range Control requirements for fire control and suppression as
27 provided in existing regulations. Up to ten locations designated as vehicle pull-off areas (or turn-outs)
28 could be established along the course in areas at least partially disturbed from previous and ongoing
29 routine road maintenance. Paintball weapons could be used by the mock aggressor forces on either side of
30 the STX lane. All administrative and tactical vehicle traffic would be limited to existing dirt roads and
31 nearby parking areas. No new parking areas would be constructed. Continued roadway maintenance
32 would be required along the route to ensure proper functioning of the course.

33 Small Arms Firing Ranges on the South Range. The PA includes repair and refurbishment of existing
34 established small arms firing ranges on the South Range (all ranges with the exception of #5, and the
35 #12s). Site improvements may include road improvements, reconfiguring targets within existing range
36 footprints, upgrading target mechanisms, reconfiguring firing points or revamping entire ranges to be
37 used for different weapons systems. This does not include activating or reopening any ranges for firing of
38 field artillery or tanks and does not require the designation of new impact areas or safety zones.

39 2.1 ALTERNATIVE ONE – ENHANCED TRAINING CAPACITY

40 Alternative One includes all aspects of the PA plus the following additional activities:

41 Restructured Airspace. Restricted Airspace at Fort Huachuca could be restructured to accommodate
42 additional operational requirements. This restructuring could include a change in the physical limitations
43 of the airspace or other operational dimensions. A specific plan for airspace restructuring is not available
44 for this analysis.

45 Additional UAV Launch and Recovery Facility in the Vicinity of LAAF. This alternative includes the
46 construction and operation of one additional UAV launch and recovery facility (or runway) in the vicinity

1 of LAAF. A specific location and plan for this runway has not been developed but it is anticipated to be
2 either contiguous to LAAF or at a site outside of the cantonment area in the vicinity of LAAF.

3 Infrastructure and Facility Redevelopment and Runway Extension at Demonstration Hill. This alternative
4 includes the redevelopment of existing facilities and runway extension (to 5,000 ft) of the Demonstration
5 Hill facility for UAV operations. A specific location and plan for this site has not been developed but it is
6 anticipated that the site would be developed similar to the description provided for proposed site in
7 Training Area India (see above).

8 Protection of up to 25,000 Acres through Conservation Easements. Under this alternative up to 25,000
9 acres of off-post land would be protected through conservation easements. The locations of this acreage is
10 not currently known, but is expected to be near or contiguous with the Fort.

11 Development and Operation of New Live Fire Ranges on the South and East Ranges. This alternative
12 includes the development and operation of additional small arms live fire ranges on the South or East
13 Ranges at the Fort. These potential ranges are anticipated to be sited in areas that meet all applicable
14 DoD, Army and Fort Huachuca firing range design and development regulations.

15 Redevelopment of the Cantonment Area and LAAF. Up to 1.5 million gross sq. ft. of facilities
16 construction. This represents an increase of 0.5 million sq. ft. over the PA.

17 Additional Training Area Juliet Development. This alternative includes the development and operation of
18 a 30-acre UAV testing and training campus in the vicinity of the current UAV School (located on the
19 West Range). This development is in addition to that described for Training Area Juliet under the PA. The
20 specific location for this development is not available but is anticipated to be contiguous to or within the
21 vicinity of the existing Black Tower UAV Complex.

22 Training Area India Development. The PA includes the development and use of up to 20 acres in Training
23 Area India. Alternative One includes this same site development but with additional operational
24 capabilities. Alternative One would include the launch and recovery of UAVs (both rotary wing and fixed
25 wing). Site development and improvements would be similar to those identified under the PA but would
26 also include a large runway, the creation of safety zones at the end of the runway, and the ability to
27 operate the facility 24 hours per day 7 days per week.

28 Permanent Party Increases. This alternative includes the addition of personnel to equal 100% of the
29 approximated TDA related to USAIC activities at Fort Huachuca plus an additional 400 contractors.

30 **2.2 ALTERNATIVE TWO – REDUCED TRAINING CAPACITY**

31 Alternative Two includes fewer actions and activities than the PA. This alternative is similar to the PA,
32 but at a lower intensity level. Construction/redevelopment would be less, at up to 35 acres or 500,000
33 gross sq. ft. of redevelopment in the cantonment area and on LAAF. The permanent party increases would
34 equal 85% of the approximated USAIC TDA plus 50 contractors. A total of up to 5,000 acres of off-post
35 land would be protected through conservation easements. The locations of this acreage is not currently
36 known, but is expected to be contiguous to the Fort.

37 **2.3 ALTERNATIVE THREE – NO ACTION**

38 This alternative required by law to establish the baseline applicable to the action and its anticipated
39 impacts in the ROI. The no-action alternative includes training of the increasing number of students
40 attending various MI training courses at Fort Huachuca, erecting temporary single soldier housing (SSH),
41 and constructing up to 400 rooms of permanent SSH as described in USAGFH 2001a, but does not
42 include any additional permanent construction or future increase of staff and faculty to meet additional or
43 sustained training requirements. The no-action alternative also would not include any site development or
44 range improvements in the training areas. The no-action alternative would not adequately support the

1 changing training and testing mission requirements of USAIC, FH, but is analyzed in this document as
 2 required by the NEPA.

3 **2.4 ALTERNATIVES CONSIDERED BUT ELIMINATED FROM FURTHER CONSIDERATION**

4 Scoping meetings and location site visits occurred during the development of the alternatives for this EA.
 5 Several site-selection alternatives were reviewed during this preliminary scoping phase and eliminated
 6 from further consideration due to on-site operational or environmental concerns and limitations.

7 **2.5 COMPARISON OF PROPOSED ACTION AND ALTERNATIVES**

8 The PA and three alternatives including a no-action alternative (Alternative Three) are carried forward for
 9 analysis. Table 2.5-1 presents each of the alternatives in comparison to the activities associated with the
 10 PA and the stated purpose and need of the PA.

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 12
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Table 2.5-1 Comparison of Proposed Action and Alternatives

Activities / Locations	Proposed Action (PA)	Alternative One	Alternative Two	No Action
Programmatic Changes	Increased training range utilization and protection of up to 15,000 acres of conservation easements in region	Same as PA but with up to 25,000 acres of conservation easements	Same as PA but with up to 5,000 acres of conservation easements	Status quo
Cantonment Area and Libby Army Airfield	Up to 75 acres or 1 million gross square feet of redevelopment in previously disturbed areas	Up to 100 acres or 1.5 million gross square feet	Up to 35 acres or 0.5 million gross square feet	Status quo
Training Area India	Up to 20 acres of development	Similar to PA but to include the launch and recovery of UAVs	Same as PA	Status quo
Training Area Juliet	Up to 10 acres of development	Up to 40 acres of development	Same as PA	Status quo
Training Area Lima	Up to 5 acres of development	Same as PA	Same as PA	Status quo
Training Area Papa	Up to 6 acres of development	Same as PA	Same as PA but with temporary construction (shelters plus fence)	Status quo
Training Area Victor	Up to 20 acres of development	Same as PA	Same as PA but with temporary construction (shelters plus fence)	Status quo
Small arms firing ranges	Upgrade and refurbish existing ranges	Upgrade and refurbish existing ranges; build new live fire ranges	Same as PA	Status quo
Testing and training activities	Increased UAV activity, dismounted traffic, East Range training; new MRC	Same as PA	Same as PA	Status quo
Student throughput	To be directed by TRADOC. This reflects the status quo	Same as PA	Same as PA	Status quo
Permanent party increases	Add to 90% of TDA	Add to 100% of TDA plus 400 contractors to result between FY05-10	Add to 85% of TDA plus 50 contractors to result between FY05-10	Status quo
Airspace modification	Status quo	Possible restructuring	Status quo	Status quo
UAV launch and recovery (L&R) facilities	Status quo	New UAV L&R facility near LAAF; new UAV L&R facilities in Training Areas India and Juliet; improvement of existing Demo Hill facility and runway extension.	Status quo	Status quo

3 AFFECTED ENVIRONMENTS AND CONSEQUENCES

3.0 INTRODUCTION

This section is intended to provide sufficient information to determine the potential for significant impact associated with the PA and alternatives. As stated in CEQ Guidelines 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.

A description of general baseline environmental conditions at Fort Huachuca and within the region was prepared in November 2004 and is provided in Appendix A. Site specific environmental conditions or observations are provided in Appendix B of this document.

Potential changes or impacts to the environment as a result of the PA or alternatives are described as potential consequences. These consequences include:

- Direct effects which are caused by the action and occur at the same time and place.
- Indirect effects which are caused by the action and are later in time or farther removed in distance, but are still reasonably foreseeable. Indirect effects may include growth inducing effects and other effects related to induced changes in the pattern of land use, population density or growth rate, and related effects on air and water and other natural systems, including ecosystems.
- Cumulative effects which are those impacts attributable to the PA 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.

Consequences, effects and impacts as used in these regulations are synonymous. Effects include ecological (such as the effects on natural resources and on the components, structures, and functioning of affected ecosystems), aesthetic, historic, cultural, economic, social, or health, whether direct, indirect, or cumulative. Effects may also include those resulting from actions which may have both beneficial and detrimental effects, even if on balance the Army believes that the effect will be beneficial.

The significance of potential impact on the natural or built environment depends upon context, setting, likelihood of occurrence, and severity, intensity, magnitude, or duration of the impact. "Significantly" as used in NEPA requires considerations of both context and intensity:

- Context refers to the significance of an action must be analyzed in several contexts such as society as a whole (human and national), the affected region, the affected interests, and the locality.
- Intensity refers to the severity of impact.

The analysis of environmental consequences requires the evaluation of a broad range of information that may have a relationship to the PA and alternatives. A good understanding of the politics, sociology, economics, and environment of the region is key to this analysis, as is an accurate evaluation of factors that contribute to potential impacts.

3.1 POTENTIAL CONSEQUENCES TO LAND USE AND RECREATION

The potential for adverse impact to local and regional land use is evaluated based on the compatibility of land uses associated with the PA and alternatives with on-site and adjacent land uses and zoning, and consistency with general plans and other applicable land use plans and regulations.

1 Adverse impacts on land use typically result when:

- 2 • The action is incompatible with existing on-site or adjacent land use and results in a long-term
3 disruption of the use of such lands;
- 4 • The action conflicts with the environmental goals, objectives, or guidelines of a Installation
5 Master Plan, Integrated Natural Resource Management Plan, or other Army or installation
6 regulations or directives for the area affected; or
- 7 • The action alters the use of the land in a way that is incompatible with, and reduces the existing or
8 programmed utility of, adjacent and surrounding land uses.

9 Factors considered in determining impacts on recreation resources include:

- 10 • Disruption of recreational use of resources, such as parks or recreational paths, or interference
11 with the public's continued right of access to these areas; or
- 12 • Prevention of long-term recreational use, prevention of use during peak season.

13 The Region of Influence (ROI) for land use encompasses the entire Fort and areas immediately adjacent
14 to and surrounding the existing Fort boundary.

15 **3.1.1 Proposed Action**

16 Impacts from Site Development. Proposed facility improvements and new construction activities within
17 the cantonment area or at LAAF would occur at locations at or adjacent to existing and similar
18 administrative or training facilities. Available site development locations within the cantonment area are
19 typically disturbed "infill" locations that have been reserved for future site expansion or increased facility
20 densities. The Fort Huachuca Real Property Master Plan requires redevelopment and new development to
21 be located in designated land use zones within the cantonment area to prevent land use conflicts between
22 adjacent properties. Consequently, potential impacts to land use from proposed site development or
23 redevelopment within the cantonment area or at LAAF is a less than significant impact.

24 Site development in Training Areas India, Juliet, and Lima would occur near or adjacent to existing
25 facilities designated for similar uses. Proposed development at both locations would conform to existing
26 training range land uses and would not result in a significant impact to on-site or adjacent land uses.

27 Proposed facility development in Training Areas Papa and Victor would occur in remote areas on the
28 Fort, away from any other major facilities or developments. Development at both sites would occur in
29 existing training areas that support the type of training being proposed and would not result in a
30 significant impact to land use on the Fort. During and after construction, land uses (including hunting)
31 may be temporarily affected. This impact is less than significant because it would be localized and
32 temporary.

33 The refurbishment of the small arms firing ranges would have no impact on land use. The establishment
34 of an MRC course on existing unpaved roads in Training Areas Lima and Hotel would restrict other
35 military and public access to the road course during training events, but is not anticipated to result in any
36 adverse impact on the use of the area.

37 Impacts on Natural Resources Management and Recreational Land Use. Impacts on natural resources
38 management and recreational land use are associated with the introduction of new land uses across the
39 Fort or the provision or restriction of recreation or other natural resource uses. Proposed site development
40 within the cantonment area would result in a beneficial impact on recreational resources at the Fort.
41 Associated with the PA is refurbishing and upgrading of physical training areas and converting existing
42 disturbed areas into improved physical training areas.

43 Proposed development sites within Training Areas India, Lima, and Juliet are within 0.25 miles of
44 existing test or training facilities where hunting is not permitted and very few recreational activities occur.

1 The establishment of new facilities at these locations would increase the required safety buffer distance
2 around facilities where hunting is not permitted resulting in a net loss of approximately 15 acres of
3 medium-quality hunting areas from public use. Development within Training Area Papa would remove an
4 additional 10 acres of higher quality hunting areas from public use for similar reasons. There is no
5 hunting permitted in Training Area Victor. Establishment of the MRC training route would restrict public
6 access to the approximately 3.75 miles of unpaved roads in Training Areas Hotel and Lima and areas
7 accessed via the same roads. Outside of those times when training is being conducted public access to the
8 road loop would remain open. Overall, anticipated impacts on recreational resources are not anticipated to
9 be significant, based on the remaining availability of other similar areas on the Fort and within the region.

10 Impacts from Conservation Easements. Conservation easements within the subwatershed would
11 contribute to improved water quality by reserving on-site percolation and recharge and would be designed
12 to reduce future groundwater pumping within the subwatershed. They would help protect the existing
13 rural landscape and scenic beauty.

14 The establishment of additional conservation easements within the Sierra Vista subwatershed would have
15 an impact on future land uses in those areas through the restriction of future development or other
16 consumptive uses as outlined in the easement agreement. This impact would reduce the availability of
17 land for development within the subwatershed and may subsequently increase development pressures on
18 other nearby lands. This may result in a net positive benefit for neighboring landowners. The acquisition
19 of additional conservation easements near Fort Huachuca may reduce the potential for long-term land use
20 incompatibilities and conflicts, and provide a beneficial impact to ecosystem health within the
21 subwatershed. This action would represent a less than significant impact on the human environment.

22 Impacts from Increased Training Activities. Land areas within Fort Huachuca that would be used for
23 proposed training are currently being used for similar training. There is no significant land use difference
24 between current training and proposed training. Increased utilization of training ranges would result in the
25 land being more intensively used under the PA. To prevent land degradation and to allow for the
26 continued use of training lands, the Army incorporates all training lands into its Integrated Training Area
27 Management (ITAM) program which works to maintain the utility of the Fort's military training
28 environment. Consequently, impacts to land use from proposed training is anticipated to be less than
29 significant.

30 Impacts from Increased Frequency of UAV Flight Operations. The anticipated increase in annual UAV
31 operations, including night time activities both at on-post UAV facilities and off-post within special use
32 restricted airspace, would not create any land use conflicts and would be compatible with on-site and
33 underlying land uses. Noises generated during UAV activities would not change or affect any existing or
34 planned land uses and would not conflict with any land use planning guidelines. Off-post areas that would
35 be exposed to UAV overflights are sparsely populated, with a few small towns and scattered houses
36 between Elgin and Patagonia to the west. The impact of noise on public health and human safety is
37 described in Section 4.3, below, and not addressed here. However, because of the relatively low noise
38 levels and infrequency of overflights, their impact will not create any adverse land use conflicts or
39 contribute to any degradation of existing land use value. There will be no significant impacts to land use
40 within the ROI due to proposed increases in the frequency of UAV flight operations.

41 **3.1.2 Alternative One**

42 Impacts to land use and recreation would be largely the same under Alternative One as under the PA.
43 Additional site development within the cantonment area and training areas across the Fort would result
44 under this alternative but not to the extent that it would substantially increase adverse impacts to land uses
45 or availability of, and public access to, recreational resources on the Fort. Increased urbanization of the
46 cantonment area would not result in any significant impact on land uses as it would also occur in largely
47 disturbed "infill" locations adjacent or near similar development. Additional UAV training facilities on
48 the West Range would occur in training areas already used or permitted for similar training activities.

1 The improvement of facilities and extension of runway at Demolition Hill would adversely impact lands
2 being used by the Buffalo Corral for recreational horseback riding and grazing. The existing horse corral
3 would either be relocated further from the runway area or closed.

4 An additional 10,000 acres of conservation easements would be sought under this alternative. The types
5 of impacts from this additional area would be identical to that discussed under the PA but to a larger
6 degree.

7 Under this alternative, an additional runway at LAAF could be constructed. This would require
8 establishment of safety zones at the end of the runways, prohibiting or greatly reducing future site
9 development or public uses of the lands. The extent of this impact can not be evaluated unless a site-
10 specific runway design is completed. Consequently, there is insufficient information available to
11 determine the potential significance of land use impacts from the development of an additional runway at
12 LAAF.

13 **3.1.3 Alternative Two**

14 Impacts to land use and recreation would be largely the same under Alternative Two as under the PA.
15 Less development in the cantonment area would result and fewer acres of conservation easements would
16 be sought. Impacts to land use as a result of the reduced scale of development and areas of conservation
17 easements associated with this alternative would be less than those identified for the PA and less than
18 significant.

19 **3.1.4 Alternative Three**

20 The baseline of current conditions and training exercises at all of the facilities would continue under the
21 no action alternative. The Army would continue to operate and maintain its range and training area
22 facilities in order to meet its training mission requirement. Invariably, the level of training would change
23 occasionally in response to this requirement. The level of use of the installation's training assets is not
24 anticipated to alter the land use character of the Fort itself or adjacent properties. Consequently, less than
25 significant impacts to land use and recreation are anticipated.

26 **3.1.5 Cumulative Impacts**

27 Over the past several years, development within the cantonment area has been guided by the Fort
28 Huachuca Real Property Master Plan and Fort Huachuca Master Planner. The development of new
29 military housing has resulted in an updated residential district in the southern portion of the cantonment
30 area. Construction of new administrative facilities throughout the cantonment has added to the increased
31 urbanization of the northern portion of the cantonment area. Both of these areas have been developed
32 under the oversight of the Real Property Master Plan and Fort Huachuca Master Planner and have been
33 designed to reduce incompatibilities between land uses within the cantonment area. Table 3.1-2 identifies
34 currently programmed facility development on Fort Huachuca.

35 Utilization of training ranges at the Fort is under the direction of the Fort Huachuca Range Control
36 Officer and applicable range control regulations as promulgated by the Fort. An increase in training
37 requirements at the Fort will continue to exert scheduling pressures for the use of these ranges and could
38 eventually result in a potential limitation on the capability of the Fort to provide its tenants and personnel
39 with adequate training resources if improvements are not made.

40 Recreational use of Fort property has increased over the past several years as more and more personnel
41 and their families as well as the public have become aware of, and in interested in, outdoors activities
42 such as hunting, fishing, birding, hiking, and horseback riding that the Fort offers. Continued
43 development on Fort Huachuca could eventually reduce the lands or resources available for recreational
44 use to a point where degradation to available resources may result from overuse or over-utilization,
45 however the integrated natural resources management planning process is in place to manage these
46 impacts.

3.2 VISUAL RESOURCES

Visual resources are assessed by estimating the amount of visual change to the basic visual resource components of water, landform, vegetation, and human-made elements as a result of the project. Visual resource components typically are measured in terms of the amount of change in design elements, such as form, line, color, texture, and scale in the landscape. Within this context, visual changes are evaluated in terms of the degree to which they may be visible to the viewer - foreground, middle ground, and background views - and the general sensitivity of the view to landscape alterations. Adverse impacts on visual resources typically result when:

- The action permanently alters a site so that a sensitive viewing point or vista is obstructed or adversely affected;
- The action prevents or substantially impairs the view from a sensitive viewpoint for the duration of the project;
- The action includes the installation of bright, uncomfortable, or visually disturbing lighting that would be seen from nearby public or residential areas, roadways or adjacent locations and result in a hazard to human health or safety;
- The action results in a substantial degradation of an existing viewshed or alteration of the character of a viewshed by the introduction of anomalous structures or elements resulting in a demonstrable and significant adverse economic impact to public or private landowners; or
- Development associated with a PA fails to comply with existing site development ordinances, regulations or instructions relating to architectural treatments and aesthetic guidelines.

The ROI for visual resources includes the existing visual setting in and around Fort Huachuca as it is defined by on-post and off-post features and various views from particular vantage points (i.e., viewsheds) that encompass those features.

3.2.1 Proposed Action

Impairment of Views During the Construction Phase. The PA would result in short-term impacts on views at Fort Huachuca during the construction phase. This impairment would result from a change in the general appearance of each of these areas by using earth-moving equipment, transporting and storing materials on-site, erecting temporary fencing and implementing erosion-control measures, and constructing buildings at project sites. Short-term impacts to visibility under this alternative could also occur as a result of temporary releases of fugitive dust from construction sites. Due to the short-term nature of the construction activity these impacts are not considered significant.

Modification of the Existing View. Minor impacts on existing views are expected to occur at Fort Huachuca as a result of construction activities across the installation. Construction projects within the cantonment area and LAAF would occur in areas of disturbed grasslands or open space and could be visible from major roadways on the Fort. Proposed development is consistent with the urbanized nature of the northern portion of the cantonment area and LAAF.

Proposed development in Training Areas India, Juliet, and Lima would occur adjacent to or near existing developments of similar composition and form and would not result in a significant change to views of and from the areas. Where practicable, the Fort is committed to enhancing existing site conditions to help screen new developments on the south and west ranges from the surrounding areas. The proposed UAV facility in Training Areas India, Juliet, and Lima would be developed to conserve existing natural features, including terrain and vegetative cover, to the extent practicable. The facilities would be located to maximize use of natural screening if possible.

Development in Training Area Papa and Victor would occur in more remote areas away from any off-post views. The use of existing native vegetation for screening is a part of the preferred site design for MOUT

1 sites and similar MI training facilities and would reduce impacts to existing views of and from the sites.
2 Overall no significant impact to existing views of, or from, Fort Huachuca is anticipated.

3 Alteration of Landscape Character. Current open spaces would be replaced in part by the proposed
4 facilities and would be visible from certain foreground and middle ground views from within and adjacent
5 to Fort Huachuca. The urbanized nature of the cantonment area and LAAF is the most prominent feature
6 of the Fort (with the exception of the Huachuca Mountains) seen from nearby public roads and lands.
7 Increased development within these areas would not result in any significant alteration of landscape
8 character on the Fort as would be noticed from adjacent public roads and lands.

9 Proposed development on the training ranges would introduce additional built elements to the visual
10 landscape of the areas. The expansion of the UAV complex in Training Area Juliet would be visible from
11 the few off-post public areas to the west of the Fort. The form and structure of the proposed development
12 would be similar to existing developments adjacent to the site and would not result in any significant
13 change to the view. The remaining areas proposed for development are not visible from off-post public
14 lands. Due to the remote locations of these proposed facilities, relatively few military personnel and
15 members of the public would notice the minor change in landscape character. Consequently, no
16 significant impact to the landscape character of Fort Huachuca is anticipated as a result of the PA.

17 **3.2.2 Alternative One**

18 Impairment of views during the construction phase, modification of existing views, and alteration of
19 landscape character would be largely the same under Alternative One as under the PA. Additional site
20 development within the cantonment area and training areas across the Fort would result under this
21 alternative but not to the extent that it would substantially increase adverse impacts to the visual character
22 of the Fort. As would be the case for the PA, impacts to visual resources would have a less than
23 significant impact to the human environment under this alternative.

24 **3.2.3 Alternative Two**

25 Impairment of views during the construction phase, modification of existing views, and alteration of
26 landscape character would be largely the same under Alternative Two as under the PA. There would be
27 less site development within the cantonment area and training areas across the Fort under this alternative
28 but not to the extent that it would result substantially decrease adverse impacts to the visual character of
29 the Fort. As would be the case for the PA, impacts to visual resources would have a less than significant
30 impact on the human environment under this alternative.

31 **3.2.4 Alternative Three**

32 The baseline of current conditions and training exercises at all of the facilities would continue under the
33 no action alternative. The Army would continue to operate and maintain its range and training area
34 facilities in order to meet its training mission requirement. Invariably, the level of training would change
35 occasionally in response to this requirement, and, consequently, the visual impact as a result of these
36 changes might be altered as well. The level of use of the installation's training assets is not anticipated to
37 alter the physical character of the landscape itself, and no impacts are expected to visual resources in the
38 ROI.

39 **3.2.5 Cumulative Impacts**

40 Ongoing redevelopment at Fort Huachuca is transforming it into a more modern campus-like setting. The
41 recent construction of military housing projects in the southern part of the cantonment area has improved
42 the aesthetic conditions at these sites. The use of consistent building design guidelines for new
43 administrative buildings at the Fort has resulted in more unified design setting in the northern portion of
44 the cantonment area. The unique presence of wooden buildings associated with the historic district at the
45 Fort is protected from destruction or adverse alteration by federal Historic Property laws and Army
46 Regulations. Overall, the landscape character of the Fort continues to evolve into a more modern and

1 aesthetically contiguous development in response to changing military mission needs of the Army and
2 adherence to proactive master planning and design guidelines.

3 **3.3 TOPOGRAPHY, SOILS, AND GEOLOGY**

4 Topographic impacts relate to the potential for large-scale adverse alteration of local topographic
5 conditions. Soil impacts typically refer to the level of anticipated soil redistribution. These impacts both
6 relate to the amount and type of disturbance that can be attributed to the PA or alternatives. Adverse
7 impacts on soil resources typically result when:

- 8 • Erosion from project-related activities results in an appreciable loss of topsoil that endangers
9 human health or safety or ecological conditions; or
- 10 • Increased down-stream sedimentation and soil redistribution caused by grading or impervious
11 surfacing impedes the function of existing drainage facilities and watercourses resulting in an
12 increased risk to human health and safety or critical ecological constituents.

13 In addition, adverse impacts could also result if construction activities or operations have a high potential
14 for soil contamination that endangers human health and safety or ecological constituents. This
15 consideration is discussed in Section 3.11 *Hazardous Waste, Substances and Materials*, and is not
16 repeated here.

17 Geologic impacts can be direct (addressed in this section) or indirect related to groundwater (covered in
18 Section 3.4 *Hydrology and Water Resources*). Adverse impacts on geologic resources typically result
19 when an action:

- 20 • Results in a substantial loss of soil (such as through increased erosion), or loss of access to
21 economically significant mineral deposits;
- 22 • Adversely affects human health or environmental receptors, such as through exposure to toxic
23 chemicals or irritants present in geologic materials;
- 24 • Adversely alters existing geologic conditions or processes such that the existing or potential
25 benefits of the geologic resource are reduced;
- 26 • Permanently damages or alters a unique or recognized geologic features or landmarks; or
- 27 • Results in an increased potential for the existence of geologic hazards such as sinkholes, caves,
28 mines, or quarries that pose a threat to human health or safety.

29
30 The ROI for these resources is defined by the area within which an action may indirectly or directly cause
31 changes in the character of the resource. This includes direct changes due to proposed earth disturbing
32 activities as well as potential down-stream activities that may result from increased “up-stream” erosion,
33 sedimentation or change in topographic condition.

34 **3.3.1 Proposed Action**

35 Impacts from Site Development. No significant impacts to topography or geological resources are
36 anticipated from site development associated with the PA. While demolition, excavation and earthmoving
37 associated with the construction of new facilities have the potential to affect soil resources, the potential
38 for impact is mitigated by operating within the confines of a National Pollutant Discharge Elimination
39 System (NPDES) permit and stormwater pollution prevention plan (SWPPP) and through sound site
40 design to limit erosion. These measures would ensure no appreciable loss in topsoil or excessive
41 sedimentation reaching nearby drainages or watercourses.

42 Impacts from Increased Training Activities. Increased mounted vehicle maneuver training may result in
43 increased soil erosion along unpaved roads and maintained trails in specific areas of the West and South
44 ranges due to increased intensity of use within these areas. Also, the amount of land subject to potential
45 increases in soil erosion would increase at the Fort relative to the No Action Alternative. Increased

1 training intensity could degrade the condition of training lands being used at the Fort unless mitigated as
2 described below. These mitigation measures will substantially reduce the impacts to less than significant
3 levels.

4 Preferred drainage pathways could develop along the compacted linear tracks left by military vehicles,
5 creating increased erosion along unpaved roads and trails. The impacts of these changes are depends on
6 the area of land area affected and intensity of training area utilization. Mitigation will reduce the impacts
7 to less than significant levels.

8 Impacts from Seismic or other Geologic Hazards. The PA would not increase the potential for hazards
9 associated with these conditions relative to the current baseline. The hazards associated with earthquakes
10 at the Fort are considered less than significant because new structures would be designed to withstand the
11 expected range of seismic disturbance.

12 Impacts Related to Conservation Easements. Accelerated soil erosion is apparent in and around the region
13 at the present time. Improved land management practices directly related to the protection of land through
14 conservations easements would result in improved perennial grass cover and reduced rates of erosion
15 throughout the region.

16 **3.3.2 Alternative One**

17 Soil loss and compaction from training activities, exposure to soil contaminants, or risk of exposure to
18 seismic or other geologic hazards would be largely the same under Alternative One as under the PA. The
19 additional site development across the Fort would not substantially increase adverse impacts associated
20 with these resources. Impacts to soil and geologic resources would be less than significant under this
21 alternative.

22 **3.3.3 Alternative Two**

23 Soil loss and compaction from training activities, exposure to soil contaminants, or risk of exposure to
24 seismic or other geologic hazards would be largely the same under Alternative Two as under the PA. Less
25 site development across the Fort would occur under this alternative but would not substantially decrease
26 adverse impacts associated with soil or geologic resources. Impacts to soil and geologic resources would
27 have a less than significant impact on the human environment under this alternative.

28 **3.3.4 Alternative Three**

29 The baseline of current conditions and training exercises at all of the facilities would continue under the
30 no action alternative. The Army would continue to operate and maintain its range and training area
31 facilities in order to meet its training mission requirement. Invariably, the level of training would change
32 occasionally in response to this requirement, and, consequently, the impacts to soils on the Fort as a result
33 of these changes might be altered as well. The level of use of the installation's training assets is not
34 anticipated to significantly alter the physical character of the landscape itself due to the continued
35 implementation of the Fort Huachuca INRMP, ITAM program, and East Range Watershed Improvement
36 Rehabilitation Plan which address soils loss in training areas on the Fort.

37 **3.3.5 Cumulative Impacts**

38 Soils management is a critical portion of the Fort's mission in providing realistic training environments to
39 its soldiers and tenants. The Fort Huachuca INRMP outlines specific training land use restrictions,
40 rehabilitation programs, and monitoring and impact tracking protocols that are meant to lessen the impact
41 of military training on the soils at Fort Huachuca. An East Range Watershed Improvement Rehabilitation
42 Plan was prepared in 2002 to address training and non-training related erosion on the East Range, and is
43 currently being implemented, resulting in improvements in soil conditions through the construction of
44 storm water containment and delivery infrastructure, road closures, prescribed fires, and root plowing and
45 mesquite removal. Overall, improvements to soil conditions at Fort Huachuca have increased over the

1 past several years and are anticipated to continue into the future resulting in beneficial impacts on these
2 resources.

3 **3.3.6 Mitigation**

4 The potential for construction impact is mitigated through sound site design to limit erosion. For
5 disturbances of one acre or more, a SWPPP is required prior to project implementation. The purpose of
6 the plan is to minimize erosion through the use of Best Management Practices (BMPs). These BMPs will
7 ensure that construction-related soil erosion is kept to a minimum and would ensure no appreciable loss in
8 topsoil or excessive sedimentation reaching nearby drainages or watercourses.

9 The Army will continue to implement the Fort Huachuca INRMP, ITAM program, and East Range
10 Watershed Improvement Rehabilitation Plan which address soils loss in training areas on the Fort. The
11 Army will monitor the impacts of training activities to ensure that emissions stay within the acceptable
12 ranges. The plan will also define contingency measures to mitigate the impacts of training activities that
13 exceed the acceptable ranges for dust emissions or soil compaction.

14 **3.4 HYDROLOGY AND WATER RESOURCES**

15 The potential for adverse impacts to this resource area can include direct changes due to proposed water
16 consumption or discharge as well as potential surface or subsurface activities that could affect local or
17 regional water quality or availability. Potential impacts to hydrology and water resources (surface water
18 and groundwater) can be direct, indirect, short-term, or long-term. Adverse impacts on hydrology or water
19 resources typically result when:

- 20 • The action alters the existing pattern of surface or groundwater flow or drainage in a manner that
21 would adversely affect the uses of the water within or outside the project region;
- 22 • The action would be out of compliance with existing or proposed water quality standards or with
23 other regulatory requirements related to protecting or managing water resources;
- 24 • The action would increase the hazard of flooding or the amount of damage that could result from
25 flooding;
- 26 • The action produces concentrated storm water flows and/or runoff constituents that significantly
27 degrade downstream surface water quality resulting in an adverse risk to health and human safety
28 or ecological conditions;
- 29 • The action results in increased soil settlement or ground swelling that damages structures,
30 utilities, or other facilities caused by inundation and/or changes in the groundwater level;
- 31 • The action results in grading or other construction activities that discontinue the function of
32 existing drainage facilities or watercourses and can result in local and/or regional flooding that
33 poses a threat to human health and safety or ecological conditions; or
- 34 • A usable groundwater aquifer for municipal, private, or agricultural purposes is adversely
35 affected by depletion or contamination from the PA.

36 The ROI for groundwater includes the Sierra Vista subwatershed of the Upper San Pedro River Basin
37 (USPB). The ROI for surface water extends downstream and beyond the boundaries of the Fort,
38 encompassing areas that would be affected by the proposed physical changes on the Fort.

39 **3.4.1 Proposed Action**

40 Impacts on Surface Water Quality from Construction. Short-term construction-related impacts on water
41 quality could occur if storm water runoff were to come into contact with disturbed soils or exposed soil
42 contaminants in construction sites, including road maintenance sites, and if the runoff then discharged to
43 streams or other surface waters. This type of impact could occur at construction sites across the
44 installation, but is expected to be less than significant because construction activities on sites involving

1 disturbance of areas greater than 1 acre (0.4 hectare) (which effectively includes all of the proposed
2 construction projects), must comply with Phase 2 Storm Water Regulations (discussed above).
3 Consequently, surface water quality impacts from construction activities at the Fort would be less than
4 significant.

5 Impacts on Surface Water Quality from Chemical Residues or Spills. The PA is not anticipated to result
6 in any increased risk of chemical residue spills on the surface soils that could affect the surface water
7 quality at the Fort. Accumulation of chemical residues in surface soils or occasional spills that may occur
8 during routine training activities has the potential to contribute to degradation of surface water quality. As
9 with short-term construction-related sources, these may also be from non-point sources. As explained in
10 Section 3.10 *Hazardous Wastes, Substances, and Materials*, the Army spill prevention and control plans
11 reduce potential impacts associated with this type of threat to less than significant.

12 Impacts on Surface Water Quality from Non-point Source Sediment Loading from Mounted Maneuver
13 Training. Training activities under the PA are expected to result in an increase in mounted maneuver
14 training compared to existing conditions. Of most concern are the major perennial streams that receive
15 runoff from the Fort, including the Babocomari River to the north and San Pedro River to the east. An
16 increase in sediment loading could occur across the Fort in training areas designated for such training
17 activity. This increase in training activity would likely result in a minor increase in soil erosion along un-
18 paved roads and trails on the Fort. The lack of perennial water features in the majority of these designated
19 training areas reduces the potential for downstream sediment loading during or result from mounted
20 maneuver training. Any increase in soil erosion (see Section 3.3 for an expanded discussion of potential
21 soil erosion) is likely to produce a less than significant increase in suspended sediment in streams beds
22 that could be affected by training activities. Soil erosion was discussed previously in Section 3.3
23 *Topography, Soils, and Geology*.

24 Increased Flood Potential. Flood hazard has been identified as a less than significant impact at the Fort
25 (USAIC, FH 1999). The potential for flooding could increase if impermeable surface area increases
26 significantly, reducing infiltration of storm water, generating more storm water runoff, or focusing or
27 concentrating the discharge in a smaller area. The result could be more frequent flooding in areas that are
28 already prone to flooding. In general, this is not expected to result in a significant impact because storm
29 water collection systems would be designed to avoid these impacts.

30 Impacts on Groundwater Quality during Construction of Proposed Facilities. As described for surface
31 water, chemical or fuel spills might occur during construction activities, resulting in chemicals seeping
32 into the subsurface and eventually to groundwater. However, any spills that occur would be immediately
33 cleaned up, and the depth to groundwater is great enough in the Fort area that contaminants would not
34 reach groundwater rapidly, increasing the likelihood that surface spills would be addressed before they
35 become a groundwater problem. Standard construction practices and materials would be used, resulting in
36 no greater than usual potential for spills compared to other construction projects.

37 Impacts on Groundwater Quality from Operation of Proposed Facilities. Operating several proposed
38 facilities would involve handling hazardous liquids or other chemicals or processing wastewater or other
39 waste liquids. All facilities that generate hazardous wastes or that store hazardous materials would
40 provide appropriately trained personnel to manage these materials. Hazardous materials are managed
41 according to the Army's standard operating procedures and in compliance with state and federal
42 requirements. Facilities would be designed with engineering controls, such as secondary containment,
43 waste treatment facilities, automatic shutoff controls, and other systems, to reduce the potential for
44 releases. If releases were to occur, they would be cleaned up. Implementing these procedures is expected
45 to reduce the potential for impacts on groundwater to less than significant levels.

46 Impacts from Conservation Easements. In general, conservation easements that reduce development and
47 manage for sustainability help preserve ecosystem health. Additional conservation easements within the
48 subwatershed would result in beneficial impacts to surface and groundwater resources with the ROI and

1 in particularly the San Pedro River. Reduction in pumping for agricultural uses would help to maintain
2 flows in the San Pedro River. The acquisition of conservation easements within the subwatershed would
3 also likely indirectly benefit special-status species and their habitat through the preservation of
4 contributions to base flow in the river.

5 Impacts from Groundwater Pumping. The PA would result in an increase of 335 personnel, accompanied
6 by approximately 520 family members, for a population increase of approximately 855 individuals. Water
7 use calculations that consider wastewater generation and recharge as well as off-post induced economic
8 development and associated water use were used to identify the level of additional annual water use that
9 could be associated with the PA. Based on this modeling, an additional (net) annual increase in water use
10 of 140 acre feet would be attributable to personnel increases associated with the PA. An additional 5 acre
11 feet (net) of annual water use could be generated by increased facility development and subsequent
12 operation.

13 Fort Huachuca Policy 119 (29 April 2002) requires that any organization increasing its overall personnel
14 strength in the Fort Huachuca area must mitigate the water use associated with these additional personnel
15 and their family members. This mitigation policy also applies to contract employees working on the
16 installation. Mitigation for large personnel increases (which by definition includes the PA) is required
17 prior to the personnel increase or hiring action. Based on the continued implementation of Fort Huachuca
18 Policy 119 and the successful mitigation of additional water pumping associated with the PA, impacts to
19 water resources within the ROI are anticipated to be less than significant. The PA is not anticipated to
20 prevent the Fort from meeting water use reductions outlined in the 2002 Biological Opinion (USFWS
21 2001) for zero-balance by the year 2011.

22 **3.4.2 Alternative One**

23 Alternative One would result in an increase of 950 personnel, accompanied by approximately 1,470
24 family members, for a population increase of approximately 2,420 individuals. Based on modeling similar
25 to that prepared for the PA (see above), an additional annual net increase in water use of 397 acre feet
26 would be attributable to personnel increases associated with the PA. An additional 10 acre feet of net
27 annual water use could be generated by increased facility development and subsequent operation.
28 Adherence to Fort Huachuca Policy 119 and ongoing aggressive water management and mitigation
29 measures will continue on Fort Huachuca and within the Sierra Vista subwatershed to offset any pumping
30 increase on the installation associated with Alternative One. No significant impact is anticipated on the
31 regional water resources from this alternative.

32 **3.4.3 Alternative Two**

33 Alternative Two would result in an increase of 98 personnel, accompanied by approximately 152 family
34 members, for a population increase of approximately 250 individuals. Based on modeling similar to that
35 prepared for the PA (see above), an additional net annual increase in water use of 41 acre feet would be
36 attributable to personnel increases associated with the PA. An additional 5 acre feet of net annual water
37 use could be generated by increased facility development and subsequent operation. Adherence to Fort
38 Huachuca Policy 119 and ongoing aggressive water management and mitigation measures will continue
39 on Fort Huachuca and within the Sierra Vista subwatershed to offset any pumping increase on the
40 installation associated with Alternative Two. No significant impact is anticipated on the regional water
41 resources from this alternative.

42 **3.4.4 Alternative Three**

43 No change in existing hydrology or water resource conditions would occur as a result of Alternative
44 Three. No significant impact on hydrology or water resources is anticipated under this alternative.

1 3.4.5 Cumulative Impacts

2 The Sierra Vista subwatershed of the Upper San Pedro Basin is an extremely active area with respect to
3 water resource management activities. Most of these efforts are intended to reduce stress on the local
4 aquifer to reduce or prevent possible future impact on flows and habitat in the San Pedro NCA. Fort
5 Huachuca has adopted and implemented a conservation strategy that has already reduced use by 1,300
6 acre feet of water per year since 1989, and is anticipating to save, recharge, and/or reuse as much as
7 another 3,000 acre feet per year by 2009. On post conservation efforts include low water use landscaping,
8 retrofitting with low water use fixtures, installation and use of waterless urinals, an aggressive leak-
9 detection program, a restrictive landscape watering policy and enforcement, and an awareness education
10 process. Other projects include effluent and urban runoff recharge, reuse of treated effluent for golf
11 course and parade field watering, and retirement of agricultural pumping through purchase of
12 conservation easements. Off-post efforts by members of the Upper San Pedro Partnership are anticipated
13 to contribute to regional water management over the next decade.

14 The PA and alternatives in concert with other land and water conservation actions in the United States
15 and Mexico portions of the USPB are expected to benefit riparian function in the Upper San Pedro River
16 watershed. For more info on regional efforts, please visit the Upper San Pedro Partnership website, and
17 review the Working Water Conservation Plan at <http://www.usppartnership.com/documents.html#consplan>

18 3.4.6 Mitigation

19 Fort Huachuca Policy 119 (29 April 2002) requires that any organization increasing its overall personnel
20 strength in the Fort Huachuca area must mitigate the water use associated with these additional personnel
21 and their family members. This mitigation policy also applies to contract employees working on the
22 installation. Mitigation for large personnel increases (which by definition includes the PA and
23 Alternatives One and Two) is required prior to the personnel increase or hiring action. Based on the
24 continued implementation of Fort Huachuca Policy 119 and the successful mitigation of additional water
25 pumping associated with the PA and alternatives, impacts to water resources within the ROI are
26 anticipated to be less than significant.

27 The Army will implement design measures, and extend the existing spill prevention and response plan to
28 all new lands and activities under the PA. The Army will fully implement this plan for all existing and
29 new training areas to reduce the impacts associated with increased training activities. The plan is available
30 upon request. The Army will incorporate BMPs that will reduce runoff and sedimentation to aquatic
31 environments in accordance with Clean Water Act (CWA) regulations for storm water runoff across the
32 Fort. Mitigation design measures include, but are not limited to, hardening the roads, raising the elevation
33 of the roadway to improve drainage, installing drainage ditches adjacent to roads to control water running
34 on or off the road, and planting grasses to slow overland flow. The Army would choose the most
35 practicable solution for the specific project or project area during design.

36 3.5 BIOLOGICAL RESOURCES

37 Impacts on biological resources could occur from facility construction or operation. Adverse impacts on
38 biological resources (to include vegetation, wildlife and protected species) typically result when:

- 39 • The action results in a jeopardy to populations of a federally-listed species;
- 40 • The action results in the adverse modification of critical habitat;
- 41 • The action results in a substantial loss of a critical, yet limited, ecological constituent of
42 significant importance to a federal threatened, endangered, or candidate species results from the
43 action;
- 44 • The action produces regionally significant and long-term destruction or loss of high-quality
45 sensitive floral resources that could result in long-term ecological damage or degradation; or

- The action results in the substantial interference with, or complete disruption, of a heavy-use wildlife movement corridor that results in a demonstrable and long-term adverse impact on regionally significant ecological constituents.

The ROI for biological resources includes Fort Huachuca and adjacent environs.

3.5.1 Proposed Action

Impacts from Human Activities. Human activities during construction and training can result in reduced wildlife use in undisturbed habitat adjacent to the project sites. This activity would include human use and associated noise at the Training Area sites as well as truck traffic and troops on the ground along the MRC. Also, truck traffic along the MRC would generate dust which can settle on plants and block photosynthesis, respiration, and transpiration and can alter plant community structure (Tromculak and Frissell 2000). Human disturbance at the project sites could result in wildlife avoidance of adjacent habitat. The area of functional habitat loss adjacent to development can vary with species and the degree of avoidance is generally reduced with increasing distance from the development up to a point where there no longer is functional habitat loss. Species that have adapted to living in and near areas of human development would be much less affected than more development sensitive species.

For the purposes of this analysis, it is assumed that functional habitat loss for bird species that are sensitive to development and large mammals such as mule deer would be approximately 650 feet from the edge of the development or road margin for the MRC (Bock et al 1999, Forman 2000, Rost and Bailey 1979). Although the route used for the MRC is an existing dirt road there is assumed to be little functional habitat loss along the existing road because of infrequent traffic which is confirmed by Helzer (1996) who found that infrequently used dirt roads had no effect on the grasshopper sparrow. Under the PA, it is anticipated that exercises along the MRC, which includes mounted and dismounted training, would occur frequently.

An estimated 875 acres of grasslands around the sites would undergo functional habitat loss including 105 acres at Training Area Juliet, 100 acres at Training Area India, 93 acres at Training Area Victor, and 577 acres along the MRC. As indicated above, this loss would apply to species that are sensitive to human development and these species would continue to use this area but at a reduced frequency in relation to habitat outside the 650-foot zone. This would include breeding bird species of conservation concern (Botteri's, Cassin's, and grasshopper sparrows). Bock et al (1999) estimated a 48 percent decrease in grassland nesting birds from the edge of human suburban development out to 200 meters (656 feet) compared to counts beyond 200 meters. Disturbance adjacent to suburbia (i.e. human and pet use, dumping, off-road vehicle use etc) would be greater than at the Fort Huachuca project sites where use outside of the project area would be greatly restricted. Information on the effects of different types of human disturbance on birds was not found although Ward (1976) found that elk (*Cervus canadensis*) use was 14 percent lower along interstate highways than secondary roads. Using this, it is assumed that functional habitat loss may be closer to 34 than 48 percent. The average number of these three species per acre on Fort Huachuca was 3.2 birds per acre (Aid 1990). A 34 percent reduction would result in 2.1 birds per acre in the 770 acres of grasslands (does not include 105 acres at TA Juliet that already receives human disturbance) under going functional habitat loss. An estimated 128 acres of oak woodlands would also undergo functional habitat loss including 59 acres at Training Area Lima and 69 areas at Training Area Papa.

In general, it is expected that the lesser long-nosed bat would use the 650-foot functional habitat loss zone around the project features at current levels because there would be no nighttime training at sites within the Agave Management Plan area between July 1 through October 31 (Training Area India, Training Area Lima, and part of the MRC) or along the remaining part of the MRC not in the agave management area. This restriction would not apply to Training Area Juliet but operations at this site would be largely administrative and would not involve outdoor training exercises. However, some activities may take place during when the bats are foraging. There appears to be little information regarding the effects of human

1 development on lesser long-nosed bat foraging behavior. Anecdotal information indicates this species will
2 forage in areas of human development because it often visits hummingbird feeders in developed areas
3 (Lee and Clark 1993). Nighttime training at the Training Area Papa site would be infrequent so bat
4 foraging in the 69 acres around this site would likely be unaffected. This indicates there would be little or
5 no indirect effects to this species from human activity at the project sites. It is concluded that indirect
6 impacts related to human activity at the project sites may affect but are not likely to adversely affect the
7 lesser long-nosed bat.

8 The Mexican spotted owl may occur only infrequently in the open oak woodlands that surround the
9 Training Area Lima and Training Area Papa sites and the proposed activities would have little effect on
10 this species in this habitat. Therefore, the indirect effects of human activity on habitat adjacent to the
11 project sites may affect but are not likely adversely affect the Mexican spotted owl. Increased human
12 activities at Fort Huachuca are not anticipated to result in any significant impact to special-status species.

13 Impacts from Increased Potential of Fire. Various studies have shown that grasslands will recover from
14 fires in 2 to 4 years (Finberg 1994, Bock and Bock 1992, Martin 1983) and at least some of the shrubs
15 and trees growing in grasslands are fire tolerant such as velvet mesquite which is very fire tolerant (Bock
16 and Bock 1992, Martin 1983). Another example is sotol where a 75 percent reduction in cover from a fire
17 was noted. However, sotol sprouted from the terminal buds in lightly and moderately burned areas and
18 regained most of its cover after 3 years (Ahlstrand 1982).

19 In general, fire has short-term negative effects on some species of wildlife and positive effects on others.
20 The flora and fauna of grasslands and oak woodlands plant communities on Fort Huachuca have evolved
21 with fire and the natural fire frequency in grasslands is estimated to be 10 to 15 years (Howell and
22 Robinett 1995). The development and training at the project sites have the potential to cause an increase
23 in fire frequency which could have a detrimental effects on plants and wildlife. Measures that would be
24 taken to prevent and suppress training related fires are discussed in Section 3.12. These measures include
25 (USAGFH 2001b):

- 26 • No off-road travel on South and West ranges;
- 27 • No pyrotechnics within 0.25 mile of agave management areas (this would include the Training
28 Area India and Training Area Lima sites and part of the MRC);
- 29 • All fires would be actively suppressed;
- 30 • No use of training and test sites by personnel on foot unless activity has a range control approved
31 fire suppression plan and appropriate fire fighting equipment is available; and
- 32 • No seeding or planting of nonindigenous grasses or other plants that may alter fire frequencies in
33 wildland areas.

34 There is also a potential for an increase fire frequency at the Training Area Papa site due to training
35 activities and therefore potential for adverse impact to Mexican spotted owl habitat adjacent to the site.
36 The fire prevention and suppression measures listed above would also be in effect at this site and would
37 help reduce the potential for a training related fire from burning in the oak woodlands adjacent to the site.
38 The increased potential of fire at the Fort due to the PA is not anticipated to result in any significant
39 impact to biological resources.

40 Impacts of Facility Construction and Operation. Fifty-two acres of grasslands and 11 acres of oak
41 woodlands would be lost to development. Ten acres at Training Area Juliet is marginal habitat because of
42 existing land disturbance and human activity. The remaining habitat is of higher quality because of low
43 levels of human activity. Training Areas Lima and Papa are in oak woodlands and every effort would be
44 made to leave these trees in place (32 oaks at Training Area Lima and 23 oaks and oak clumps at Training
45 Area Papa). The effects of development on 52 acres would result in the degradation of wildlife habitat
46 and, for some less mobile species, direct mortality. The effects of human development on various groups

1 of wildlife have been documented (Bolger et al 1997, Crooks 2002, Germaine and Wakeling 2000,
2 Germaine et al 1998, Grindler and Krausman 2001, Mills et al 1989, Tweit and Tweit 1986). Information
3 from these studies indicates that reptile, bird, and mammal species diversity would be greatly reduced in
4 developed areas and species that have adapted to human development would dominate. For example, of
5 16 bird species that would likely nest in the grasslands on Fort Huachuca (Aid 1990, Lloyd et al 1998,
6 Maure 1985) it is estimated that only six would likely nest in the developed areas which is a 63 percent
7 reduction in grassland breeding bird species diversity.

8 The lesser long-nosed bat could be affected at the grassland sites from the elimination and degradation of
9 potential foraging habitat. All of Training Area India and Training Area Lima as well as 1.1 miles at the
10 southern end of the MRC are in the northern most Agave Management Plan area. There are scattered
11 agave in Training Area Juliet and the lesser long-nosed bat likely forages in this general area (USFWS
12 2002b). This site is not in an Agave Management Plan area and a few agave may be eliminated during
13 project construction. Palmer agave were widely scattered throughout the Training Area India site and
14 construction activities here may result in the elimination of some of these plants. There were no agave
15 observed at the Training Area Lima site. Agave were scattered along most of the MRC. Preconstruction
16 surveys for Palmer agave would take place once the exact footprint of proposed facilities is known and
17 marked on the ground. Consistent with the INRMP (USAGFH 2001b) and Programmatic Biological
18 Assessment (USAGFH 2002), the following measures to protect agaves would be implemented:

- 19 • The amount of disturbed ground would be limited to the smallest area possible and agaves would
20 be avoided where possible;
- 21 • Vehicle use in the construction zone would be limited to routes and areas of disturbance; and
- 22 • All workers would limit all activities and vehicle use to the designated construction area.

23 It is believed that some agaves would be eliminated by construction activities in Training Area Juliet and
24 Training Area India. The potential loss of agaves along the MRC would be greatly limited because there
25 is a certain amount of flexibility regarding the locations of turnouts and other project related structures so
26 these plants could be avoided. However, dismounted training activities would mostly occur on the ground
27 near the structures along the road at a few locations during training. This could result in the trampling of
28 some small agave plants. In conclusion, implementation of the PA would result in the loss of 32 acres of
29 grassland in potential lesser long-nosed bat foraging habitat (Training Area Juliet, Training Area India,
30 and along the MRC) and the loss of some palmer agave plants. These losses may affect but are not likely
31 to adversely affect the lesser long-nosed bat and are anticipated to be less than significant.

32 As indicated above, there are no records of the Mexican spotted owl from the Training Area Lima and
33 Training Area Papa sites, and the open oak woodlands at each of these sites is marginal owl habitat which
34 may, on rare occasions, harbor foraging or transient owls. For this reason, it is believe that the loss of this
35 habitat may affect but is not likely to adversely affect the Mexican spotted owl.

36 No special-status plants or species are known or expected to occur on the parcels on which easements are
37 purchased, however critical habitat for the Huachuca water umbel may be near the parcels. Reduction in
38 pumping for agricultural uses may help to maintain flows in the San Pedro River. This may indirectly
39 benefit the Huachuca water umbel in the river. The acquisition of conservation easements within the
40 subwatershed is not anticipated to adversely affect any special status plant or wildlife species, though it
41 would likely indirectly benefit these species and their habitat through contributions to base flow in the
42 river.

43 **3.5.2 Alternative One**

44 The exact locations and amount of land that would be impacted for site development projects under this
45 alternative (see Section 2.1) are not known. Estimates indicate that over 70 acres of additional grassland
46 habitat would be impacted by this alternative. In addition, there would also be the potential for an
47 undetermined amount of ephemeral riparian habitat to be impacted. It is known that at least some of the

1 grasslands in question are relatively undisturbed and likely support a diverse complement of native flora
2 and fauna.

3 Given that this alternative would result in the loss of more than twice as much the acreage of grasslands
4 as then the PA (122 plus acres versus 52 acres), it is assumed that the direct impact to biological resources
5 would be over twice as high. Additional habitat for mammals, reptiles and breeding birds would be lost
6 directly by construction activities and indirectly in adjacent habitat from human activities. In addition,
7 habitat used by wintering bird species would be impacted directly and indirectly.

8 The loss of 122 plus acres under this alternative would result in greater cumulative impacts to grasslands
9 than the PA. These 122 acres represents a 7.1 percent increase in the projected cumulative loss of
10 grasslands on Fort Huachuca at regional build-out, and a 1.2 percent increase in cumulative loss of
11 grasslands in the subwatershed. Due to the unknown location of the proposed UAV L&R facility in
12 Training Area Juliet, the unknown operational characteristics of the proposed UAV L&R facility in
13 Training Area India, and the existence of the Agave Management Area on the West Range, the potential
14 for significant impact as a result of increased UAV operations and facilities development on the West
15 Range can not be determined at this time. Additional site-specific studies would be required once
16 additional operational or facility location information is available.

17 **3.5.3 Alternative Two**

18 The implementation of this alternative would include similar site development and training activities as
19 described under the PA so the impacts of this alternative would be the same or less than those identified
20 for the PA and less than significant.

21 **3.5.4 Alternative Three**

22 None of the site development activities described in the PA and analyzed in section 3.5.3.1 would take
23 place under No Action. Fifty-two acres of grasslands and 11 acres of oak woodlands would not be directly
24 disturbed and the indirect effects of human activities and fire would not occur. There would be less than
25 significant impacts to biological resources associated with this alternative.

26 **3.5.5 Cumulative Impacts**

27 The cumulative impacts of human development and other factors (i.e. mesquite encroachment) on
28 grasslands on Fort Huachuca and the surrounding subwatershed (664,500 acres; 1,038 sq. mi.) are in the
29 process of being analyzed. Information from the preliminary analysis for this study is used here to assess
30 the cumulative impacts on grasslands for this project.

31 The direct loss of 52 acres (.08 sq. mi.) of grasslands at the project sites was not factored into the loss of
32 grasslands on Fort Huachuca and it represents an additional cumulative loss of grasslands on Fort
33 Huachuca and in the subwatershed. It represents 0.03 percent of the grasslands in the subwatershed and
34 0.21 percent of the grasslands on Fort Huachuca. It represents a 0.51 percent increase in the loss of
35 grasslands projected for the year 2020 in the subwatershed and a 0.06 percent increase in the loss by
36 build-out. The loss of 52 acres at the project sites represents a 3.0 percent increase in the loss of
37 grasslands on Fort Huachuca by the year 2020 and build-out.

38 The direct loss of 11 acres (.02 sq. mi.) of oak woodlands at the project sites was not factored into the loss
39 of oak woodlands on Fort Huachuca and it represents an additional cumulative loss of oak woodlands on
40 Fort Huachuca and in the subwatershed. The loss of 11 acres (.02 sq. mi.) of oak woodlands equates to a
41 0.13 percent increase in the loss of this habitat type in the subwatershed by 2020. On Fort Huachuca, the
42 loss of 11 acres (.02 sq. mi.) is a 16.9 percent increase in the loss of oak woodlands by 2020.

43 **3.5.6 Mitigation Measures**

44 The cumulative loss and fragmentation of grasslands in the Sierra Vista subwatershed represents a
45 contribution to the ongoing regional loss of native grasslands which affects a wide range of common and

1 special status species. Individual projects on Fort Huachuca must comply with the Fort Huachuca INRMP
2 for the protection of grasslands that provide lesser long-nosed bat foraging habitat and other functions.
3 While these measures have helped minimize Fort Huachuca's contribution to the loss and fragmentation
4 of grasslands in the region, further measures are required to ensure no further potential for adverse
5 contribution to regional cumulative impacts on grasslands.

6 Goals and objectives for improved grassland resource management on Fort Huachuca were identified in
7 2004. Preliminary analysis concluded that future grasslands management on the Fort should be
8 accomplished within an adaptive management framework such that implementation of successful
9 recommendations would not conflict with the Army's military mission at Fort Huachuca. The
10 accomplishment of the following goals and successful completion of relevant objectives would minimize
11 and likely eliminate any effects of ongoing and proposed development activities at Fort Huachuca that
12 could contribute to existing regional grasslands loss and fragmentation and resulting cumulative impacts:

- 13 • Goal #1.1 Special-Status Grassland Species. Conserve and/or restore populations of special-status
14 grassland species on Fort Huachuca through recovery and management efforts, including the
15 protection, conservation, and restoration of important grassland habitats.
- 16 • Goal# 1.2: Grassland Species of Concern. Conserve populations of grassland species of concern
17 through management efforts, including the protection, conservation, and restoration of special
18 interest area grassland habitats.
- 19 • Goal# 1.3: Grassland Wildlife Habitat. Conserve grasslands habitat capable of supporting viable
20 populations of other important grassland wildlife species such as birds of conservation concern
21 and game species.
- 22 • Goal# 1.4: Amend the Fort Huachuca INRMP. Amend the INRMP with additional grassland
23 habitat-specific subsections and resource-specific goals and objectives to support ongoing,
24 coordinated, and well documented adaptive grassland management.

25 The intent of these additional measures is to ensure that actions taken by the U.S. Army Garrison Fort
26 Huachuca do not result in an adverse contribution to regional grassland loss and fragmentation and
27 resulting cumulative impacts. The accomplishment of these goals and successful completion of relevant
28 objectives would assure that ongoing and proposed actions and activities at Fort Huachuca would not
29 adversely contribute to regional grassland loss and fragmentation.

30 **3.6 HISTORICAL AND CULTURAL RESOURCES**

31 Cultural Resources are defined as prehistoric and historic sites, structures, districts, artifacts, or any other
32 physical evidence of human activity considered important to a culture, subculture, or community for
33 scientific, religious, traditional or other reasons. Impacts to cultural resources are caused by any
34 alteration or effect on properties listed on, or recommended as eligible for, the National Register of
35 Historic Places (NRHP). Typically, these impacts result from ground disturbing activities on the property
36 but can also result from an intrusion in the viewshed or some other environmental disturbance. Impacts to
37 cultural resources are considered to be significant if the proposed project or action will in any way alter
38 the characteristics of a unique or culturally significant property. An adverse effect occurs if the proposed
39 project or action diminishes the integrity of the property's location, design, setting, material,
40 workmanship, feeling, or association. Adverse effects typically result when the action causes:

- 41 • The physical destruction, damage, or alteration of all or part of a culturally significant property;
 - 42 • The isolation of a culturally significant property from or alteration of the character of the
43 property's setting when that character contributes to the property's qualification for the NRHP;
- 44

- 1 • The introduction of visual, audible, or atmospheric elements that are out of character with the
- 2 culturally significant property or altering its setting;
- 3 • The neglect of a culturally significant property resulting in its deterioration or destruction; or
- 4 • The transfer, lease, or sale of a culturally significant property.

5 3.6.1 Proposed Action

6 The ROIs for this analysis are synonymous with the area of potential effect (APE) at each location as
7 defined by regulations implementing the NHPA (16 USC §470f).

8 Impacts from Site Development. All of the APEs for site development were surveyed in October of 2004.
9 No prehistoric or historic archaeological resources have been found within any of the subject APEs.
10 Likewise no unique archaeological resources or human remains have been found within or adjacent to any
11 of the APEs. It is unlikely that significant subsurface archaeological resources would be disturbed by site
12 development associated with the PA.

13 No TCPs, resource procurement areas, tribal resources, tribal rights, or sacred sights have been identified
14 during previous investigations and tribal consultations for the affected APEs. It is unlikely that any buried
15 resources are present within any of the APEs that would be considered of cultural importance to Native
16 American or other tradition-based communities. No historic buildings exist within any of the individual
17 APEs.

18 Based on recent field investigations and supporting literature reviews (Desert Archaeology 2003) site
19 development activities associated with the PA at Fort Huachuca are not anticipated to have any effect on
20 properties listed on, or determined eligible for, the NRHP. Therefore no significant impact to historical or
21 cultural resources at Fort Huachuca as a result of the PA are anticipated. Sufficient conservation measures
22 are in place (see below) to account for the unlikely but potential discovery of archaeological resources
23 during site excavation at the Fort.

24 Impacts from Increased Training Activities. A review of past surveys of existing training areas across the
25 Fort and cultural resource management measures currently in place at the Fort suggests that increased
26 training activities on existing ranges is not anticipated to affect any prehistoric, historic, or culturally
27 significant resource. Consequently the proposed increase in training activities at the Fort is not anticipated
28 to result in any significant impact on archeological or cultural resources at Fort Huachuca.

29 Impacts from Conservation Easements. No significant ground disturbance is anticipated from the
30 acquisition of conservation easements within the subwatershed. The purchase and administration of
31 conservation easements are anticipated to have beneficial impacts on preservation of these properties.
32 Consequently no significant impact to cultural or historic properties is anticipated.

33 3.6.2 Alternative One

34 Alternative One includes similar site development activities as those described under the PA. All of the
35 APEs associated with the PA were surveyed in October 2004 with no findings (see above). Consequently
36 site development associated with Alternative One that was previously evaluated under the PA is not
37 anticipated to affect any cultural or historic resource or result in any significant impact.

38 Site development associated with the proposed new runway in the vicinity of LAAF, new UAV complex
39 in Training Area Juliet and redevelopment of Demonstration Hill would occur in areas of previous
40 disturbance and are identified as areas previously surveyed with no cultural or historic resources found
41 (Desert Archaeology 2003; Fort Huachuca Cultural Resource GIS Database accessed October 2004).
42 Additional site development associated with Alternative One is not anticipated to affect any cultural or
43 historic resource or result in any significant impact.

1 **3.6.3 Alternative Two**

2 The potential for Alternative Two to affect known or unknown cultural or historic resources at Fort
3 Huachuca is less than that described for the PA and consequently not anticipated to result in a significant
4 impact on the human environment.

5 **3.6.4 Alternative Three**

6 No adverse impact to historical or cultural resource conditions is anticipated as a result of the No-Action
7 Alternative. This alternative is not anticipated to contribute to any significant cumulative impact on
8 historical or cultural resources. No additional mitigation or conservation measures are recommended.

9 **3.6.5 Cumulative Impacts**

10 The PA would not create the potential for significant cumulative effects to cultural resources, as cultural
11 resources are rather site specific, and the PA and alternatives would not adversely impact regionally-
12 significant cultural resources.

13 **3.6.6 Mitigation**

14 Prior to construction, the sites will be reviewed to determine whether any resources have been weathered
15 out of the alluvium. If any resources that constitute potentially register-eligible sites, it will be necessary
16 to conduct Section 106 consultations with the SHPO before construction.

17 To account for the unlikely but potential discovery of archaeological resources during site excavation at
18 the Fort under the PA and Alternatives One and Two, the Army would brief the construction staff on
19 procedures for handling the unexpected discovery of archaeological resources prior to undertaking project
20 activities. If cultural resources or human remains were unearthed during construction excavations, the
21 application of standard practices in accordance with the ICRMP would mitigate potential adverse impacts.
22 In the event that human remains of Native American origin were discovered during project construction,
23 compliance with the Native American Graves Protection and Repatriation Act regulations relating to
24 discovery of human remains of Native American origin on Federal land is required (43 CFR 10).

25 **3.7 TRANSPORTATION AND CIRCULATION**

26 Potential impacts to transportation and circulation focus on key roadways and airspace in the ROI,
27 including both regional and local transportation networks and air traffic congestion. Adverse impacts on
28 transportation or circulation typically result when:

- 29 • Traffic or construction activities result in a substantial safety hazard to motorists, pedestrians, or
30 bicyclists (military or civilian);
- 31 • Construction activities would result in the long-term or permanent restriction of one or more lanes
32 of a primary or secondary arterial or intersection during peak-hour traffic, thereby cutting its
33 capacity and creating significant congestion; or
- 34 • Congestion at LAAF and surrounding airstrips creates a situation where there is a significant
35 increase in potential for collision between manned aircraft and UAVs.

36 This section addresses both ground and air transportation systems. The ROI for ground transportation
37 includes the roadways in the region that serve as direct or mandatory indirect linkages between Fort
38 Huachuca and surrounding communities and the local roads that access the cantonment area and training
39 areas where proposed activities and development would occur. The ROI for aviation includes four areas
40 of restricted airspace in the vicinity of the Fort: R-2303A, R-2303B, R-2303C, and R2312.

1 **3.7.1 Proposed Action**

2 Impacts to Ground Transportation. The PA would result in an increase in vehicular traffic both on and off
 3 the installation. This increased traffic would be due to an increase in personnel commuting to the
 4 installation from surrounding communities as well as an increase in the training areas on the installation.

5 The PA includes an increase in the use of range training areas. Access to portions of the range for non-
 6 training uses during scheduled training events could be limited. Some training areas within the ranges are
 7 currently operating at a high capacity And proposed development of new facilities would alleviate the
 8 competition for these sites. Increased use of roads within the ranges would result in less than significant
 9 impacts.

10 Repair and refurbishment of small arms and weapons fire ranges on the South Range may include road
 11 improvements. Temporary construction-related impacts may occur but these impacts would be less than
 12 significant.

13 The cantonment area would experience additional traffic as a result of the PA. Additional personnel
 14 would travel installation roadways during peak hours as they commute to work. In addition, up to 75
 15 acres of facility improvements within the cantonment area and LAAF are proposed. During the
 16 construction of these improvements, traffic may be impeded due to lane restrictions and construction
 17 zones and construction-related vehicles would occur. Construction areas would follow acceptable
 18 procedures to ensure vehicular, pedestrian, and bicycle safety during the construction period. These
 19 construction-related impacts would be temporary and are anticipated to be less than significant.

20 Increases in commuter traffic would be experienced in surrounding communities as a result of the
 21 increased number of personnel in the PA. Conservation easements would maintain status quo conditions
 22 on those parcels and would be unlikely to add any additional local or regional traffic impendence or
 23 congestion. Local areas would also experience a slight increase in traffic on occasion as military vehicle
 24 and POVs would be used to conduct rural and urban personnel training off the installation. The
 25 anticipated impacts to transportation and circulation in surrounding communities would be limited and
 26 less than significant.

27 Impacts to Airspace and Airspace Management. The PA would result in a increase in UAV flight
 28 operations, greatly increasing the demand on UAV airstrips and LAAF. Projected flight hours for FY
 29 2005-2009 are provided in Table 3.7-1. These figures do not include all projections for FY 2008/2009 as
 30 they are not yet available, nor for National Guard requirements. The proposed activities would increase
 31 the congestion in the restricted airspace above and surrounding Fort Huachuca and place a greater
 32 monitoring and management burden on the LAAF tower.

33 While adding to airspace congestion, the proposed increases in UAV activities are not anticipated to result
 34 in a significant increase in potential for collision between manned and UAV aircraft. Increased hours of
 35 operation and ATC personnel will allow for the airspace use to be more distributed over the course of the
 36 day, and would allow for continued safe monitoring and management of the airspace. Overall, no
 37 significant impact to airspace management or circulation is anticipated as a result of the PA.

38 **Table 3.7-1 Projected UAV Launch and Recovery Operations**

FY	2004	2005	2006	2007	2008	2009
SEMA	n/a	3600	3600	3600	3600	3600
Shadow	n/a	2764	3652	3652	1876	1876
Hunter	n/a	6364	6364	6364	6364	6364
ER/MP UAV	0	0	2500	2500	2,500	2,500
Fire Scout UAV	0	0	0	0	1,250	1,250
Total Flight Hours	0	12,728	16,116	16,116	15,590	15,590

n/a = data not yet available

1 **3.7.2 Alternative One**

2 Impacts to Ground Transportation. Impacts to ground transportation resulting from the implementation of
3 Alternative One would be similar to, but greater than, the PA. Traffic and potential congestion would be
4 greater than the PA for all areas (range, cantonment area, and surrounding communities). Construction-
5 related congestion and delays would occur to a greater degree than with the PA. These delays would be
6 temporary and appropriate measures would be taken to ensure safety for vehicles, pedestrians, and
7 bicyclists. Commuter traffic would also be greater both on the installation and in the surrounding
8 communities due to increased personnel who would be stationed at the Fort.

9 New live fire ranges on the South and East Ranges are unlikely to pose significant impacts to ground
10 transportation. While locations are not available, ranges would be mostly accessible from existing roads.

11 While the potential impacts associated with Alternative One would be greater than the PA, they are
12 likewise anticipated to be less than significant.

13 Impacts to Airspace and Airspace Management. Alternative One proposes to restructure airspace
14 designations. In order to restructure airspace designations, the FAA would have to conduct an
15 aeronautical study of an airport proposal and, after consultations with interested persons, as appropriate,
16 issue a determination to the proponent and advise those concerned of the FAA determination. The FAA
17 determination does not relieve the proponent of responsibility for compliance with any local law,
18 ordinance or regulation, or state or other Federal regulation. Aeronautical studies and determinations do
19 not consider environmental or land use compatibility impacts (14 CFR 157). Such additional studies are
20 beyond the scope of this programmatic EA and would have to be completed in the future, based on the
21 specific restructuring proposal. The significance of any impacts that would result cannot be determined at
22 this time.

23 Implementation of Alternative One would result in the construction of a new runway in the vicinity of
24 LAAF and the improvement and extension and refurbishment of Demonstration Hill to further
25 accommodate UAV activities. These improvements would reduce competition for LAAF and the other
26 airstrips used for UAV activities, but potential conflicts between manned aircraft and UAVs in the
27 airspace would still exist and would have to be carefully managed. The addition of new runways would
28 not reduce the monitoring requirements of the ATC personnel as UAVs are monitored regardless of the
29 runway or landing strip use. However, ATC personnel are capable of handling numerous aircraft at one
30 time, and with appropriate scheduling of UAV activities, increased UAV operations would not
31 necessarily overwhelm ATC's capabilities to monitor, separate, and guide aircraft safely.

32 Additional studies are necessary to fully determine whether the impacts associated with Alternative One
33 would be significant.

34 **3.7.3 Alternative Two**

35 Impacts to Ground Transportation. Impacts resulting from the implementation of Alternative Two would
36 be similar to, but less than, the PA. This alternative would result in one-half (500,000 gross square feet)
37 the development within the cantonment area and LAAF that is called for in the PA. Reduced construction
38 would result in fewer short-term traffic impacts associated with construction zones. Further, fewer
39 personnel would be stationed at the Fort than with the PA, which would reduce potential impacts to
40 cantonment area roads and in surrounding communities. Range use would be less than the PA, thereby
41 reducing potential conflicts in use and need for maintenance of range roads and trails. Off-post, impacts
42 would be similarly reduced. Less than significant impacts are anticipated as a result of Alternative Two.

43 Impacts to Airspace and Airspace Management. Under Alternative Two, UAV operations would be the
44 same as those evaluated in the PA. The increasing number of ATC personnel and increasing hours of
45 operation for the tower will help minimize potential congestion within the airspace. Less than significant
46 impacts to airspace management would occur as a result of this alternative.

1 **3.7.4 Alternative Three**

2 Under Alternative Three, the number of personnel would continue to increase as previously approved.
3 Existing documentation has determined that the approved actions would not result in any significant
4 impact to ground transportation or circulation (USAGFH 2001).

5 Under Alternative Three, UAV operations that have been previously approved (USAGFH 2000b) would
6 continue to occur using existing infrastructure. The increasing number of ATC personnel and increasing
7 hours of operation for the tower will help minimize potential congestion within the airspace. No
8 significant impacts to airspace management would occur as a result of this alternative.

9 **3.7.5 Cumulative Impacts**

10 While population and tourism in the area are growing, the infrastructure is growing as well. The PA and
11 alternatives are not anticipated to result in severe traffic congestion or situations that pose a significantly
12 increased risk to motorists, pedestrians, or bicyclists.

13 In the vicinity of the ROI, LAAF experiences the greatest volume of air traffic within its airspace and at
14 the facility. Air traffic counts in 2003 were less than in 2001 (due to the relocation of the Predator UAV
15 and cessation of commercial airline traffic) and have indicated a gradual increase from 2002. This upward
16 trend in air traffic counts is primarily occurring within the military sector, as general aviation has actually
17 decreased from 2001 to 2003. Air carrier traffic fluctuates somewhat as carrier services have been
18 intermittent over the years (CEER 2004). Increased flight activity is anticipated in the future. Air traffic
19 control staff are also increasing to accommodate these increases and ensure safe flight coordination. No
20 significant cumulative impacts are anticipated to occur as a result of the PA or alternatives.

21 As other airports in the vicinity of the ROI improve facilities, more use could reasonably be expected.
22 However, these communities are outside of restricted airspace where military operations occur. Further,
23 flight plans must be established and filed prior to the flight and issues surrounding restricted airspace will
24 have already been addressed. Local air traffic would not experience significant cumulative impacts.

25 Because the restructuring of restricted airspace at Fort Huachuca is in the early conceptual planning
26 stages there is insufficient information to determine the extent and potential significance of its
27 implementation. As a result, the cumulative effects to aircraft operations and airspace management
28 associated with Alternative One remain unknown at this time. Implementation of the PA and alternatives
29 two and three would increase aircraft overflight in areas underlying associated airspace; however, these
30 increases would not result in significant cumulative impacts on airspace utilization or management.

31 **3.8 AIR QUALITY**

32 Potential impacts on air quality can be divided into short-term and long-term. Short-term impacts are
33 usually associated with construction and grading activities, and long-term impacts are typically associated
34 with build-out conditions. Most long-term emissions associated with the PA would be due to increased
35 vehicle use. Adverse impacts on air quality typically result when:

- 36 • Proposed activities would release criteria pollutants that exceed Federal or State Ambient Air
37 Quality Standards (AAQS) for pollutants adopted by the State of Arizona; or
- 38 • Proposed activities are not in conformity with Section 176 of the Federal Clean Air Act for
39 federal actions.

40 The federal government has established ambient air quality standards to protect public health and welfare.
41 Standards have been adopted for six criteria pollutants – ozone (O₃), carbon monoxide (CO), nitrogen
42 dioxide (NO₂), sulfur dioxide (SO₂), inhalable and fine particulate matter (PM₁₀ and PM_{2.5}), and airborne
43 lead.

1 **3.8.1 Proposed Action**

2 General Conformity under the Clean Air Act, Section 176 has been evaluated for the PA according to the
3 requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to the PA because
4 the project/action is an exempt action under 40 CFR 93.153(c) because Fort Huachuca is located in an
5 area of attainment for all criteria emissions and the project/action is not considered regionally significant
6 under 40 CFR 93.153(i). The following discussions represent a summary analysis of potential emissions
7 in order for the reader to gain an understanding of the anticipated level of emissions associated with the
8 PA and their relationship to the human environment.

9 Impacts from Site Development Activities. Facility development activities and the extension of utilities
10 identified in the PA would result in a temporary increase in particulate and reactive organic gas (ROG)
11 emissions due to earth moving activities and an increase in vehicle emissions associated with the transport
12 of construction materials and workers. The use of dust control measures (wet suppression, paving, or
13 chemical stabilization) would be employed during construction, thereby reducing dust emission.

14 The proposed construction activities within the cantonment area and on the ranges would either connect
15 to a centralized boiler or be equipped with small (less than 1 million BTU) units. The addition of new
16 boilers and heating units in the cantonment area is frequently offset by demolition of other facilities.
17 Smaller units and connection to existing centralized boilers would not adversely affect the Fort's
18 compliance with the terms reasonably expected when the State Air Quality Permit is issued. Appropriate
19 notification of any new units would be given to ADEQ. If a larger unit is necessary, it would be
20 determined if new emissions would be within the standards for Class II synthetic minor and modifications
21 to the existing permit application would be necessary (Rande Sieracki, Personal Communication, 12
22 October 2004).

23 Access to developed facilities and increased use of the ranges for training would necessitate an increase in
24 the use of unpaved surfaces and consequently an increase in PM₁₀ emissions. Likewise, the use of
25 explosive devices contributes to PM₁₀ emissions. PM₁₀ emissions at the Fort are very low and no
26 reporting requirements or limitations are currently in place.

27 While no mitigation is required, measures included in the PA help minimize air quality impacts. Utilities
28 will be extended to locations where long-term electrical power is needed (see Section 3.13). This would
29 eliminate the need for generators. New boilers and heating units would be small in capacity and offset by
30 demolition as much as possible. As previously mentioned, dust control measures would be employed
31 during construction activities.

32 Impacts from Increased UAV Activity. Increased UAV activity would result in increased ROG emissions.
33 The majority of emissions occur during ground activities, launch, and recovery. Pollutants emitted at
34 altitude are diluted and dispersed prior to reaching the ground and at that point are well below significant
35 levels (USAGFH 2000b). Emissions associated with the proposed increases in UAV activity at the Fort
36 are considered *de minimis* and less than significant.

37 Impacts from Conservation Easements. The creation of conservation easements would considerably
38 reduce future growth and development with the easement lands. While intended to provide additional
39 protection from noise-related encroachments and to provide a safety buffer to neighboring communities,
40 the easement would not generate emissions, aside from some possible wind generated PM₁₀. In this way,
41 conservation easements have the potential to help contribute to reduced air quality emissions in the area.

42 No significant impacts to air quality are anticipated as a result of implementing the PA. In addition, the
43 proposed activities are not anticipated to cause an increase in emissions that are limited by the anticipated
44 Class II synthetic minor air quality permit for which the Fort has applied.

1 3.8.2 Alternative One

2 Potential impacts to air quality under Alternative One would be similar to but greater than the PA. This
3 alternative includes up to 25 acres or 500,000 gross square feet more development within the cantonment
4 area of the installation than the PA. These increases would contribute additional construction-related
5 particulate and ROG emissions and a greater long-term impact associated with a larger number of people
6 commuting to the Fort.

7 The additional UAV complex would be constructed on the West Range, contributing additional (although
8 clearly *de minimis*) PM₁₀ and ROG emissions. New and refurbished live fire ranges on the South and East
9 Ranges would contribute to PM₁₀ emissions as a result of both construction and long-term use. Actual
10 emissions would depend on configuration and the level of earth moving required and would be subject to
11 future studies and analysis.

12 This alternative includes increases in the number of personnel and students stationed at the Fort. Increased
13 stationing would contribute to greater long-term vehicle exhaust emissions than the PA.

14 While development and use would be greater under this alternative, up to 30,000 acres of off-post
15 property would be protected through conservation easements. As with the PA, areas that will not be
16 developed or used would have to potential to help reduce emissions such as PM₁₀ or ROG.

17 While this alternative would increase the overall impacts to air quality, it is unlikely that these increases
18 would result in the violation of ambient air quality standards. Under this alternative, the Fort would have
19 to ensure that activities would not exceed limitations that would be set by the anticipated Class II
20 synthetic minor air quality permit for which the Fort has applied or be willing to engage in the Title V
21 permitting process. While additional analysis would be required when more determinant plans are
22 available, it is unlikely that this alternative would result in any significant air quality impacts.

23 3.8.3 Alternative Two

24 The potential impacts associated with Alternative Two would be similar to but less than the PA. Reduced
25 levels of construction, training and personnel would result in fewer overall emissions. Conservation
26 easements could limit particulate emissions and ROG to a smaller degree (only 5,000 acres). No
27 significant impact to air quality is anticipated.

28 3.8.4 Alternative Three

29 Under Alternative Three, the use and development of Fort facilities that have already been approved
30 would continue into the future. The potential impacts associated with these approved developments and
31 uses have already been determined and are not significant.

32 3.8.5 Cumulative Impacts

33 Communities surrounding Fort Huachuca are growing. Despite this growth, the area lacks large pollution
34 sources (i.e. dense population centers or large industry) and the ambient air conditions are conducive to
35 spreading what emissions are generated. The air quality in this area is not approaching or significantly
36 contributing to existing non-attainment areas. The cumulative impact to air quality as a result of the PA or
37 alternatives is not anticipated to be significant.

38 3.9 NOISE

39 Noise, or unwanted sound, is measured in decibel (dB) units. Noise measurements are often adjusted to
40 more accurately reflect what the human ear perceives, and these units are called A-weighted sound level
41 (dBA). Both noise and receptor sensitivity to noise varies by the time of day, with receptors being more
42 sensitive at night.

43 Potential impacts from noise can be divided into short-term and long-term. Short-term impacts are
44 usually associated with construction and grading activities, where long-term impacts are associated with

1 operational activities. The majority of the long-term noise level increases will be attributable to increased
2 aircraft use in the ROI. Criteria for the assessment of noise impacts are based on established Land Use
3 Compatibility Guidelines established by the Federal Interagency Committee on Noise (FICUN) 1980,
4 *Guidelines for Considering Noise in Land Use Planning and Control* and the FICUN 1992: *Federal*
5 *Agency Review of Selected Airport Noise Analysis Issues*. The signatories of these sources of criteria
6 include DoD, Department of Housing and Urban Development (HUD), EPA, FAA, and Veterans
7 Administration. These agencies are in substantial agreement concerning the levels and characteristics of
8 noise from different sources on a wide variety of human activity and land use. Adverse impacts on the
9 human environment as a result of noise typically result when:

- 10 • Impulse or other short-term event noise levels would be likely to cause significant annoyance to
11 more than 15% of exposed individuals at locations accessible to the general public (the
12 underlying context for DOD noise guidelines);
- 13 • Activities result in frequent noises at very high levels (e.g., blasts with C-weighted sound
14 exposure levels in excess of 110 dB) in areas not already designated for such activities; or
- 15 • Activity-generated noise emissions expose sensitive off-site receptors to new noise levels in
16 excess of the 65 dB day-night decibel measurement (L_{dn}).

17 The ROI for noise is comprised of Fort Huachuca and the areas adjacent to and surrounding the Fort
18 boundary.

19 **3.9.1 Proposed Action**

20 Noise from Construction Activities. Numerous construction projects would occur at various locations on
21 the Fort under the PA. Individual items of construction equipment typically generate noise levels of 80 to
22 90 dBA at a distance of 50 feet (15 meters). With multiple items of equipment operating concurrently,
23 noise levels can be relatively high during daytime periods at locations within several hundred feet of
24 active construction sites. Locations more than 1,000 feet (305 meters) from construction sites seldom
25 experience significant levels of construction noise. No noise-sensitive land uses are known to be close
26 enough to proposed construction sites to result in significant noise impacts. A limited amount of family
27 housing at the Fort may be close enough to the potential development areas to experience a brief period
28 of audible construction noise. The limited exposure to daytime construction noise is considered a less than
29 significant impact.

30 Noise from Military Vehicle Use. Military vehicles will continue to use a mixture of public roads, on-post
31 roads, and military vehicle trails. Vehicle convoys using public roads are typically limited to no more than
32 24 vehicles in a group. Vehicles within a convoy group (also called convoy serials) typically are spaced
33 about 165 to 330 feet (50 to 101 meters) apart. Convoy serials generally are spaced at least 15 to 30
34 minutes apart. These convoy procedures prevent situations where convoy vehicles dominate local traffic
35 flow for significant periods of time. Consequently, noise from vehicle convoy activity is a less than
36 significant impact.

37 Training activities also include vehicle travel along military vehicle trails and on-post unpaved roadways
38 such as the proposed MRC in Training Areas Hotel and Lima. Noise generated by this type of vehicle
39 activity is a combination of individual vehicle pass events and periods of more sustained vehicle traffic.
40 Noise levels from individual vehicle pass vary with vehicle type and speed. Vehicle speeds would be
41 relatively low on unpaved roads during vehicle maneuvers. Noise levels generated by HMMWVs and
42 two-axle military trucks would be comparable to noise from medium trucks (about 65 to 70 dBA at 50
43 feet [15 meters]). Multi-axle heavy trucks would generate noise levels comparable to other heavy duty
44 trucks (about 78 to 80 dBA at 50 feet [15 meters]). Peak pass noise levels would drop by 15 dBA at a
45 distance of 500 feet (152 meters) from the travel path. There are no noise-sensitive land uses along the
46 proposed MRC or along the network of on-post trails and roads designated for vehicle maneuver training.
47 Consequently, noise from vehicle maneuver training is a less than significant impact.

1 Noise from Aircraft Operations. The PA would not result in any meaningful changes in noise conditions
2 at LAAF. Increased use of aviation assets at the Fort would cause a minor increase in airfield vicinity
3 noise levels, however, noise conditions in the vicinity of LAAF would continue to be dominated by
4 existing fixed-wing manned flight operations. Overall changes in airfield vicinity noise levels would be
5 minor.

6 Introduction of new UAV systems to the Fort would add an additional aircraft type to those currently
7 using airspace over the installation. Because UAVs have relatively low noise generation and normally
8 would be flown at altitudes above those used by helicopters and manned aircraft the potential for any
9 noticeable change in noise environments at the Fort and in the ROI is remote. Consequently, noise from
10 increased aircraft operations at the Fort is a less than significant impact.

11 Noise from Additional Weapons Discharge. Noise impacts from increase in frequency and hours of day
12 use for the live fire ranges has been determined to result in a less than significant impact to the human
13 environment in previous analysis (USAGFH 1999, USAGFH 2001). Due to the remote location of the
14 majority of live fire ranges at the Fort, increased utilization of these ranges is not anticipated to result in
15 any significant increase in noise contours of the ranges or noise conditions near the ranges. The increased
16 firing of blank ammunition during dismounted cross-country maneuvering activities across the Fort
17 would result in short-term and localized disturbances at the training sites and during training activities.
18 Consequently, increased weapons discharges at the Fort are anticipated to result in less than significant
19 impact on the human environment.

20 Noise from UAV Launch and Recovery Operations. The PA will result in increased noise levels at and
21 around facilities where UAV activities occur due to aircraft generated noise, support equipment, and
22 increased traffic to and from training and testing locations. In general, the operating noise levels from
23 UAVs are relatively low due to the size of their engines. Once medium UAVs and large UAVs reach
24 operational altitudes, they are difficult to hear from the ground; while small UAVs are often more audible
25 due to their low flight altitudes, stealth is the overall goal of these aircraft and every effort is taken to
26 minimize the noise they emit.

27 Three UAV runways (Rugge-Hamilton, former Pioneer and Hubbard) are a considerable distance away
28 from the cantonment area of Fort Huachuca and from other heavily populated areas. Flying the aircraft
29 over sparsely populated areas reduces the number of people exposed to any level of noise the UAV may
30 generate. While the perceived noise may be an annoyance, the impact is not significant in terms of human
31 health and safety due to the level of the noise and the brief duration of exposure.

32 Noise from Dismounted Training Activities. Noise levels from weapons firing and ordnance detonations
33 under the PA would remain similar to baseline conditions. A slight increase in the utilization of the small
34 arms live fire ranges and from dismounted unit and individual training could result, but due to the remote
35 location of the ranges (on the south and west ranges) and lack of any nearby noise-sensitive land use,
36 noise from increased live fire range utilization at the Fort is a less than significant impact.

37 Noise from Personal Vehicle Use. Total military and civilian personnel based at the Fort would increase
38 slightly under the PA. This would not produce a significant noise impact from added personal vehicle
39 traffic along off-post or on-post roadways.

40 **3.9.2 Alternative One**

41 Alternative One would require a greater amount of facility development within the cantonment area and
42 LAAF than the PA. This additional development is anticipated to occur in previously disturbed or
43 otherwise compatible locations. As noted in the discussion for the PA, noise-sensitive land uses would be
44 far enough from construction sites to avoid significant noise impacts. Consequently, construction
45 activities would have a less than significant noise impact under this alternative.

1 Military vehicle use, aircraft, helicopter, and UAV use, noise levels from dismantled training activities
2 and noise from added personal vehicle traffic would be similar to PA. As would be the case for the PA,
3 added personal vehicle traffic would have a less than significant noise impact under this alternative.

4 Insufficient information exists to determine the extent of impact from new live fire ranges on the South
5 and West Ranges and associated weapons firing and ordnance detonation. Consequently it is not currently
6 possible to determine the potential for significant impact associated with the construction and operation of
7 new live fire ranges at Fort Huachuca. Additional studies are required to determine the level of noise
8 impacts that these new ranges would produce and the potential for this noise to significantly impact the
9 human environment.

10 **3.9.3 Alternative Two**

11 Alternative Two would require less facility development than the PA. Consequently, construction
12 activities would have a less than significant noise impact under this alternative. Military vehicle and
13 aircraft use, and noise levels from dismantled training activities and ordnance detonations, and noise
14 from added personal vehicle traffic would be similar to PA.

15 **3.9.4 Alternative Three**

16 Noise conditions at the Fort would remain essentially the same as present conditions and would be a less
17 than significant impact at the Fort and within the ROI.

18 **3.9.5 Cumulative Impacts**

19 There has been no routine monitoring of ambient noise conditions at Fort Huachuca, so data is not
20 directly available for evaluating specific trends. In general, noise conditions in the vicinity of Fort
21 Huachuca are not likely to have significantly changed in recent years because activity levels for major
22 noise sources have not grown or declined significantly.

23 Cumulative noise impacts under the PA would stem primarily from ongoing use of LAAF and live fire
24 firing ranges. The majority of military training activities on Fort Huachuca are too far removed from the
25 City of Sierra Vista or nearby public lands to have any cumulative noise impacts under the PA.
26 Consequently, in light of historic, ongoing, and reasonably foreseeable future actions, the cumulative
27 noise impacts under the PA would be less than significant.

28 **3.10 HAZARDOUS WASTE, SUBSTANCES, AND MATERIALS**

29 Evaluation of the potential generation, use, or transport of hazardous materials and/or waste and its effect
30 on public safety is based on both the potential for upset (accident) and the consequences of any project-
31 related adverse event (negative effect associated with normal operations). Beneficial impacts may result
32 from any direct or indirect safety improvements due to project implementation. Adverse impacts related
33 to hazardous waste, substances and materials typically result when:

- 34 • The action results in the exposure of humans to unsafe levels of hazardous materials or hazardous
35 waste leading to unacceptable risks to human health and safety;
- 36 • The action results in the generation of hazardous materials or hazardous waste in quantities or of
37 a type that could not be accommodated by the current waste transportation or disposal system;
- 38 • The action results in an increase in likelihood of an uncontrolled release of hazardous materials
39 that could contaminate soil, surface water, and groundwater resulting in a significant adverse risk
40 to human health and safety or ecological constituents; or
- 41 • The action creates a situation involving endangerment or unusual risk to the health and safety of
42 military personnel, visitors, nearby residents, and the general public off-site.

1 The ROI for hazardous materials confined to areas where activities listed in Section 2.0 would take place
2 on the Fort.

3 **3.10.1 Proposed Action**

4 Impacts from Construction Activities. The construction of the proposed facilities and site modifications
5 under the PA are short-term and are not anticipated to generate unusual hazardous waste. Hazardous
6 materials use is anticipated to be limited to construction adhesives and temporary on-site storage and use
7 of fuel for construction equipment. The contractor will be required to collect and properly dispose of any
8 oil leaks from construction. If unanticipated on-site hazardous substances are encountered during
9 construction, activities will cease until appropriate remediation efforts are completed. Hazardous waste
10 will be disposed of in accordance with EPA, ADEQ and Fort Huachuca regulations. There will be no
11 significant impacts to public safety from hazardous material issues associated with this action.

12 Impacts from Facility Operation. The proposed facilities could store and use hazardous materials and
13 generate small quantities of hazardous wastes during their operation. The storage and disposal of such
14 materials and wastes would be in accordance with all applicable federal, state, and local regulations and
15 guidelines. For example, the use and storage of ammunition and explosives at the sites would follow
16 Army Regulation 385.64, U.S. Army Explosives Safety. Hazardous materials and wastes would not be of
17 a type or quantity that could not be accommodated by the current waste management system at the Fort.

18 The increased use of fuels during field exercises and UAV activities associated with the PA has the
19 potential to increase the likelihood of an uncontrolled release of hazardous materials that could
20 contaminate soil, surface water, and groundwater and could expose the environment to unsafe levels of
21 hazardous materials or hazardous waste if untreated. All applicable safety regulations will be followed to
22 prevent an uncontrolled release. If a release occurs the Fort's Installation Spill Contingency Plan would
23 be followed to prevent exposure to unsafe levels of hazardous materials or hazardous waste.

24 **3.10.2 Alternative One**

25 Potential impacts are similar to those described for the PA. Hazardous materials and wastes would be of a
26 type or quantity similar to that accommodated by the current waste management system at the Fort.

27 **3.10.3 Alternative Two**

28 Potential impacts are similar to those described for the PA. Hazardous materials and wastes could be
29 accommodated by the current waste management system at the Fort with no significant impact.

30 **3.10.4 Alternative Three**

31 Under the No Action Alternative, the proposed activities would not occur, and most likely, the existing
32 conditions will continue. Currently, there are no hazardous material issues and none are anticipated in the
33 foreseeable future. Therefore, there will be no significant impact to issues surrounding hazardous
34 materials with this alternative.

35 **3.10.5 Cumulative Impacts**

36 Cumulative impacts from hazardous materials are generally site-specific or related to regional hazardous
37 material transportation and disposal capabilities. Anticipated impacts resulting from the PA involving
38 hazardous materials and waste would be less than significant and quite localized. Regional cumulative
39 impacts are anticipated to be less than significant as cities and counties follow regulatory guidelines and
40 best management practices for the handling and disposal of hazardous materials and wastes. The PA
41 would follow all applicable federal, state and local regulatory guidelines and would not result in a
42 contribution to significant impacts from hazardous material and waste handling, generation or disposal at
43 the local or regional scale.

1 **3.11 POPULATION, HOUSING AND ECONOMIC CONDITIONS**

2 NEPA provides no specific thresholds of significance for socioeconomic impact assessment. Significance
3 varies, depending on the setting of the PA (40 CFR 1508.27[a]), but 40 CFR 1508.8 states that indirect
4 effects may include those that are growth inducing and others related to induced changes in the pattern of
5 land use, population density, or growth rate.

6 Potential impacts on population, housing, and economic conditions can be determined by analyzing the
7 proposed action's impact on population growth in the area. Adverse impacts on population, housing, and
8 economic conditions typically result when:

- 9 • The action induces growth or concentrations of populations that exceed official regional
10 population projections or that conflict with population projections in local or County plan;
- 11 • The action induces substantial growth in an area, either directly or indirectly (e.g., through
12 projects in an undeveloped area or extension or major infrastructure);
- 13 • The action conflicts with housing projections and policies set forth in a local or County plan;
- 14 • The action generates student enrollment that exceeds the capability of responsible authorities to
15 accommodate;
- 16 • The action displaces existing housing, especially affordable housing;
- 17 • The action disrupts or divides the physical arrangement of an established community, or
- 18 • The action causes a decrease in local or ROI employment.
- 19 • The action results in the increase of permanent party personnel to the Fort without having
20 sufficient housing resources to accommodate the increase resulting in an adverse impact on the
21 health and safety of military personnel and their families.

22 The primary socioeconomic ROI potentially affected by the PA and alternatives of this EA includes Fort
23 Huachuca, Sierra Vista and Huachuca City. These three communities are the most likely to experience
24 population and economic changes as a result of personnel being stationed at the Fort or living off-post.

25 **3.11.1 Proposed Action**

26 Under the PA there would be an increase of 134 jobs in civilian employment and 201 jobs in military
27 employment. It is estimated that 50 percent of the new civilian employees would relocate to the area.
28 Using the 2002 average household size of 2.55 it is estimated that this would result in an increase of 683
29 persons to the population of Cochise County. Total estimated annual income of both new civilian and
30 military personnel is \$14,753,534. This will be a direct long-term beneficial impact to the income of the
31 area. In addition there would be an estimated increase in one-time local expenditures (primarily
32 construction materials and related activities) of \$140,000,000 over a five-year period, which would also
33 result in a beneficial long-term impact to the income of the area.

34 An estimated additional demand of 193 off-post housing units would be needed in the local area. The
35 additional population and housing units could increase the local tax base of the area. Under the PA a total
36 of 15,000 acres of off-post land would be protected through conservation easements. This will provide an
37 initial short-term beneficial impact to income from the purchase of the easement and would maintain or
38 increase tax revenue from the parcel if removed from agricultural production. Because the location of the
39 easements and any follow-on land uses are not currently known it is not possible to more accurately
40 estimate either the initial purchase cost of the acreage or the change to local tax base revenue.

41 Both individually and combined, activities associated with the PA are anticipated to result in a less than
42 significant impact to local and regional economic and socioeconomic conditions.

1 **3.11.2 Alternative One**

2 Under Alternative One there would be an increase of 620 jobs in civilian employment and 330 jobs in
3 military employment. There would be a total annual increase of \$46,222,220 to local income from the
4 additional employment of both civilian and military personnel. In addition there would be a one-time
5 increase of \$210,000,000 in local expenditures (primarily construction materials and related activities)
6 over the next five years. This will create a beneficial long-term impact to the local area income and
7 economy. Factoring in average family size there would be an increase of 1,632 persons to the local
8 population and an estimated demand of 517 off-base housing units. The additional populations and
9 housing units could create a long-term beneficial impact to the local tax base.

10 Under Alternative One, 25,000 acres would be protected through conservation easements. Because the
11 locations of the parcels are not currently known it is not possible to estimate either the initial purchase
12 cost of the acreage or the change in local tax base revenue. This alternative would result in the greatest
13 increase to local area income, population, and demand for housing. There would be no disproportionately
14 high and adverse effects on minority or low-income populations nor any disproportionately high and
15 adverse environmental health and safety risks to children from the implementation of Alternative One.

16 Both individually and combined, activities associated with Alternative One are anticipated to result in a
17 less than significant impact to local and regional economic and socioeconomic conditions.

18 **3.11.3 Alternative Two**

19 Under Alternative Two, 69 new civilian and 29 new military jobs would be created. This would result in a
20 annual increase of \$4,860,286 to the local income of the area once positions are filled. In addition, it is
21 estimated that this alternative would result in a one-time increase in expenditures of \$70,000,000. The
22 additional incomes would create a beneficial long-term impact to the local income and economy.
23 Factoring in average family size there would be an increase of 163 persons to the local population and an
24 estimated demand of 53 off-base housing units. The additional population and housing units would
25 increase the local tax base of the area. Also under this alternative, 5,000 acres would be protected
26 through conservation easements. Because the locations of the parcels are not currently known it is not
27 possible to estimate either the initial purchase cost of the acreage or the change in local tax base revenue.
28 This alternative would result in the least amount of increase to local area income, population, and demand
29 for housing. There would be no disproportionately high and adverse effects from the implementation of
30 Alternative Two on minority or low-income populations. There would be no disproportionately high and
31 adverse environmental health and safety risks to children as a result in Alternative Two.

32 Both individually and combined, activities associated with Alternative Two are anticipated to result in a
33 less than significant impact to local and regional economic and socioeconomic conditions.

34 **3.11.4 Alternative Three**

35 Under Alternative Three there would be no foreseeable changes to Fort Huachuca's contribution to
36 economic or socioeconomic conditions within the region.

37 **3.11.5 Cumulative Impacts**

38 Activities associated with the PA and alternatives are not anticipated to result in a significant cumulative
39 impact to local economic or socioeconomic conditions. The growth and development of the greater Sierra
40 Vista area is anticipated to continue unabated by activities at Fort Huachuca. The acquisition of
41 conservation easements within the region would result in a long-term benefit to local and regional
42 populations by providing additional open space and fewer development-related impacts (i.e. traffic
43 congestion, air quality emissions, water pumping). Economic and socioeconomic conditions within the
44 local and regional area appear stable and would not be largely affected by the PA and alternatives.

1 **3.12 HEALTH AND SAFETY**

2 Adverse impacts on health and safety typically result when:

- 3 • The demand for police, fire, or medical services exceeds the present and/or future capacity to
- 4 serve resulting in unacceptable adverse risks to human health and safety; or
- 5 • If proposed changes create an inherently dangerous situation for military personnel or civilians at
- 6 Fort Huachuca.

7 Fort Huachuca, Coronado National Forest, and the surrounding communities and services comprise the

8 ROI for health and safety.

9 **3.12.1 Proposed Action**

10 Impacts from Site Development Activities. The PA includes the development of new facilities within the

11 range Training Areas. While none of the proposed improvements or associated training activities are

12 inherently dangerous, measures are included in the PA to maximize safety. Facilities and developments

13 proposed within Training Areas India, Papa, and Victor would be surrounded by 8 to 10 foot high chain

14 link fencing topped with barbed wire to limit access to unauthorized personnel. These gated areas are

15 locked when not in use and guarded when in use. Coordination of training exercises and other uses of the

16 Training Areas through Range Control is anticipated to minimize conflicts of uses of the range. Where

17 necessary to ensure safety, personnel and/or signs may be used to notify other users in the area of a

18 training exercise underway. For example, the use of a traffic control device could be installed on roads in

19 the vicinity of UAV launch or recovery operations in Training Area India. The proposed increases in

20 dismounted cross-country pedestrian movement in Training Area Papa would be limited to staying below

21 the ridge to ensure personnel remain clear of live-fire Range 13. Designs for refurbishment of live fire

22 ranges within the South Range would follow all safety protocols.

23 Impacts from Personnel Increases. The proposed increases in urban and rural personnel training is non-

24 intrusive and non-confrontational, and would not pose any risk or danger to the general public. While

25 increased personnel and student loads could potentially lead to increased injuries, these increases would

26 be within the existing facilities capabilities to serve.

27 Impacts from Conservation Easements. Conservation easements would provide a measure of safety to the

28 surrounding communities by providing a buffer from aircraft activities and would result in a less than

29 significant impact on the human environment.

30 Impacts from Potential Fire Risks. Minimizing the risk of fire on the training ranges is a priority. Any use

31 of pyrotechnics would comply with the Range Regulations and Pyrotechnic SOPs. Per Range Control

32 Regulations, vehicles would remain on roads and trails, within vehicle pull outs or in other authorized

33 areas for vehicles, thereby minimizing the ignition of dry grass or brush that could otherwise come in

34 contact with hot vehicles. Increased company-level cadre training would not include the use of field

35 kitchens. Fueling activities would be conducted by Brigade assets and would follow all safety and fire

36 management protocols. Should a fire occur as a result of any of the proposed training activities,

37 immediate actions would be taken and all emergency plans and protocols would be followed.

38 Any proposed increase in training activities at the Fort however, must be evaluated within the context of

39 existing fire suppression capabilities. Existing fire suppression capabilities at the Fort are insufficient to

40 meet the growing demand for increased training area utilization across the installation. The potential for

41 catastrophic fire is increased. Consequently, mitigation measures identified below are incorporated within

42 the PA to reduce the impact from potential fire risks to a less than significant level.

43 Impacts from UAV Activities. The potential exists for a UAV to crash during testing and training

44 activities. The UAV Crash/Incident/Mishap Investigation and Recover Plan directs actions following a

45 mishap. While a mishap could occur, the potential for loss in or near populated areas is negligible, as

1 flight profiles do not traverse highly populated areas. Most UAV mishaps occur during take off and
2 landing, both of which take place on the installation (USAGFH 2000b). In addition, UAVs do not carry a
3 large enough fuel supply to pose a significant threat of fire should one crash (Peter Nussbickel, Personal
4 Communication, 12 October 2004).

5 Airspace congestion associated with increased UAV flights could potentially lead to conflicts between
6 UAVs and manned aircraft. Increased ATC staffing and hours of operation (see Section 3.7) would
7 increase ATC's ability to manage the aircraft in flight and reduce the number of aircraft in the air at one
8 time by spreading them out over the course of the longer hours of operation. ATC monitors all aircraft
9 within the restricted air space regardless of which runway is used. Aircraft (UAV or otherwise) are
10 directed to assure safe clearance between different aircraft flying at one time.

11 **3.12.2 Alternative One**

12 Additional studies would be necessary to determine the impact on health and safety associated with the
13 increase in runways and the restructuring of airspace included in this alternative. Restructuring the
14 airspace could affect the demand on ATC and an evaluation would be necessary to ensure adequate
15 staffing of trained personnel would be available to accommodate the proposed changes in UAV activity.
16 Additional conservation easements compared to the PA would increase the buffer between aircraft
17 activities and the surrounding communities, improving safety to surrounding communities. A new or
18 refurbished small arms and other live fire ranges would be designed, constructed and operated within
19 existing protocols and regulations for ensuring safety to surrounding areas and within the range.

20 With additional development and use of the installation, fire suppression capabilities and crash response
21 would require additional equipment and manpower than described in the PA, such as considerations for
22 the South Range. These needs would have to be determined when the activities and developments are
23 more specifically defined.

24 Any proposed increase in training activities at the Fort must be evaluated within the context of existing
25 fire suppression capabilities. As described above, existing fire suppression capabilities at the Fort are
26 insufficient to meet the growing demand for increased training area utilization across the installation. The
27 potential for catastrophic fire is increased. Consequently, mitigation measures identified below are
28 incorporated within the Alternative One to reduce the impact from potential fire risks to a less than
29 significant level.

30 **3.12.3 Alternative Two**

31 Under this alternative new facilities would not be constructed within the ranges, and existing facilities
32 would continue to be used. The increasing demand on the training areas and lack of new facilities
33 increases the likelihood of conflict in use within the range. These use conflicts would continue to be
34 managed by Range Control. UAV flights would be the same as in the PA but occur using existing
35 facilities. Fire suppression and crash response capabilities would need to increase as described in the PA.
36 Conservation easements, while limited compared to the PA and Alternative One, would provide a
37 measure of safety to the surrounding communities by providing a buffer from aircraft activities. As with
38 the PA, fire suppression and crash response capabilities at the Fort need to be increased to adequately
39 meet existing and future needs. This mitigation is listed below.

40 **3.12.4 Alternative Three**

41 Alternative Three maintains the status quo and previously approved activities would continue. A new fire
42 station on the West Range and increasing crash response capabilities at LAAF are currently needed.
43 Designs for a new West Range fire station are being reviewed. Heavy demand for existing training
44 facilities would continue under this alternative, but these issues would continue to be managed by Range
45 Control. UAV flights would continue to increase as previously approved, contributing to airspace
46 congestion. Increases in ATC personnel and hours of operation are anticipated to reduce some of the

1 potential risk and be able to meet the demand generated by increases in aviation activities. As with the
2 PA, upgrades to fire suppression and crash response capabilities are needed to avoid a significant impact.

3 **3.12.5 Cumulative Impacts**

4 While fire suppression and crash response capabilities are deficient at the Fort, these impacts are localized
5 to the installation. Police, medical, and fire suppression capabilities in the surrounding communities
6 would not be overwhelmed or significantly affected by the PA or any of the alternatives. None of the
7 alternatives (including the PA) would create an inherently dangerous situation for people on or off the
8 installation. As surrounding communities begin to attract more fly-in tourism, local airports are making
9 improvements. For example, the Benson Municipal Airport recently completed a new million-dollar
10 taxiway and parking aprons and is constructing private hangars (CCCER 2004). However, given that
11 UAVs are used within the restricted airspace, a cumulative impact is not anticipated. Restructuring of
12 airspace considered in Alternative One could potentially have an impact on surrounding airports. The
13 FAA and proponents would study potential impacts associated with such restructuring prior to any actions
14 being taken. Restructuring aside, no significant cumulative impacts are anticipated.

15 **3.12.6 Mitigation Measures**

16 Fire suppression and crash response capabilities at the Fort need to be increased to adequately meet
17 existing and future needs. An additional fire station on the West Range near the UAV complex and
18 extensions to the LAAF fire station would help meet the existing needs and the potential needs that
19 increased range and UAV activities would generate. Needs identified to ensure adequate suppression
20 capabilities include one structural fire fighting apparatus, one wildland fire fighting apparatus, one 4
21 wheel drive ambulance, additional firefighters of required rank/certification, increased crash truck
22 capabilities, and peripheral requirements (salary, protective clothing, hoses, nozzles, beds, office
23 furniture, etc) (Chief Saenz, Personal Communication, 30 September 2004).

24 **3.13 UTILITIES AND SERVICES**

25 Adverse impacts on public services, utilities or energy typically result when:

- 26 • A resource exceeds its present and/or future capacity to serve the local community which
27 jeopardizes human health and safety; or
- 28 • A significant and long-term increase in annual energy consumption or peak potential loading is
29 calculated to exceed the capacity of the transmission lines and transformers jeopardizing the
30 ability of the utility to service the local community.

31 The ROI for this resource area includes the area surrounding the sites proposed for development and the
32 utility infrastructure and providers of the Fort.

33 **3.13.1 Proposed Action**

34 The public services and utilities at the Fort would be capable of incorporating the increased demands
35 associated with the development and operations under the PA. There may be temporary interruption in
36 services to surrounding facilities while connections are made. No long-term interruption of service is
37 anticipated. These interruptions are not considered significant.

38 Impacts on Sanitary Sewer System. A minor increase in wastewater generation would be expected as a
39 result of the development in training areas Juliet and India and the cantonment area and LAAF. This
40 increase is not anticipated to result in any significant contribution to sanitary sewer capabilities in the
41 area. The WWTP is currently operating at 38% of total capacity. The other sites will be served by
42 portable facilities. No significant impact on the sanitary sewer system on the Fort is anticipated.

43 Impacts on Solid Waste Generation. Solid waste quantities would increase with the operations and
44 additional personnel located at the Fort under this action. The waste will be disposed in landfills which

1 are Arizona Department of Environmental Quality approved for the type of solid waste generated. No
2 significant impact on solid waste disposal or to local landfills is anticipated as a result of the PA.

3 Impacts on Energy Consumption. While energy uses at Fort would increase, these increases would not
4 exceed the capacity of the transmission lines or transformers. The design of new facilities incorporates
5 energy conservation features such as building insulation, low energy lighting, efficient heat and cooling
6 controls, energy-saving water heaters and appliances, and optimum use of natural ventilation and lighting.
7 Utilities will be connected to sites via existing utility and roadway alignments. No significant impact on
8 energy systems is anticipated as a result of the PA.

9 **3.13.2 Alternative One**

10 Potential impacts are similar to those described for the PA. Additional utility usage would occur as a
11 result of the additional square footage of development in the cantonment area, construction of an
12 additional UAV facility, and the additional personnel stationed at the Fort. This additional utility usage is
13 not anticipated to be significant, or cause any utility to exceed its present and/or future capacity to serve.
14 No significant impact to public utilities or services is anticipated.

15 **3.13.3 Alternative Two**

16 Alternative two is similar to PA with the exception that there would be less square footage developed in
17 the Cantonment/LAAF area and less personnel stationed at the Fort. The potential impacts on utilities
18 would be slightly less than that of the PA. No significant impact to public utilities or services is
19 anticipated.

20 **3.13.4 Alternative Three**

21 No change in existing public services or utilities would occur. No impact on public services or utilities is
22 anticipated.

23 **3.13.5 Cumulative Impacts**

24 No cumulative impacts to public services, utilities or energy resources are anticipated to occur as a result
25 of the PA or alternatives.

26 **3.14 ADDITIONAL AREAS OF CONSIDERATION**

27 **3.14.1 Environmental Justice**

28 Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and*
29 *Low Income Populations* (1994), directs federal agencies to identify and address, as appropriate,
30 disproportionately high and adverse human health or environmental impacts of their program, policies,
31 and activities on minority or low income populations in the surrounding community. The PA is not
32 anticipated to create any high or adverse human health or environmental impact on minority or low
33 income populations in the surrounding areas. The PA and alternatives are not anticipated to result in any
34 significant impacts to human health or safety to any population.

35 **3.14.2 Protection of Children from Environmental Health and Safety Risks**

36 Executive Order 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (1997),
37 recognizes a growing body of scientific knowledge that demonstrates that children may suffer
38 disproportionately from environmental health risks and safety risks. The PA and alternatives are not
39 anticipated to result in any disproportionate environmental health risk or safety risk to children.

40 **3.14.3 Farmlands**

41 The Farmland Protection Policy Act (FPPA) of 1981 (7 USC 4201 et seq.) was written to minimize the
42 extent to which Federal programs contribute to the unnecessary and irreversible conversion of farmland to
43 nonagricultural uses, and to assure that Federal programs are administered in a manner that, to the extent

1 practicable, will be compatible with State, unit of local government, and private programs and policies to
2 protect farmland. The PA and alternatives is not anticipated to result in the loss of any farmland. If the
3 areas to be included in proposed conservation easements are determined to include farmlands, subsequent
4 analysis pursuant to the FPPA would be required.

5 **3.15 SUMMARY OF MITIGATION MEASURES**

6 **3.15.1 Soils**

7 While excavation and earthmoving associated with construction of new facilities have the potential to
8 affect soil resources, the potential for impact is mitigated by each contractor operating within the confines
9 of a NPDES permit and SWPPP and through sound site design to limit erosion. For disturbances of one
10 acre or more, a SWPPP is required prior to project implementation. The purpose of the plan is to
11 minimize erosion through the use of BMPs. These BMPs will ensure that construction-related soil erosion
12 is kept to a minimum. BMPs would be specifically designed to control the amount and velocity of runoff
13 and its ability to carry sediment (soil) by diverting incoming flows. BMPs also include sediment traps to
14 retain sediment on the project site. These measures would ensure no appreciable loss in topsoil or
15 excessive sedimentation reaching nearby drainages or watercourses.

16 The Army will continue to implement the Fort Huachuca INRMP, ITAM program, and East Range
17 Watershed Improvement Rehabilitation Plan which address soils loss in training areas on the Fort. The
18 plans will continue to address measures such as, but not limited to, restrictions on the timing or type of
19 training during high risk conditions, vegetation monitoring, soil monitoring, and buffer zones to minimize
20 dust emissions in populated areas. The plan will continue to determine how training will occur in order to
21 keep fugitive dust emissions below CAA standards for PM10 and soil erosion and compaction to a
22 minimum. The Army will monitor the impacts of training activities to ensure that emissions stay within
23 the acceptable ranges, as predicted, and that environmental problems do not result from excessive soil
24 erosion or compaction. The plan will also define contingency measures to mitigate the impacts of training
25 activities that exceed the acceptable ranges for dust emissions or soil compaction.

26 **3.15.2 Water Resources**

27 Fort Huachuca Policy 119 (29 April 2002) requires that any organization increasing its overall personnel
28 strength in the Fort Huachuca area must mitigate the water use associated with these additional personnel
29 and their family members. This mitigation policy also applies to contract employees working on the
30 installation. Mitigation for large personnel increases (which by definition includes the PA) is required
31 prior to the personnel increase or hiring action. Based on the continued implementation of Fort Huachuca
32 Policy 119 and the successful mitigation of additional water pumping associated with the PA, impacts to
33 water resources within the ROI are anticipated to be less than significant.

34 The Army will implement the existing spill prevention and response plan to all new lands and activities
35 under the PA. The Army will fully implement this plan for all existing and new training areas to reduce
36 the impacts associated with increased training activities. The plan is available upon request. The Army
37 will incorporate BMPs that will reduce runoff and sedimentation to aquatic environments in accordance
38 with CWA regulations for storm water runoff across the Fort.

39 The Army proposes to implement design measures in accordance with Army design standards to reduce
40 potential soil erosion and sediment loading impacts to the Babocomari River and San Pedro River.
41 Mitigation design measures include, but are not limited to, hardening the roads, raising the elevation of
42 the roadway to improve drainage, installing drainage ditches adjacent to roads to control water running on
43 or off the road, and planting grasses to slow overland flow. The Army would choose the most practicable
44 solution for the specific project or project area during design.

1 3.15.3 Biological Resources

2 The cumulative loss and fragmentation of grasslands in the Sierra Vista subwatershed represents a
3 contribution to the ongoing regional loss of grasslands which affects a wide range of common and special
4 status species. Individual projects on Fort Huachuca must comply with the Fort Huachuca INRMP for the
5 protection of grasslands that provide lesser long-nosed bat foraging habitat and other functions. While
6 these measures have helped minimize Fort Huachuca's contribution to the loss and fragmentation of
7 grasslands in the region, further measures are required to ensure no further potential for adverse
8 contribution to regional cumulative impacts on grasslands.

9 Goals and objectives for improved grassland resource management on Fort Huachuca were identified in
10 2004. Preliminary analysis concluded that future grasslands management on the Fort should be
11 accomplished within an adaptive management framework such that successful implementation of
12 recommendations would not conflict with the Army's military mission at Fort Huachuca. The
13 accomplishment of the following goals and successful completion of relevant objectives would minimize
14 and likely eliminate any effects of ongoing and proposed development activities at Fort Huachuca that
15 could contribute to existing regional grasslands loss and fragmentation and resulting cumulative impacts:

- 16 • Goal #1.1 Special-Status Grassland Species. Conserve and/or restore populations of special-status
17 grassland species on Fort Huachuca through recovery and management efforts, including the
18 protection, conservation, and restoration of important grassland habitats.
- 19 • Goal# 1.2: Grassland Species of Concern. Conserve populations of grassland species of concern
20 through management efforts, including the protection, conservation, and restoration of special
21 interest area grassland habitats.
- 22 • Goal# 1.3: Grassland Wildlife Habitat. Conserve grasslands habitat capable of supporting viable
23 populations of other important grassland wildlife species such as birds of conservation concern
24 and game species.
- 25 • Goal# 1.4: Amend the 2001 Fort Huachuca INRMP. Amend the 2001 INRMP with additional
26 grassland habitat-specific subsections and resource-specific goals and objectives to support
27 ongoing, coordinated, and well documented adaptive grassland management.

28 The intent of these additional measures is to ensure that actions taken by the U.S. Army Garrison Fort
29 Huachuca do not result in an adverse contribution to regional grassland loss and fragmentation and
30 resulting significant cumulative impacts. The accomplishment of these goals and successful completion of
31 these objectives would assure that ongoing and proposed activities at Fort Huachuca would not adversely
32 contribute to regional grassland loss and fragmentation.

33 3.15.4 Cultural Resources

34 Prior to construction, the sites will be reviewed to determine whether any resources have been weathered
35 out of the alluvium. If any resources that constitute potentially register-eligible sites, it will be necessary
36 to conduct Section 106 consultations with the SHPO before construction.

37 To account for the unlikely but potential discovery of archaeological resources during site excavation at
38 the Fort under the PA and Alternatives One and Two, the Army would brief the construction staff on
39 procedures for handling the unexpected discovery of archaeological resources prior to undertaking project
40 activities. If cultural resources or human remains were unearthed during construction excavations, the
41 application of standard practices in accordance with the ICRMP would mitigate potential adverse impacts.
42 In the event that human remains of Native American origin were discovered during project construction,
43 compliance with the Native American Graves Protection and Repatriation Act regulations relating to
44 discovery of human remains of Native American origin on Federal land is required (43 CFR 10).

1 **3.15.5 Health and Safety**

2 Fire suppression and crash response capabilities at the Fort need to be increased to adequately meet
3 existing and future needs. An additional fire station on the West Range near the UAV complex and
4 extensions to the LAAF fire station would help meet the existing needs and the potential needs that
5 increased range and UAV activities would generate. Needs identified to ensure adequate suppression
6 capabilities include one structural fire fighting apparatus, one wildland fire fighting apparatus, one 4
7 wheel drive ambulance, additional firefighters of required rank/certification, increased crash truck
8 capabilities, and peripheral requirements (salary, protective clothing, hoses, nozzles, beds, office
9 furniture, etc) (Chief Saenz, Personal Communication, 30 September 2004).

1 **4 FINDINGS AND CONCLUSIONS**

2 Based on the analysis, it is the conclusion of this EA that neither the PA, Alternative Two (Reduced
 3 Training Capacity) or Alternative Three (No Action) would constitute a major federal action with
 4 significant impact on the human environment, and that a Finding of No Significant Impact for the PA and
 5 Alternatives Two and Three should be issued to conclude the NEPA documentation process. Insufficient
 6 evidence was available to determine the extent and potential significance of impacts related to Alternative
 7 One. Consequently, it was concluded that further analysis specifically related to Alternative One would
 8 need to be completed prior to any impact determination for this alternative. Table 4-1 summarizes
 9 anticipated impacts resulting from the PA and alternatives.

10 **Table 4-1 Comparison of Anticipated Impacts**

11

Resource Area	Proposed Action	Alternative One	Alternative Two	Alternative Three
Land Use	less than significant impacts	insufficient information to make determination ¹	less than significant impacts	less than significant impacts
Visual Resources	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Topography, Soils or Geology	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Hydrology and Water Resources	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Biological Resources	less than significant impacts	insufficient information to make determination ¹	less than significant impacts	less than significant impacts
Historic and Cultural Resources	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Transportation and Circulation	less than significant impacts	insufficient information to make determination ¹	less than significant impacts	less than significant impacts
Air Quality	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Noise	less than significant impacts	insufficient information to make determination ¹	less than significant impacts	less than significant impacts
Hazardous Waste, Substances and Materials	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Population, Housing and Economic Conditions	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts
Health and Safety	less than significant impacts	insufficient information to make determination ¹	less than significant impacts	less than significant impacts
Utilities and Services	less than significant impacts	less than significant impacts	less than significant impacts	less than significant impacts

12 ¹ Insufficient information is available to determine the potential for significant impact associated with this resource. Additional analysis
 13 or information is required prior to any determination of anticipated significance associated with Alternative One.

5 ACRONYMS AND ABBREVIATIONS

2	ADEQ	Arizona Department of Environmental Quality	55	MITT	Mobile Training Teams
3	ADWR	Arizona Department of Water Resources	56	MWR	Moni, Welfar, and Recreation Directorate
4	APE	Area of Potential Effect	57	NCA	National Conservation Area
5	AR	Army Regulation	58	NEPA	National Environmental Policy Act
6	AST	Above Ground Storage Tank	59	NHL	National Historic Landmark
7	ATC	Air Traffic Control	60	NIM	Nautical Miles
8	BA	Biological Assessment	61	NOA	Notice of Availability
9	BLM	Bureau of Land Management	62	NOI	Notice of Intent
10	BMP	Best Management Practices	63	NO ₂	Nitrogen Dioxide
11	BO	Biological Opinion	64	NOx	Nitrogen Oxides
12	BRAC	Base Closure and Realignment	65	NHPA	National Historic Preservation Act
13	BTU	British Thermal Unit	66	NPDES	National Pollution Discharge Elimination System
14	CAA	Clean Air Act	67	NRCES	Natural Resource Conservation Service
15	CEQ	Council for Environmental Quality	68	NRHP	National Register of Historic Places
16	CFR	Code of Federal Regulations	69	O ₃	Ozone
17	CO	Carbon Monoxide	70	O&M	Operations and Maintenance
18	CPG	Comprehensive Procurement Guidelines	71	PA	Proposed Action
19	CWA	Clean Water Act	72	PAC	Protective Activity Center
20	DA	Department of Army	73	PAF	Partners in Flight
21	dB	Decibel	74	PM ₁₀	Particulate matter less than 10 micrometers in diameter
22	dBa	A-weighted Decibel	75	PM _{2.5}	Particulate matter less than 2.5 micrometers in diameter
23	DoD	Department of Defense	76	POL	Petroleum, Oil, and Lubricants
24	DRMO	Defense Reuse and Marketing Organization	77	RORA	Resource Conservation and Recovery Act
25	EA	Environmental Assessment	78	ROG	Reactive Organic Gases
26	EIS	Environmental Impact Statement	79	ROI	Region of Influence
27	ENRD	Environmental and Natural Resources Division	80	RU	Recover Unit
28	EO	Executive Order	81	SEMA	Special Electronic Mission Aircraft
29	EPA	Environmental Protection Agency	82	SHPD	State Historic Preservation Office
30	EFG	Electronic Firing Ground	83	SIP	State Implementation Plan
31	ER/MP	Extended Range/Multi Purpose	84	SO ₂	Sulfur Dioxide
32	F	Fahrenheit	85	SR	State Route
33	FAA	Federal Aviation Administration	86	SSH	Single Soldier Housing
34	FH	Fort Huachuca	87	STX	Situational Training Exercises
35	FLCUN	Federal Interagency Committee on Noise	88	SVRHC	Sierra Vista Regional Health Center
36	FNSI	Finding of No Significant Impact	89	SWPPP	Storm Water Pollution Prevention Plan
37	FPPA	Farm and Forest Protection Policy Act	90	TCP	Traditional Cultural Property
38	FTX	Field Training Exercises	91	TDA	Table of Distribution and Allowances
39	HUD	Housing and Urban Development	92	TOC	Tactile Operator Center
40	IA	Inventory Area	93	TPU	Troop Program Unit
41	ICRMP	Integrated Cultural Resource Management Plan	94	TRADOC	Training and Doctrine Command
42	IED	Improvised Explosive Device	95	TRAP	Training Requirements Arbitration Panel
43	INRMP	Integrated Natural Resource Management Plan	96	TSDF	Treatment, Storage, and Disposal Facility
44	ISCP	Installation Spill Contingency Plan	97	UAV	Unmanned Aerial Vehicle
45	ISR	Intelligence, Surveillance, and Reconnaissance	98	USAIC	U.S. Army Intelligence Center
46	ITAM	Integrated Training Area Management	99	USASC	U.S. Army Signal Command
47	LAAF	Libby Army Airfield	100	USFS	U.S. Forest Service
48	LDN	Day-Night Sound Level	101	USFWS	United States Fish and Wildlife Service
49	MCA	Military Construction Army	102	USPB	Upper San Pedro River Basin
50	MGD	Million Gallons per Day	103	UXO	Unexploded Ordnance
51	MI	Military Intelligence	104	VFR	Visual Flight Rules
52	MCA	Memoranda of Agreement	105	WWTP	Wastewater Treatment Plant
53	MOOT	Military Operations Urbanized Terrain			
54	MSL	Mean Sea Level			

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1

APPENDIX A

2

GENERAL BASELINE CONDITIONS

3

FORT HUACHUCA, ARIZONA

4

NOVEMBER 2004

1 is located along the northern boundary of the cantonment area, is capable of receiving all aircraft in the
2 Department of Defense inventory, and is an alternate site for emergency landing of the Space Shuttle. The
3 airfield is also used by the city of Sierra Vista under a joint-use agreement with separate civilian entrance,
4 parking, terminal, and maintenance facilities located outside the military airfield operations area. Civilian
5 facilities are accessed via SR 90. The cantonment area could be considered the equivalent of a small but
6 compact town. All of the normal features of a town are included, such as drinking water and wastewater
7 treatment facilities and systems, recreational facilities, shopping areas, vehicle maintenance and repair
8 areas, office space, other industrial activity facilities and residential areas. The Military Intelligence
9 Center and School are located within the cantonment area. Total square footage of the approximately
10 2000 structures within the cantonment area is approximately 8 million square feet. The "Old Post"
11 National Historic Landmark District, also within the cantonment, includes adobe residential buildings,
12 former cavalry barracks now used for administrative functions, the Brown Parade Field, and other
13 significant and contributing structures.

14 Training Ranges. Training Ranges on the West and East Reservations comprise 68,002 acres (106 sq. mi.)
15 or approximately 93 percent of the installation. Active and Reserve component units of all services utilize
16 the training areas for various mounted and dismounted training activities including mountain/desert field
17 training, escape and evasion training, and brigade-size field training exercise.

18 The West Range is on the West Reservation, west of the cantonment area and covers approximately
19 16,453 acres (26 sq. mi.) of land. The West Range is used for training and testing. There are no live fire
20 training areas in this range, and at specified times the range is used for research, development and testing.
21 The northwest corner of the West Range, known as Training Area Juliet, is predominantly used by the
22 Intelligence School for training of remote control pilots for unmanned aerial vehicles (UAVs). The
23 Electronic Proving Ground (EPG) performs research and development testing in this area. The launch and
24 recovery of UAVs is a primary event performed on the West Range.

25 The South Range is on the West Reservation located south of the built-up area and covers approximately
26 24,334 acres (38 sq. mi.) which includes most of the installation's extent of the Huachuca Mountains. The
27 eastern slopes of the southern portion of the mountains are used in part for impact areas from the firing
28 positions located in the flat terrain of the eastern portion of the range. Training and some testing occur in
29 the northern portion of the mountains. The range is divided into 12 training areas, 17 firing ranges, and
30 several impact areas.

31 The East Range is on the East Reservation, east of the cantonment area and covers approximately 27,215
32 acres (42 sq. mi.) of land. The area contains six training areas, a demolition range, a tactical assault
33 landing strip, an impact area, and three drop zones. Area Zulu contains a 6954 acre (11 sq. mi.) impact
34 area for various types of self propelled artillery and mortars. When live-fire exercises occur, the entire
35 East Range is closed for all other training activities. Some areas within Area Zulu may contain
36 unexploded ordnance (UXO). Fort Huachuca Range Control dictates strict adherence to the 'off-limits'
37 policy of this impact area and warning signs are posted in the area to alert personnel of the potential
38 danger. Aside from hunting, outdoor recreation is not permitted on the East Range (USAGFH 2001b).

39 Outdoor Recreation. Fort Huachuca has a rich cultural history, scenic landscapes, and diverse wildlife
40 populations, which offer a wide variety of recreational opportunities to civilian and military personnel and
41 the general public. Over 9,000 participants take advantage of outdoor programs annually, with most
42 activities being non-consumptive outdoor recreation such as picnicking, camping, hiking, horseback
43 riding and bird watching.

44 The Morale, Welfare and Recreation Directorate (MWR) operates a number of outdoor recreation
45 facilities and programs on Fort Huachuca. Hunting is allowed on the Fort in cooperation with the
46 Directorate of Installation Support and the Arizona Department of Game and Fish. The MWR also
47 operates the Sportsman's Center, which includes target shooting and supports the hunting and fishing

1 programs on Fort Huachuca. The Buffalo Corral Riding Stables, located on the West Gate Road, provides
2 both horse rentals and boarding facilities. In addition to these activities, the public has access to 45 miles
3 (72.4 km) of hiking trails in the mountainous parts of the Fort.

4 **2.2 MILITARY OPERATIONS AND ACTIVITIES**

5 The ongoing missions and activities at Fort Huachuca constitute the baseline at the installation. The
6 operations, missions, and activities previously discussed in Fort Huachuca's July 2002 BA (USAGFH
7 2002) and in the BO issued by the USFWS later that year (USFWS 2002b) are incorporated by reference.

8 Fort Huachuca is one of 16 U.S. Army installations under the command and control of the U.S. Army
9 Training and Doctrine Command (TRADOC). Fort Huachuca's higher headquarters for garrison
10 operations is the Installation Management Agency, with the southwestern regional headquarters located at
11 Fort Sam Houston, Texas. Fort Huachuca remains the Headquarters for the USAIC. It is also the
12 headquarters for the U.S. Army Signal Command (USASC)/NETCOM.

13 The Fort Huachuca Programmatic Biological Assessment (USAGFH 2002) contains a detailed discussion
14 of ongoing military operations and activities to include:

- 15 • Military Intelligence Training
- 16 • Intelligence and Communications Systems
- 17 • Management, Operation, and Maintenance of Army Information Systems
- 18 • Intelligence and Electronic Warfare Equipment Training and Testing
- 19 • Communications Systems Training and Testing
- 20 • Field Training Exercise
- 21 • Land Navigation
- 22 • Patrolling and Tactics Training
- 23 • Individual Development Training
- 24 • Vehicle Maneuver Training
- 25 • Live Fire Qualification and Training
- 26 • Administrative and Support Activities
- 27 • Fixed-Wing Piloted Aircraft Training
- 28 • Rotary-Wing Aircraft Operation and Training
- 29 • Unmanned Aerial Vehicle Testing and Training
- 30 • Unmanned Drug Surveillance Balloon Operation
- 31 • Hunting and Fishing
- 32 • Hiking, Camping, and Sports
- 33 • Horseback Riding and Grazing

1 Table 1 identifies currently programmed facility development on Fort Huachuca.

2 **Table 1 Long-Range MCA and Operation and Maintenance**
 3 **Army (OMA) Projects Listing (FY 05-14)**

4

FY	Project Description	Project No.	Scope	Unit of Measure	Funding
06	Barracks with Battalion (P/S only)	38675	224795	SF	MCA
06	UAV Training Facility (P/S only)	55205	24540	SF	MCA
06	Chapel	50198	19940	SF	MCA
06	Global Information (P/S only)	55241	83250	SF	MCA
06	Vehicle Maintenance Facility	01388	21600	SF	MCA
07	Electronic Maintenance Facility (P/S only)	47283	50507	SF	MCA
07	Test & Evaluation Facility (P/S only)	53342	41220	SF	MCA
07	Youth Center Addition	33321	5332	SF	MCA
07	Community Club (P/S only)	45970	10000	SF	NAF
07	Sportsman Center (P/S only)	45969	10000	SF	NAF
07	Water Tank Potable (P/S only)	54561	.6m	GAL	MCA
07	Running Track (P/S only)	52128	5280	LF	MCA
07	Buffalo Corral Upgrade	45972	--	--	NAF
07	Pershing Plaza E/1 (P/S only)	31430A	75	Units	MCA/AFH
08	Aircraft Fuel Storage (P/S only)	46513	458000	GAL	MCA
08	Airfield Fence (P/S only)	44768	36800	LF	MCA
08	Pershing Plaza E/2 (P/S only)	31430B	77	Units	MCA/AFH
09	Chapel (Ed) (P/S only)	46484	16455	SF	MCA
10	Pershing Plaza E/3 (P/S only)	31430C	75	Units	MCA/AFH
10	Roads Paved (P/S only)	28561	--	LF	MCA
10	Cavalry Park #6 & Signal Village #1	42752	56	Units	MCA/AFH
11	Ammunition Supply Point (P/S only)	11708	25163	SF	MCA
11	Miles Manor 1 & 2 (P/S only)	31432	46	Units	MCA/AFH
12	Christy Sewer (P/S only - awaiting funds)	48149	--	--	OMA
12	Combined Sewers areas 5 & 6 (P/S only)	48327	--	--	OMA
13	Army Continuing Ed Services Bldg	56208	--	--	MCA
13	Combined Sewers areas 3 & 4	53291	--	--	OMA
14	Main Gate Access Bldg (Being Programmed)	58605	8600	SF	MCA
14	East Gate Access Bldg (Being Programmed)	58603	5600	SF	MCA

5

6 **3 VISUAL RESOURCES**

7 The topography at Fort Huachuca is varied with considerable visual relief. Fort elevations range from less
 8 than 4,000 feet above mean sea level (MSL) on the northeast edge of the East Range to over 8,600 feet
 9 above MSL on the South Range near Ramsey Peak in the Huachuca Mountains. Fort Huachuca is in a
 10 region dominated by rangelands with scattered rural development and small to medium urban clusters.

11 **3.0 VISUAL CHARACTER**

12 There are two visually distinct areas of the Fort surrounded by similar landscapes. The majority of the
 13 cantonment area of Fort Huachuca is urban in appearance due to the presence of large administration
 14 buildings, testing and training facilities, and hangars and the air traffic control (ATC) tower at LAAF. The
 15 southern portion of the cantonment area is suburban in character, with landscaped areas, smaller structures,
 16 and a variety of recreational amenities and housing facilities. Dominant visual elements include Fort
 17 structures, such as administration buildings, housing structures, offices, and other buildings.

1 Training ranges at Fort Huachuca are undeveloped in appearance with a variety of topographic relief and
2 vegetation. The East Range is dominated by scrubland and dirt roads and trails with a few scattered
3 developments and facilities throughout. The west and south ranges are comprised of desert grasslands and
4 scrublands transitioning to oak woodlands and forests into the higher elevations of the Huachuca
5 Mountains. Both ranges contain rolling hills and valleys extending from the foothills of the Huachuca
6 Mountains. Scattered developments such as the Black Tower UAV complex and Site Maverick comprise
7 the majority of developed areas on the West Range. The South Range is mostly undeveloped with the
8 exception of live firing range positions, recreational facilities, and a network of dirt and paved road
9 surfaces.

10 **3.1 VIEWSHEDS**

11 Short- and long-range views from the Fort include rangelands and Whetstone Mountains to the north,
12 scrublands and riparian areas to the northeast, urban development (city of Sierra Vista) to the east, Santa
13 Rita Mountains to the West, and the foothills to the ridgelines of the Huachuca Mountains to the south
14 and southwest.

15 **3.2 SCENIC HIGHWAYS AND OTHER RESOURCES**

16 No scenic highways, national parks, or state parks border the Fort. The nearest State-designated Scenic
17 Highway is the Patagonia – Sonoita Scenic Road located approximately 20 miles west of the Fort
18 extending from Interstate 10 through Sonoita on SR 83 and on to Nogales, Arizona via SR 82 with no
19 view of the Fort. Karchner Caverns is the nearest state park approximately 20 miles north of the Fort
20 along SR 90. The San Pedro NCA borders the eastern portion of the east range but views from the NCA
21 onto the Fort are limited to approximately 0.25 mile due to a lower elevation and obscuring hills and
22 vegetation conditions on the east range.

23 **4 TOPOGRAPHY, SOILS, AND GEOLOGY**

24 **4.0 TOPOGRAPHY AND PHYSIOGRAPHIC CONDITIONS**

25 Fort Huachuca is located in the Mexican Highland Section of the Basin and Range Physiographic
26 Province, which extends through the southwestern United States and into the Mexican states of Sonora
27 and Chihuahua.

28 The topography of the basin and range province is characterized by numerous northwest-southeast
29 trending mountain ranges that are separated by wide alluvium filled basins. Within the Basin is the
30 northwest tending Upper San Pedro River Valley, which extends 60 miles (97 km) from the Mexican
31 Border to just north of the City of Benson. Elevations along the valley floor range from 4,200 feet above
32 MSL at the Mexican Border to 3,300 feet above MSL at its northern boundary.

33 The principal geographic features of the Sierra Vista subwatershed include: the Huachuca Mountains;
34 pediment surface and floodplain; several unconnected washes, canyons, and draws; and a small tributary
35 system feeding Soldier Creek. The San Pedro River is approximately 10 miles (16 km) east of Fort
36 Huachuca's main gate and 0.5 miles (0.8 km) east of the installation's East Range boundary. The
37 Babocomari River is within approximately 0.25 mile (.08 km) of the installation's northern boundary on
38 the East Range.

39 Elevations of the mountains within the Upper San Pedro Basin range from 5,000 to 9,446 feet above MSL
40 at Miller Peak, the highest point in Cochise County. Elevations within the boundaries of Fort Huachuca
41 range from below 4,000 feet above MSL on the northeast edge of the East Range to over 8,600 feet above
42 MSL on the South Range near Ramsey Peak.

1 **4.1 GEOLOGY**

2 The area encompassed by Fort Huachuca contains three broad topographic zones: mountains, alluvial
3 fans, and a broad bajada formed from the coalescence of several alluvial fans. The alluvial fans south of
4 the Babocomari River Valley within the West Range are dissected by three major drainages: Blacktail
5 Canyon, Slaughterhouse Canyon and Huachuca Canyon. All of these drainages are intermittent, flowing
6 in response to local rainfall. Huachuca Canyon Creek serves as the major storm water interceptor for
7 Huachuca Canyon and the Fort's cantonment area.

8 The unconsolidated and semi-consolidated sediments of the Upper San Pedro River Basin (USPB) consist
9 of three layers. The lowest unit is a thick, cemented conglomerate (Pantano Formation) that is overlain by
10 the lower basin fill unit, composed of weakly to strongly cemented layers of interbedded sandy clay, silty
11 sand, and sandy gravel. This layer is approximately 235 feet (72 meters) thick in the Fort Huachuca well
12 field. The upper basin fill unit consists of very permeable, flat-lying layers of weakly compacted clay,
13 gravel, sand and silt of middle to late Pleistocene age. Its thickness in the vicinity of the Fort is
14 approximately 650 feet (198 meters). When combined, the upper and lower basin fill units form the
15 USPB's principal groundwater reservoir. The floodplain alluvium overlying the upper basin fill in the San
16 Pedro River Valley is composed of highly permeable unconsolidated gravel, sand, and silt. Although
17 limited in extent, the alluvium seems to play an important role in sustaining the flow of the Upper San
18 Pedro River.

19 **4.2 SOILS**

20 Fort Huachuca has a diverse assortment of soil types directly related to differences in climate, parent
21 material, and topography at the installation. The soils exhibit wide variations in depth, texture, and
22 chemical properties. Roughly 30% of the soils are less than two feet in depth over bedrock.

23 The Soil Survey of Fort Huachuca (NRCS 1997) characterizes the types of soils that occur at the
24 installation, locations of the soil types, and potential constraints. The Natural Resources Conservation
25 Service (NRCS) system classifies soils into one of four groups based upon their infiltration capacity and
26 their ability to transmit water through them. Fort Huachuca is dominated by soils classified as being in the
27 hydrologic soil group "D", with some types being classified in hydrologic soil group "C". Group "D" soil
28 types have very slow infiltration rates when saturated and have an extremely low water transmission rate.
29 These properties are usually caused by a high percentage of clays, the existence of claypans or clay layers
30 near the surface, or where shallow soils overlie nearly impervious bedrock near the surface. Group "C"
31 types have moderate to slow infiltration rates when thoroughly wetted and have a slow water transmission
32 rate. Both of these soil types promote higher amounts of runoff and streamflow from storm events.

33 Many soils in the hilly and mountainous areas, particularly on the south and west ranges, are shallow with
34 steep slopes; these soils tend to be droughty with a low available water capacity and susceptible to
35 erosion. The high sodium and gypsum contents of many soils on the East Range make these soils subject
36 to gully erosion and piping; they also are very corrosive to concrete and steel. The soil of the cantonment
37 area consists of alluvial fan soils (White House complex, Lanque soil, Courtland-Sasabe-Diaspar
38 complex, Blacktail-Pyeatt complex, Blakeney soil, and Combate soil) (Svetlic 1994). Almost one-quarter
39 of the land area of the post has deep red clay soils that have slow permeability and tend to be poorly
40 drained. They become very slippery when wet and susceptible to compaction. Other properties of soils at
41 the installation influencing land use and management are gravelly or rocky soils, soils with hard pans, and
42 deep, droughty, sandy soils.

43 **4.3 SEISMIC AND GEOLOGIC HAZARDS**

44 The primary seismically active area affecting southeastern Arizona is near Colonia Morales, Sonora,
45 Mexico, approximately 100 miles (161 km) southeast of Fort Huachuca. In 1887, that locale was the site
46 of an earthquake with an impact of XI to XII on the Modified Mercalli Scale (MMS), which equates to an

1 energy equivalent to a Richter number of about 8. Reports from the Tombstone area indicate that this
2 quake resulted in damage with an impact of VII MMS (5.5 Richter) in the Upper San Pedro Valley, which
3 tumbled adobe walls and cracked building foundations (Dubouis and others 1982 cited in Hereford 1993).
4 The U.S. Department of Commerce, Environmental Science Service Administration includes Fort
5 Huachuca, along with the entire state of Arizona, in the VII MMS intensity earthquake zone (Algermissen
6 1969). An earthquake of this magnitude would cause serious damage to buildings, bend railroad tracks,
7 and cause landslides on unstable slopes.

8 Facilities construction within the Fort's cantonment area has generally avoided floodplains and flood
9 prone areas. Minor flooding affected several buildings in single events during 1999 and 2002. Since that
10 time, drainage management work has been done in those areas to reduce potential for reoccurrence. More
11 regular impacts are to unpaved roads in Garden and Huachuca canyons during heavy monsoonal storms.
12 During these storms, the roads become part of the stream bed and can experience significant erosion or
13 deposition, leading to road repair needs. Additional drainage management has been a priority in the
14 urbanized parts of Fort Huachuca to prevent future flooding, both in the urban areas down gradient, but
15 also to reduce unnatural sedimentation in the San Pedro. These efforts are ongoing.

16 5 HYDROLOGY AND WATER RESOURCES

17 5.0 REGIONAL OVERVIEW

18 The USPB, which extends from the Mexican Border to just north of the City of Benson, has been divided
19 into subwatersheds by the Arizona Department of Water Resources (ADWR). These divisions are
20 intended to better define and manage the available water resources within the Basin. The Sierra Vista
21 subwatershed contains Fort Huachuca, the city of Sierra Vista, and most of the San Pedro Riparian NCA.
22 This subwatershed is bounded by the Mexican Border to the south, the Mule Mountains on the east, the
23 Huachuca and Mustang Mountains on the west and SR 82 on the north.

24 The groundwater system within the Sierra Vista subwatershed of the USPB consists of the "regional"
25 aquifer system, comprised of the upper and lower Basin fill units, and the shallow floodplain aquifer
26 adjacent to the San Pedro River. These are the main sources of groundwater in the subwatershed. Total
27 groundwater reserves in the Sierra Vista subwatershed are estimated to be approximately 31.8 million
28 acre feet. The principal components of the local hydrologic cycle include precipitation, evaporation,
29 infiltration, transpiration, groundwater recharge, storage, and stream flow. Local aquifer recharge is
30 believed to be primarily from the mountain fronts. The contribution of precipitation in the lower basin
31 areas to the groundwater recharge is considered to be insignificant because of the low rainfall and high
32 evaporation rates in the valley areas.

33 The movement of groundwater within the Sierra Vista subwatershed is believed to be directed from the
34 valley margins towards the San Pedro River. The exception to this may occur in the vicinity of the Fort
35 Huachuca and the City of Sierra Vista's groundwater well fields where the flow is believed to be directed
36 towards the cone of depression, or lower groundwater levels, caused by the withdrawal of water from
37 these areas. The cone of depression appears to be oriented in a northwest-southeast direction,
38 encompassing an area of approximately 7.5 square miles. Over a twenty-year period from 1966 to 1986,
39 the groundwater level within this area has reportedly declined at a rate of approximately 1.4 feet per year.
40 Recent efforts by The Nature Conservancy, BLM and Fort Huachuca to purchase conservation easements
41 in the area are intended to help slow the growth of the cone of depression. Other projects are also
42 underway by members of the Upper San Pedro Partnership to help with this effort.

43 5.1 FORT HUACHUCA WATER SUPPLY

44 Fort Huachuca's water consumption has continued to decrease in recent years. These decreases are
45 expected to continue as the Fort continues to plan and implement additional water management projects.
46 The decrease in water pumping is from changes in watering policy and water use. Actual water net

1 pumpage, not a per capita average, has been reduced. The first is that water use data is from actual
2 metered pumpage at the well heads, not from individual metered use. As a result, volumes are not
3 corrected for baseline industrial and landscape use, which is relatively independent of population
4 fluctuations. Minor fluctuations in population do not decrease the amount of administrative space, which
5 requires cooling, and an abnormally hot summer can cause a measurable increase in water consumption.
6 Another major water use, independent of population, is the U.S. Forest Service Air Tanker Fire Base
7 operating at LAAF during the summer fire season.

8 Additional efforts are underway by both Fort Huachuca and the City of Sierra Vista to minimize potential
9 effects of groundwater pumping on the San Pedro River and its riparian ecosystem through recharge with
10 treated effluent.

11 6 BIOLOGICAL RESOURCES

12 6.0 VEGETATION

13 A general description of plant community types on Fort Huachuca can be found in the Integrated Natural
14 Resources Management Plan (INRMP) (USAGFH 2001b) and a recent Programmatic Biological
15 Assessment (USAGFH 2002).

16 6.1 WILDLIFE

17 No surveys for wildlife were conducted for this study. Wildlife potentially occurring in grasslands and
18 oak woodlands is discussed.

19 Reptiles and Amphibians. Surveys for reptiles and amphibians have not taken place in grasslands on Fort
20 Huachuca. However, a list of amphibians and reptiles occurring in grasslands at the Audubon Research
21 Ranch a few miles west of the Fort was compiled. A total of six species of amphibians, 19 species of
22 lizards, and 17 species of snakes have been detected (Smith and Chiszar 2000). Based on data collected
23 by Morrison et al (1995) for the oak-juniper (*Juniperus* sp.) savannah, common species in the grasslands
24 are whiptails (*Cnemidophorus* spp.) and tree lizard (*Urosaurus ornatus*).

25 Surveys for reptiles and amphibians in the Huachuca Mountains resulted in the observation of 15 species
26 (Morrison et al 1995). These surveys focused on habitats that included oak, juniper, and pine (*Pinus* sp.).
27 The mountain spiny lizard (*Sceloporus jarrovi*) was the most common species encountered while
28 whiptails and the tree lizard were less common. The rock rattlesnake (*Crotalus lepidus*) and black-tailed
29 rattlesnake (*C. molossus*) were the most abundant snakes in the oak woodlands. The only amphibian
30 encountered was red-spotted toad (*Bufo punctatus*) (Morrison et al 1995).

31 Birds – General. Breeding bird surveys in the grasslands on the West Range resulted in the observation of
32 20 species of birds and common species included the grasshopper sparrow (*Ammodramus savannarum*),
33 Botteri's sparrow (*Aimophila botterii*), eastern meadowlark (*Sturnella magna*), mourning dove (*Zenaida*
34 *macroura*), northern mockingbird (*Mimus polyglottos*), and horned lark (*Eremophila alpestris*). Other
35 breeding bird species in the grasslands of Fort Huachuca included the scaled quail (*Callipepla squamata*),
36 western kingbird (*Tyrannus verticalis*), Say's phoebe (*Sayornis saya*), rufous-crowned sparrow
37 (*Aimophila ruficeps*) (Aid 1990).

38 Breeding bird surveys have not been conducted in the oak woodlands on Fort Huachuca. Common species
39 in oak woodlands would likely include the acorn woodpecker (*Melanerpes formicivorus*), Cassin's
40 kingbird (*Tyrannus vociferans*), western scrub jay (*Aphelocoma californica*), bushtit (*Psaltriparus*
41 *minimus*), Bewick's wren (*Thryomanes bewickii*), and other species based on information from local
42 breeding bird survey routes (Sauer et al 2004).

43 Birds – Game. Common game birds likely to occur in grasslands habitat include the mourning dove,
44 Gambel's quail (*Callipepla gambelii*), and scaled quail (USAGFH 2001b).

1 Birds – Bird Species of Conservation Concern. Bird species that breed in temperate North America and
2 winter in the tropics are referred to as neotropical migrants and have become the focal point of much
3 ornithological research, management, and conservation concern. Habitat loss and degradation,
4 fragmentation on the breeding grounds, and the elimination of optimum wintering habitat in the tropics
5 are likely the major reasons for these declines (Flather and Sauer 1996, Sheery and Holmes 1996). Also,
6 the loss of important stop-over habitat used during migration may affect the survival of neotropical
7 migrants (Moore et al. 1993).

8 In response to declines in bird populations, Executive Order (EO) 13186, Responsibilities of Federal
9 Agencies to Protect Migratory Birds, was issued on 10 January 2001. This EO recognized the ecological
10 and economic importance of migratory birds to this and other countries. It requires Federal agencies to
11 evaluate the effects of their actions and plans on migratory birds with an emphasis on species of
12 conservation concern in their NEPA documents. Species of conservation concern are those identified in 1)
13 *Migratory Nongame Birds of Management Concern in the United States* (USFWS 1995a), 2) priority
14 species identified by established plans such as those prepared by Partners in Flight (PIF), and 3) listed
15 species in 50 CFR 17.11. Migratory bird species of conservation concern that may occur at and in the area
16 of the project sites were determined using information from USFWS (2002a) which is an updated version
17 of USFWS (1995a) and from the Arizona PIF Bird Conservation Plan (Latta et al. 1999).

18 Fort Huachuca falls within the Sierra Madre Occidental (U. S. portion only) Bird Conservation Region
19 (BCR Region 34) (USFWS 2002a). A total of 39 bird species of conservation concern are within this
20 region and of these, 10 occur or could occur in grasslands (Table 2).

1 **Table 2 Birds of Conservation Concern That Occur or Potentially Occur in Grasslands and**
 2 **Oak Woodlands on Fort Huachuca Based on Species in Bird Conservation Region 34**
 3 **and Arizona PIF Bird Conservation Plan**
 4

Species		Occurrence on Fort Huachuca
Common name	Scientific name	
Grasslands		
Botteri's sparrow	<i>Aimophila botterii</i>	Breeding species on Fort Huachuca.
Rufous winged sparrow	<i>Aimophila carpalis</i>	Likely does not occur on or in the area of Fort Huachuca.
Cassin's sparrow	<i>Aimophila cassinii</i>	Breeding species on Fort Huachuca.
Baird's sparrow	<i>Ammodramus bairdii</i>	Occurs on Fort Huachuca during the winter.
Grasshopper sparrow	<i>Ammodramus savannarum</i>	The <i>perpallidus</i> subspecies occurs during the winter and <i>ammolegus</i> subspecies occurs during the breeding season.
Ferruginous hawk	<i>Buteo regalis</i>	Likely occurs on Fort Huachuca during the winter.
Lark bunting	<i>Calamospiza melanocorys</i>	Likely occurs on Fort Huachuca during the winter.
Chestnut-collared longspur	<i>Calcarius ornatus</i>	Likely occurs on Fort Huachuca during the winter.
Mountain plover	<i>Charadrius montanus</i>	Not known to occur on or in the area of Fort Huachuca.
Aplomado falcon	<i>Falco femoralis septentrionalis</i>	Not known to occur on or in the area of Fort Huachuca.
Oak woodlands		
Buff-breasted flycatcher	<i>Empidonax fulvifrons</i>	Breeding species on Fort Huachuca.
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Year-round resident on Fort Huachuca.
Eastern (Azure) bluebird	<i>Sialia sialis fulva</i>	Year-round resident of the Huachuca Mountains and Fort Huachuca.
Montezume quail	<i>Cyrtonyx montezumae</i>	Year-round resident on Fort Huachuca.
Band-tailed pigeon	<i>Columba fasciata</i>	May be year-round resident on Fort Huachuca.

5 Source: Latta et al 1999, USAIC, FH 2001, USFWS 2002a.

6 **Mammals.** Eighteen species of small mammals were trapped on the South Range of Fort Huachuca
 7 (O'Dell 2004). No data regarding abundance of these species was provided in this progress report. It is
 8 assumed that species such as the hispid cotton rat (*Sigmodon hispidus*), silky pocket mouse (*Perognathus*
 9 *flavus*), and deer mouse (*Peromyscus leucopus*) were common in the grasslands and grasslands in the
 10 open oak woodlands.

11 Hass (2000) documented the occurrence of 13 medium to large carnivores along 20 survey routes on Fort
 12 Huachuca. Of these, ten were detected in grassland and woodland habitats. The American badger
 13 (*Taxidea taxus*) was detected 40 percent of the time in grasslands followed by the coyote (*Canis latrans*)
 14 at 30 percent. The remaining seven species were detected in grasslands 15 to 21 percent of the time.
 15 Species detected most frequently in woodlands were the gray fox (*Urocyon cinereoargenteus*) (32 percent
 16 of the time), hog-nosed skunk (*Conepatus mesoleucus*) (23 percent), and puma (*Puma concolor*) (21
 17 percent). The remaining species were detected 4 to 17 percent of the time in woodlands.

18 Mule deer (*Odocoileus hemionus eremicus*) or their sign was observed at all sites surveyed. A possible
 19 black bear (*Ursus americanus*) track was seen at the Training Area Papa site. Other large mammals that

1 occur in grasslands are the pronghorn antelope (*Antilocapra americana*) and javelina (*Pecari tajacu*)
2 while the javalina would also be expected to occur in the oak woodlands.

3 **6.2 SPECIAL-STATUS SPECIES**

4 Special-status species are those that have a USFWS designation as threatened, endangered, proposed
5 threatened, proposed endangered, or candidate. Special-status species with the potential of occurring on
6 Fort Huachuca and being affected by the Proposed Action or alternatives were determined by reviewing
7 the Fort Huachuca Programmatic Biological Assessment (USAGFH 2002), resulting USFWS Biological
8 Opinion (BO) (USFWS 2002) and the USFWS Arizona web-site (<http://arizonaes.fws.gov>) on October
9 15, 18, 19, 2004. The lesser long-nosed bat (*Leptonycteris curasoae yerbabuena*) is known to occur on
10 Fort Huachuca and utilizes grasslands as well as oak-grassland savannah for foraging. The black-tailed
11 prairie dog (*Cynomys ludovicianus*) was listed as a federal candidate species but was removed from the
12 list of candidate species in August 2004 (USFWS 2004a). It inhabits grasslands but does not occur on
13 Fort Huachuca or in the State of Arizona. The northern aplomado falcon (*Falco femoralis septentrionalis*)
14 is a federally endangered species but as indicated above, it does not occur on or in the area of Fort
15 Huachuca. The Mexican spotted owl (*Strix occidentalis lucida*) is a federally threatened species and can
16 occur in the oak woodlands on occasion.

17 Lesser long-nosed bat. The lesser long-nosed bat is a federal and state endangered species and was listed
18 as endangered on 22 September 1988. A status report and other surveys conducted during the 1980s
19 suggested that bat numbers had fallen from the tens of thousands to near 500 individuals or fewer
20 (USFWS 1993). The species was found to be in jeopardy because of disturbance of roost sites, loss of
21 food sources (paniculate agave) and direct killing by humans. Ecological information regarding this
22 species as well as its status on Fort Huachuca can be found in the Fort Huachuca Programmatic
23 Biological Assessment (USAGFH 2002) and associated BO (USFWS 2002b). Pertinent details from these
24 reports are summarized below.

25 Fort Huachuca is on a lesser long-nosed bat migratory corridor which is used during the southward
26 seasonal movements. There are no recorded observations of pregnant or lactating females on the Fort.
27 Grasslands and lower oak woodlands provide summer and early fall foraging habitat. Lesser long-nosed
28 bat surveys on Fort Huachuca beginning in 1989 resulted in the discovery of numerous day roosts and
29 monitoring data showed that the peak numbers ranged from 24 in 1990 to about 3,900 in 2000 (Sidner
30 2000).

31 Palmer agave (*agave palmeri*) is the principal lesser long-nosed bat foraging species on Fort Huachuca,
32 and due to its importance, an Agave Management Plan was implemented (Howell and Robinett 1995).
33 Palmer agave occurs principally on grasslands and lower oak woodlands on Fort Huachuca. Four areas
34 totaling 5,117 acres are protected under the Agave Management Plan. Evidence seems to indicate that bat
35 foraging areas are not limiting on Fort Huachuca and the only significant threat to the stands of agave is
36 fire (USFWS 2002b).

37 Mexican spotted owl. The Mexican spotted owl is a federal and state threatened species. On 1 February
38 2001, the USFWS provided final designated over 4,600,000 acres (7188 sq. mi.) as critical habitat for this
39 species. This included 830,000 acres (1297 sq. mi.) in Arizona and 21,996 acres (34 sq. mi.) of this area
40 was on Fort Huachuca (USFWS 2001). However, this final designation of Mexican spotted owl critical
41 habitat was challenged in court and a revised final rule was published in August 2004 (USFWS 2004b).
42 One change was to remove land on Fort Huachuca from critical habitat designation so there is now no
43 Mexican spotted owl critical habitat on Fort Huachuca.

44 The habitat characteristics of Mexican spotted owl nesting and roosting sites generally consist of multi-
45 layered, uneven-aged forests with high canopy closure or rocky, shaded canyons (USFWS 1995b). In the
46 Huachuca Mountains, many spotted owl nest sites were found in Madrean pine-oak woodland with
47 montane conifer species and some broadleaf riparian component (Duncan 1991). Cliffs are present at

1 some sites and used for nesting. Fort Huachuca is in the Basin and Range-West Recover Unit (RU)
2 (USFWS 1995b) and within this unit spotted owls have used rocky canyons in several forest types at
3 elevations ranging from 3,690 to 9,610 feet above MSL. Below 4,264 feet, spotted owls were found in
4 steep canyons containing cliffs and stands of live oak, pine, and broad-leaved riparian vegetation (Ganey
5 and Balda 1989). Above 5,904 feet, spotted owls were found in mixed conifer and pine-oak forests
6 (USFWS 1995b).

7 There are eight Protected Activity Centers (PACs) on Fort Huachuca. PACs are areas of no less than 600
8 acres (1 sq. mi.) that enclose the best owl habitat with the nest or activity center near the center. There are
9 also Inventory Areas (IAs) on Fort Huachuca which are potential foraging, nesting or roosting habitats.
10 There are 4,270 acres (7 sq. mi.) delineated as Mexican spotted owl PACs currently on Fort Huachuca.
11 All eight PACs occur in the higher elevations of the Fort in the Huachuca Mountains. During 11 years of
12 monitoring, occupancy for PACs ranged from 25 % to 75%. Reproductive output has ranged from 0% to
13 66 % over the same period (EEC 2001).

14 **6.3 SPECIES OF CONCERN**

15 Species of concern are those species designated as such by the USFWS or designated by the State of
16 Arizona as a Wildlife Species of Concern. Seventeen species of concern occur or have the potential to
17 occur on Fort Huachuca and species associated with grasslands include the Huachuca golden aster
18 (*Heterotheca rutteri*), desert massasauga (*Sistrurus catenatus edwardsii*), Mexican long-tongued bat
19 (*Choeronycteris mexicana*), and yellow-nosed cotton rat (*Sigmodon ochrognathus*). Species of concern
20 that could occur in the oak woodlands include the Huachuca golden aster, Arizona ridge-nosed rattlesnake
21 (*Crotalus willardi willardi*), buff-breasted flycatcher (*Empidonax fulvifrons*), Mexican long-tongued bat,
22 and yellow-nosed cotton rat.

23 Huachuca Golden Aster. The Huachuca golden aster is a federal species of concern and has no state
24 status. It forms yellow flowers that bloom from July to October. It is found in extreme southeastern
25 Arizona in grasslands and oak savanna including in road cuts and at disturbed sites. It grows at elevations
26 4,500 to 6,500 feet above MSL and is known from only 11 locations (AGFD 2001a) including Fort
27 Huachuca as well as in a 10 mile zone outside the Fort (USAGFH 2001b).

28 Desert Massasauga. The Desert massasauga is a state species of concern and has no federal status. It is
29 Arizona's smallest rattlesnake with most adults being less than 18 inches long. It occurs in three separate
30 populations including one in Southeastern Arizona (Stebbins 2003). In Arizona, it is found principally in
31 tobosa (*Hilaria mutica*) grasslands along sloping bajadas with surface rocks at elevation 4,400 to 4,700
32 feet above MSL (AGFD 2001b). It is currently known from two localized populations in Southeastern
33 Arizona in the San Bernardino and Sulphur Springs valleys. There are unsubstantiated records of the
34 species occurring on Fort Huachuca (AGFD 2001b). The elevation data indicates the desert massasauga
35 occurs primarily in the lower slopes of the Huachuca Mountains on Fort Huachuca indicating it could
36 occur in areas dominated by grasslands.

37 Arizona Ridge-nosed Rattlesnake. The Arizona ridge-nosed snake is a state species of concern. This small
38 mountain rattlesnake occurs only in extreme south central Arizona in isolated mountain ranges. It is found
39 in oak woodlands and conifer forests especially in mesic canyon bottoms with canopy. It is infrequently
40 found in high grasslands bordering woodlands (AGFD 2001c). It is known to occur in Huachuca
41 Mountains (AGFD 2001c) as well as on Fort Huachuca (USAGFH 2001b).

42 Buff-breasted Flycatcher. The buff-breasted flycatcher is a federal and state species of concern and, as
43 indicated above, a bird species of conservation concern. It breeds from southeastern Arizona and central
44 western New Mexico down into Mexico (AGFD 2003a). It can be found during the breeding season in
45 open stands of pine or oak usually with an open understory of grass and small trees (Latta et al 1999). It
46 has been recorded from the Huachuca Mountains (AGFD 2003a) as well as on Fort Huachuca (USAGFH
47 2001b).

1 Mexican Long-tongued Bat. The Mexican long-tongued bat is a federal and state species of concern. Its
2 range in Arizona is in the Southeastern portion of the state and this is considered the extreme northern
3 limit of its range. This species is sensitive to human disturbance especially at its roosts (AGFD 2003b).
4 However, it seems less wary of humans during foraging as evident by close encounters with humans at
5 hummingbird feeders (Lee and Clark 1993). The Mexican long-nosed bat can be found in the oak and
6 juniper woodlands and generally occur between elevations 4,000 to 6,000 feet above MSL. Its food
7 habitats are similar to the lesser long-nosed bat in that agaves are the primary food source in the project
8 area (AGFD 2003b). This species occurs on Fort Huachuca and in a 10 mile zone around the Fort
9 (USAGFH 2001b).

10 Yellow-nosed Cotton Rat. The Yellow-nosed cotton rat is a federal species of concern and has no state
11 status. They are typically closely associated with the Fulvous harvest mouse (*Reithrodontomys*
12 *fulvescens*) and southern pocket gopher (*Thomomys umbrinus*) and may live in abandoned pocket gopher
13 tunnels. They are more active during the day than at night. The distribution of the yellow-nosed cotton rat
14 is limited to southeastern Arizona. It is found in grassy, rocky slopes in the oak belt between elevations
15 3,000 and 8,000 feet above MSL. The grass cover is usually sparse but interspersed with species such as
16 agave and yucca to provide cover (Hoffmeister 1986). This species has been recorded from Fort
17 Huachuca and also within 10 miles (16 km) of the Fort (USAGFH 2001b). In addition, it was observed on
18 Fort Huachuca during a recent small mammal sampling in semi-desert grasslands on the South Range
19 (O'Dell 2004).

20 7 HISTORICAL AND CULTURAL RESOURCES

21 7.0 BASELINE CONDITIONS

22 By law, cultural resources are defined as those which are afforded special legal status due to their historic
23 value or their reflection of a specific ethnic culture. Legal status is established through such laws as the
24 National Historic Preservation Act (NHPA), The North American Graves Protection and Repatriation
25 Act, the Archeological Resources Protection Act, the American Indian Religious Freedom Act, 36 CFR
26 79, and Executive Order 13007.

27 The USPB contains evidence of thousands of years of human habitation. Archeological sites spanning
28 over 12,000 years abound in the region. Numerous excavation sites document the extent and
29 characteristics of these past cultures located in the area. Three Clovis mammoth kill sites have been found
30 and excavated within 30 miles of the Fort.

31 As of 2004, approximately 50,000 acres of Fort Huachuca (or 68% of the installation) has been surveyed
32 for the presence of prehistoric and historic archeological sites. Out of this area 328 sites have been
33 recorded (234 are prehistoric sites, 39 are historic, and 55 are both prehistoric and historic). Historic
34 considerations include associations of structures or locations with the Apache Scouts and Buffalo
35 Soldiers. A comprehensive description and data base for these sites is contained in the 2003 Integrated
36 Cultural Resources Management Plan (ICRMP) for Fort Huachuca (cited as Desert Archeology 2003).

37 Numerous property types at Fort Huachuca meet the eligibility criteria for inclusion on the National
38 Register of Historic Places (National Register) (Desert Archaeology 2003). These include, but are not
39 limited to, prehistoric archeological sites; historic-period archeological sites; historic-period military
40 buildings and structures; prehistoric and historic cultural landscapes; traditional cultural properties and
41 sacred sites; and documents, photographs, and other records associated with these. The inventory is
42 incomplete, since all prehistoric and historic-period sites, buildings, structures, landscapes, and records
43 have not been identified. Additionally, buildings, structures, and records considered historic in age are
44 constantly changing as additional properties and records become old enough to be considered for
45 eligibility.

1 **7.1 PRECONTACT ARCHEOLOGICAL SITES**

2 There are 234 known archeological sites on the Fort (Desert Archaeology 2003); this includes sites from
3 the precontact era as well as sites of an unknown age. This data is derived from the ASM Archeological
4 Records Office and uses the ASM's standard terminology to site types, components, and cultural
5 affiliation. However, since the Fort has not been completely surveyed, there are undoubtedly more
6 archeological sites. The identification, evaluation, and preservation of the archeological sites are
7 significant parts of the proposed cultural resource management plan for Fort Huachuca.

8 **7.2 HISTORIC-PERIOD BUILDINGS AND STRUCTURES**

9 Fort Huachuca has hundreds of historic-period buildings and structures that date to various important
10 periods in the Fort's history: the initial construction of the Fort during the 1880s, the expansion of the
11 Fort during the 1910s, and the rapid expansion associated with troop training and housing during the late
12 1930s and early 1940s. The Fort was deactivated in 1947 and reactivated in 1951. Deactivated again in
13 1953, the Fort was briefly used by the Arizona Game and Fish Department, but it was reactivated again in
14 1954.

15 The Fort Huachuca Historic District is a registered National Historic Landmark (NHL), and as such,
16 raises the level of responsibility of the Fort concerning maintenance and repair. The historic district,
17 which was redefined in 1993, is composed of 65 contributing and 21 non-contributing buildings that
18 comprise the Old Post section of the Fort. These are adobe, timber-frame, and other constructions dating
19 from the 1880s through the 1930s. The historic district covers over 57 acres. The historic district was
20 nominated for its contributions to four major themes (Desert Archaeology 2003):

- 21 • The Fort's contributions to the Indian Wars of the late-nineteenth century;
- 22 • The Fort's participation in the experimental heliograph network;
- 23 • The Fort's participation in the Mexican border campaigns from 1880-1920; and
- 24 • The Fort's position as the foremost center of African-American military service in the Army.

25 Fort Huachuca is the last surviving example of the architectural and construction techniques used for
26 military buildings and structures in the West. Further, it is also the only military site in Arizona where
27 such a large number of well-preserved buildings are intact. That these buildings and structures are still in
28 active use is a major reason the historic district is the primary tourist attraction on the Fort. Maintenance
29 of the NHL has long been the primary focus of cultural resource management on the Fort.

30 **7.3 TRADITIONAL CULTURAL PROPERTIES AND SACRED SITES**

31 Traditional cultural properties (TCPs) are defined by the National Park Service Bulletin No. 38 as a place
32 eligible for inclusion on the National Register because of its association with cultural practices and with
33 beliefs that are rooted in the history of a community and are important to maintaining the continuity of the
34 community's traditional beliefs and practices (Desert Archaeology 2003). To date, the Rappell Cliffs
35 Pictograph site, the Garden Canyon Pictograph site, and the Garden Canyon have been identified as
36 sacred sites and TCPs to cultural resource managers on Fort Huachuca by federally recognized tribes, the
37 White Mountain Apache and the Tohono O'odham Nation. However, given the privacy issues involved
38 and the tribes' natural reluctance to identify sacred places to outsiders, it can be assumed other sacred
39 places exist on the Fort.

40 **7.4 PALEONTOLOGY**

41 AR 200-4 considers paleontological remains as part of the cultural resources of an installation.
42 Paleontological remains are the fossilized remains of extinct animals and plants. To date, a small number
43 of paleontological remains have been found within the boundaries of Fort Huachuca. The possibility
44 exists, therefore, for additional paleontological specimens to be located within the Fort's boundaries.

1 **7.5 PROGRAMMATIC AGREEMENTS**

2 Currently, Fort Huachuca has one programmatic agreement with the Arizona State Historic Preservation
3 Officer (SHPO). The 2001 Memorandum of Agreement on Army Family Housing at Fort Huachuca
4 among the DOD, the National Conference of State Historical Preservation Officers, the Advisory Council,
5 and the Arizona SHPO concerns demolition and replacement of 1950's through 1970's vintage army
6 family housing. Another programmatic agreement (PA), along with possible multiple Memoranda of
7 Agreement (MOA), are currently under negotiation between the Arizona SHPO and Fort Huachuca and
8 concerns maintenance and repair of historic adobe housing. No completion dates have been set for the
9 agreement(s).

10 **8 TRANSPORTATION AND CIRCULATION**

11 **8.0 GROUND TRANSPORTATION**

12 Access to Fort Huachuca is gained through one of three gates: Main Gate, East Gate, and West Gate. The
13 West Gate serves a low volume of traffic via a paved road that connects to SR 83. The East Gate and
14 Main Gate are located along SR 90 and handle the remainder of Fort traffic.

15 Traffic congestion in the local area is minor and primarily associated with commuter traffic. The road
16 network on the Fort was improved to accommodate construction and increased traffic associated with
17 previous base realignment actions (USAGFH 2001a).

18 Outside the cantonment area there is a large network of roads and trails that provide access to the ranges.
19 These roads and trails vary in size, composition, and condition. The use and regulation of the roads within
20 the ranges are delineated in Fort Huachuca Regulation 385-8, Range and Training Area Operations
21 (USAIC, FH 2001). Activities on the ranges are coordinated and pre-approved by Range Control.

22 Range Control identifies the type of traffic permitted on and off existing roads and trails in the different
23 training areas. The roads and trails within all training areas proposed for development (India, Juliet, Lima,
24 Papa, Uniform, and Victor) and the proposed MRC evaluated in this EA are suitable for foot and wheel
25 traffic on the roads/trails and foot traffic only off road/trail. The training areas within the East Range
26 (Alpha, Bravo, Delta, and Foxtrot) are suitable for foot, wheel or tracked vehicles on road/trail. Training
27 Areas Alpha, Bravo, and Foxtrot are only suitable for foot traffic off road/trail, while Delta is suitable for
28 foot, wheel, or tracked traffic off road/trail (Fort Huachuca Range Control 2001).

29 **8.1 AIRSPACE AND AIRSPACE MANAGEMENT**

30 There are numerous runways or airstrips on Fort Huachuca: Rugge-Hamilton Runway, former Pioneer
31 Runway, Demonstration Hill Airstrip, Hubbard Assault Airstrip, the East Range Airstrip, and LAAF.
32 Aviation activities at these facilities include fixed-wing piloted aircraft training, rotary-wing piloted
33 aircraft training, and UAV testing and training.

34 LAAF is a joint-use airport that supports both military and civilian uses. Sierra Vista Municipal Airport,
35 which supports the civilian aviation, is concentrated at the northern side of the airfield and is accessible
36 directly from SR 90. Military operations are concentrated on the southern side of the airfield and are
37 accessible from Brainard Road, Gerstner Road, and Arizona Street on the Fort. LAAF facilities and
38 services include 24-hour crash/rescue, three lighted runways, ATC tower, approach radar, precision
39 approach radar, and airport surveillance radar. Navigational aids include instrument landing system, very
40 high frequency omni range, and a non-directional beacon. The main runway is equipped with a visual
41 approach slope indicator, and the secondary runway is equipped with a precision approach path indicator
42 (Fort Huachuca 2000).

43 ATC is in operation at LAAF from 7:00 a.m. to 5:00 p.m., Monday through Friday (as of 1 November
44 2004) (George Bennett, personal communication, 12 October 2004), and during its operation, aircraft are

1 not allowed to enter the airport's airspace until given clearance by the tower. Airspace restrictions are
 2 scheduled regularly at LAAF, with the airspace being restricted at most times (George Bennett, personal
 3 communication, 12 October 2004). LAAF airspace includes a horizontal radius of 4.3 statute miles,
 4 extending from the surface up to 7,200 feet above MSL (USAGFH 2000b).

5 Restricted airspace is an area within which aircraft flight is subject to restrictions. Restricted areas denote
 6 the existence of unusual, often invisible, hazards to aircraft. Penetration of restricted areas without
 7 authorization from the using or controlling agency may be extremely hazardous to the aircraft and its
 8 occupants. Restricted areas are published in Federal Register 14 CFR Part 73 (USAGFH 2000b). There
 9 are four restricted airspace designations in the vicinity of Fort Huachuca: R-2303A, R-2303B, R-2303C,
 10 and R-2312. Restricted areas R-2303 A-C are designated by the FAA as joint use with Fort Huachuca
 11 being the Using Agency and the Albuquerque Air Route Traffic Control Centers as the Controlling
 12 Agency. R-2312 contains a tethered air balloon and is jointly operated by the U.S. Customs Department
 13 and the U.S. Air Force. These areas are depicted on sectional charts, Visual Flight Rules (VFR) Terminal
 14 Area charts, and Enroute Low Altitude charts. Table 3 summarizes the airspace restrictions.

15 **Table 3 Restricted Airspace at Fort Huachuca, Arizona**

Restricted Area	Airspace Area	Active Times
R-2303A (Excludes LAAF)	Surface to 15,000 feet	7:00 a.m. to 5:00 p.m. Monday through Friday
R-2303B	8,000 feet to 30,000 feet	7:00 a.m. to 5:00 p.m. Monday through Friday
R-2303C	15,000 feet to 30,000 feet	Intermittently, with 24-hour advance notice
R-2312	Surface to 15,000 feet	Continuously

17
 18 There are currently eleven ATC personnel with two additional personnel to be hired in November and
 19 five more before the end of 2004. Once the new personnel are trained and qualified, the tower will likely
 20 expand operations to 16 hours per day, Monday through Friday (George Bennett, personal
 21 communication, 12 October 2004).

22 LAAF consolidated radar and tower traffic counts for 2001-2003 are presented in Table 4. The table
 23 indicates there was a decline in UAV activity in 2002. This change reflects the relocation of the Pioneer
 24 UAVs to Pensacola, Florida in 2001. UAV activity in 2003 increased by 1,744 aircraft traffic counts over
 25 2002 and is 1,265 greater than in 2001. UAVs accounted for approximately 22.5 percent of all military
 26 operations at LAAF in 2001 and increased slightly to approximately 23 percent in 2002. Baseline UAV
 27 activity in 1999 provided in the previous UAV EA (USAGFH 2000b) shows approximately 22 percent of
 28 the total military aircraft counts at LAAF were UAVs. In 2003, UAV operations accounted for
 29 approximately 24 percent of the 95,563 military aircraft traffic counts, and 19 percent of the 121,819 total
 30 traffic counts at LAAF (including air carrier and general aviation).

31 **Table 4 LAAF Consolidated Traffic Count 2001 – 2003**

Type	2001	2002	2003
Air Carrier	6,778	6,046	6,519
General Aviation	23,336	23,086	21,701
Military (UAV)	95,563 (21,508)	91,213 (21,029)	93,599 (22,773)
Total	125,677	121,012	121,819

32 Source: LAAF ATC.

33
 34 UAV flight activities are ongoing and increasing at Fort Huachuca. Currently the operations consist
 35 primarily of the Hunter and Shadow UAVs. In 2003, approximately 1,216 total UAV flight hours were
 36 logged. Of these hours, use of the Hunter accounted for about 344, and 872 were for the Shadow. As of
 37 September in 2004, the Hunter has been flown for approximately 385 hours and the Shadow for 1,138

1 hours. Currently, Hunter operations run approximately 12 hours per day, consisting of one 6-hour range
2 flight and either a 4.5 hour range flight or a 3-4 hour local pattern flight per day. It is planned at this time
3 to extend Hunter operations to 14-20 hours per day, which would allow for 12-18 flights per day. Shadow
4 operations consist of five 5.5-hour flights per day or two 4.5-hour flights and an aircraft "pop and stop",
5 which launches and recovers four times per day. Shadow operations occur five days a week for
6 approximately 16 hours per day and pop and stops occur three times a week. In February, Shadow
7 operations will increase to two full shifts (16 hours of operation). This will entail six flights per day of 5.5
8 hours each three days per week, and four range flights of 5.5 hours each two pop and stops with four
9 launch and recoveries each (total of eight) per day twice a week. In addition, the Predator JTOBS is
10 officially stationed at Fort Huachuca with two Predators. Since stationing at the Fort, they have been in
11 various theater operations and have not actually been used at the installation.

12 In addition to restricted airspace limitations, Federal Aviation Administration (FAA) Advisory Circular
13 AC 91-36, VFR Flight Near Noise-Sensitive Areas, requests that pilots maintain a minimum altitude of
14 2,000 feet (610 m) above national parks, forests, primitive areas, wilderness areas, recreational areas,
15 national seashores, national monuments, national lakeshores, and national wildlife refuge and range areas
16 (USAGFH 2000b). The surface of a national park area is determined to be the highest terrain within 2,000
17 feet (610 m) laterally of the route of flight or the upper-most rim of a canyon or valley. LAAF is located
18 within 33 nautical miles (NM) of five conservation, wilderness, and national monument areas, including
19 San Pedro Riparian NCA (6 NM east), Miller Peak Wilderness Area (8 NM south), Mt. Wrightson
20 Wilderness Area (22 NM west), Rincon Mountain Wilderness Area (29 NM north), and Saguaro National
21 Monument (33 NM north).

22 9 AIR QUALITY

23 9.0 CLIMATE

24 The climate of Cochise County is moderated by both land elevation and the physical characteristics of the
25 basin and range topography. The average high summer temperature is 88° Fahrenheit (F). The daily mean
26 maximum temperature for the warmest month, June, is 91° F. Although temperatures above 100° F do
27 occur, they do not persist for any length of time. The average winter low temperature is 32° F. Average
28 winter daytime high temperatures in the basins vary between 55° and 60° F. However, temperatures below
29 freezing do occur a few days a year between November and February. Maximum wind velocities of 20 to
30 35 miles per hour blowing from the west/southwest are quite common in the area during the months of
31 March through May (USAGFH 2001a). The average wind velocity is 7 miles per hour (USAGFH 2002).

32 Cochise County receives 12 to 30 inches of rainfall yearly, which is elevation dependent, with more
33 rainfall at higher altitudes. This precipitation is seasonal and distributed somewhat unevenly over the area.
34 The summer "Monsoon" rainy season is caused by moist tropical air masses from storm centers in the
35 Gulf of Mexico moving into southeastern Arizona from July through September. Ground surface heating
36 and the uplift of these warmed air masses over the various mountain ranges in the County produce
37 localized, high intensity thunderstorms with heavy rains and strong winds. These storms can cause flash
38 floods, structural damage, and power failures. Summer storms account for up to 65 percent of the annual
39 rainfall in the region. Winter storms typically occur in December through February as a result of large
40 frontal systems originating from middle latitude cyclonic activity in the Pacific Ocean. About 25 percent
41 of the annual precipitation in the vicinity of Fort Huachuca is derived from winter storms. Although the
42 seasonal rainfall patterns are well established in Cochise County, winter moisture is highly variable from
43 year to year, whereas summer rainfall volume and occurrence is much more predictable.

44 9.1 AIR QUALITY

45 Cochise County is in the Southeast Arizona Intrastate Air Quality Control Region, which also includes
46 Graham, Greenlee, and Santa Cruz counties. The area lacks heavy industry or dense population centers,

1 and prevailing wind patterns disperse local emissions from various human activities (e.g. automobiles,
2 aircraft). Most of Cochise County, including the Fort Huachuca-Sierra Vista area, has been designated as
3 an attainment area for routinely meeting the established national air quality standards. Douglas, located
4 approximately 50 miles southeast of the Fort, is in non-attainment of primary sulfur dioxide standards
5 (EPA 2004). In addition, Douglas and Paul Spur, located approximately 40 miles southeast of the Fort,
6 are both in moderate non-attainment of PM₁₀ standards (EPA 2004). Trans-border pollution and high
7 wind, which blows large amounts of dust from dirt roads and bare agriculture fields are large contributors
8 to the PM₁₀ in these areas.

9 As of 2003, Fort Huachuca had annual emissions of nitrogen oxides (NOx) (191 tons/year) and CO (135
10 tons/year) that exceeded established major source thresholds (100 ton/year) set by Arizona Department of
11 Environmental Quality (ADEQ) and EPA. Emissions for all other criteria pollutants and hazardous air
12 pollutants are below established threshold levels. Per 40 CFR 70 and the Arizona Administrative Code
13 Title 18, Chapter 2, Fort Huachuca has applied to ADEQ for qualification as a Class II synthetic minor.
14 Issuance of a permit has been pending since January 2000, and information was updated in January 2003
15 to reflect changes at the facility that occurred in the interim period. The Fort is acting in accordance with
16 the conditions and limitations set forth in the permit application. As a Class II synthetic minor, the Fort
17 voluntarily limits the use of natural gas fuel and the operating hours of engine generator sets to limit
18 emissions of NOx and CO. These limitations allow the Fort to stay below the established thresholds for
19 emissions and avoid becoming a Title V source.

20 Natural gas fuel consumption on virtually all boilers and heaters is restricted to 40 percent of the
21 maximum fuel consumption possible. Hot water heaters, which are used year around but only during
22 business hours, have been reduced 25 percent. No fuel restrictions have been placed on two boilers that
23 operate year around. New boilers and hot water heaters may be added at the Fort as long as they are
24 smaller units (between ½ and ¾ million BTU) (Randee Sieracki, Personal Communication, 12 October
25 2004). In such cases, a form is filed with ADEQ to notify them of the change. Typically, new construction
26 is replacing older facilities, which allows for new technology and more efficient units to be used in place
27 of previous units and increases are offset as much as possible.

28 Engine generator sets are located in various buildings throughout the Fort. Most of these sets are
29 emergency generators, and under EPA policy are limited to 500 annual hours of operation each. Fort
30 Huachuca further limits the use of these generators to 250 hours of operation each. New generators are
31 not typically allowed at the Fort (Randee Sieracki, Personal Communication, 12 October 2004). There are
32 a number of portable engine generator sets at Fort Huachuca. According to 40 CFR Part 89, these sources
33 fit within the definition of non-road engines and are not considered stationary sources. ADEQ R18-2-324
34 requires owners of portable sources to obtain permits from the county, if the county has established a
35 local air pollution control program. Cochise County does not currently have a program. Further, portable
36 engine generator sets are frequently used off the installation. At the time of this writing many of the Fort's
37 generator sets are in Iraq and are clearly not contributing to total emissions at the Fort (Randee Sieracki,
38 Personal Communication, 12 October 2004). The use of fuel cells in lieu of generators has been reviewed
39 by ADEQ and determined to be acceptable on an unlimited basis. Fuel cells can generate energy using a
40 chemical reaction, which results in virtually no emissions. The cost for fuel cells has thus far been
41 prohibitive at the Fort (Randee Sieracki, Personal Communication, 12 October 2004).

42 10 NOISE

43 10.0 BASELINE CONDITIONS

44 U.S. Army policy is to comply with all federal, state, and local requirements on noise control, unless
45 doing so would conflict with the Army's mission. Army Regulation (AR) 200-1 implements all federal
46 laws concerning environmental noise for Department of the Army activities. These include the Quiet
47 Communities Act of 1978, the Noise Control Act of 1972, and federal regulations, such as EPA's

1 Procedures for Reporting Proposed Pollution Abatement Projects for Federal Facilities. The primary
 2 strategy of the Department of the Army is to protect humans and animals from environmental noise
 3 impacts through land use planning. Three noise zones are identified in AR 200-1: Zone I (Acceptable),
 4 Zone II (Normally Unacceptable), and Zone III (Unacceptable). Housing, schools, and medical facilities
 5 are considered noise-sensitive land uses under this regulation. Table 5 presents an assessment of land use
 6 planning for Army environs.

7
 8 **Table 5 Land Use Planning Guideline**

Noise Zone	Population Highly Annoyed	Noise Limits in L _{dn}
I	<15%	<65 dBA
II	15-39%	65-75 dBA
III	>39%	>75 dBA

9 L_{dn} = day-night sound level.

10 Source: U.S. Army Center for Health, and Preventive Medicine, 1994.

11 Major noise sources on Fort Huachuca include weapons blasts, vehicle traffic, and airfield operations.
 12 Weapons blasts involving the use of small arms and explosives occur during training exercises. Aircraft
 13 that regularly operate out of LAAF include C-130, A-10, F-16, UH-60, RC-12, OH-58, AH-64, and UH-
 14 1. The noise generated by both weapons use and aircraft operations only exceeds 65 dB L_{dn} over
 15 undeveloped areas within Fort (Coffman 2002).

16 Projected 2005 noise contours for LAAF were prepared for the *Sierra Vista Municipal Airport - Airport*
 17 *Master Plan* (Coffman 2002). The unacceptable (Zone III) and normally unacceptable (Zone II) noise
 18 zones are compatible with the land uses on Fort Huachuca, and do not extend beyond the Fort's boundary.

19 11 HAZARDOUS WASTE, SUBSTANCES, AND MATERIALS

20 11.0 HAZARDOUS MATERIALS

21 Hazardous material storage follows the National Fire Prevention Association standard codes, and is
 22 subject to inspection by both the Installation Safety Office and the Fire Department. Fort Huachuca
 23 operates a Hazardous Material Control Center, which allows for collection and withdrawal of usable
 24 hazardous materials on the installation. This center was designed to facilitate a reduction in the purchase
 25 and disposal costs associated with hazardous materials and wastes. The Fort implements several
 26 environmental plans and programs for hazardous waste management and monitoring.

27 11.1 HAZARDOUS WASTES

28 Fort Huachuca's *Installation Hazardous Waste Management Plan* provides the necessary procedures to
 29 achieve compliance with regulations regarding the accumulation, storage, transportation, and disposal of
 30 hazardous wastes generated by various organizations on the Fort. Fort Huachuca is a large quantity
 31 generator of hazardous wastes, but does not maintain a Part B permit to operate a treatment, storage, and
 32 disposal facility (TSDF) under Resource Conservation and Recovery Act (RCRA). The Fort operates one
 33 90-day accumulation point and approximately several satellite accumulation points. Transportation to an
 34 approved TSDF is through contracts established by the Defense Reuse and Marketing Organization
 35 (DRMO). The DRMO ensures that transporters are qualified, maintain required permits and licenses, and
 36 manifest the waste off the installation to a permitted TSDF.

37 Fort Huachuca's *Installation Spill Contingency Plan* (ISCP) describes the response procedures for an
 38 accidental spill of hazardous substances or petroleum, oil, and lubricants (POL) (USAGFH 2003). In the
 39 case of a hazardous waste release, the Fort Huachuca Fire Department has first responder responsibilities
 40 at Fort Huachuca, with the Director of Installation Support's maintenance contractor responsible for

1 cleanup once imminent danger to life and health has passed. Under agreement with Cochise County and
2 the City of Sierra Vista, backup for response to accidental spills of hazardous substances or POL on the
3 Fort is available.

4 **11.2 MUNITIONS**

5 Fort Huachuca transports, stores, and uses munitions. Munitions may be classified as hazardous materials
6 under the Hazardous Materials Transportation Act depending upon what they contain. However, unless
7 expired, or discarded military munitions generally do not meet the RCRA definition of hazardous waste.
8 Fort Huachuca does not maintain stockpiles of non-conventional munitions (i.e. chemical, nuclear, etc.).

9 The Army has generated rules, regulations, and guidance manuals detailing procedures and practices for
10 handling, storing, and disposing of munitions. All on-post activities comply with existing Army guidance
11 documents, and federal and state regulations (including RCRA and ARS Title 49). Army guidance
12 documents relevant to the handling, storage, and disposal of munitions include the U.S. Army, 415S.19-
13 R-I, Hazardous Commodities Storage; DEQPM 80-5, U.S. Army Hazardous Materials Disposal Policy;
14 and DEQPM 80-8, RCRA.

15 **11.3 FUELS**

16 Military vehicles operating on Fort Huachuca use a combination of unleaded gasoline, diesel fuel,
17 aviation gasoline, and JP8 jet fuel. Bulk storage units have been located on-post since the early 1990s.
18 Existing storage units include both above and below ground facilities. On-post bulk storage units are
19 required for both diesel and gasoline fuels. The large capacity storage units are located above ground, and
20 have associated above and below ground pipelines and distribution systems.

21 The total quantity of mobility fuels used on the Fort has a minimal effect on the fuel supply and
22 distribution system in southeastern Arizona. The total annual consumption of petroleum fuels represents
23 less than two days of production of a typical refinery. This quantity can be delivered using standard tank
24 trucks at the rate of slightly more than one truck per workday (USAGFH 2000b).

25 **12 POPULATION, HOUSING AND ECONOMIC CONDITIONS**

26 **12.0 POPULATION**

27 Population data published by Fort Huachuca comes from a number of separate databases. These
28 databases, to include federal government systems and government contractor operated systems, do not
29 cross-reference their data. Several years ago, Fort Huachuca became aware that the existing method of
30 population reporting, from these various databases, led to the double counting of some individuals who
31 may be counted under several reportable categories. An example of this duplication would be a military
32 family member who lives on Fort Huachuca, who is also a government civilian or contract worker on the
33 Fort. This person would be counted twice, as a military family member and as a government
34 civilian/contractor employee. At this point, an additional 1.3 family members would be attributed to them
35 in the off-post population, based on the assumption that all government civilians and contractor
36 employees live off of the installation in Sierra Vista, with a 2002 census average household size of 2.55.
37 The individual would then account for 3.55 people in the local community using these traditional methods
38 and assumptions (USAIC, FH 2003b).

39 In an effort to more accurately estimate the Fort's population and the number of family members related
40 to on-post employees, Fort Huachuca hired a contractor to conduct a survey to gather appropriate
41 population data. Care was taken to eliminate duplicate surveying of the same household. The survey
42 findings revealed various examples of double counting, such as:

- 21.7% of the military personnel are also household members of other employees working at the Fort. This double count alone accounts for an approximate 8% over count of the noontday population; and
- 18.8% of current government civilian employees are also counted as retired military living in the Sierra Vista area (USAIC, FH 2003b).

Fort Huachuca's employee population in FY03 was 11,939 and included assigned military, military students, civilian, and contractor personnel. Many of the military assigned to Fort Huachuca live on post in bachelor quarters, barracks, or family housing. Other military personnel and civilian employees live in neighboring Sierra Vista and Huachuca City or in other communities in Cochise County. Just under 5% of Fort Huachuca's employees live outside the Sierra Vista subwatershed area (USAIC, FH 2003b).

Current approximated TDA for the USAIC mission at Fort Huachuca is 3350 personnel, with current baseline of 2800 personnel for an effective baseline TDA of 84%.

12.1 HOUSING

The Fort has 1,652 family housing units located on post. Of that total 212 units are designated as officer's quarters, and 1,440 units are listed as adequate listed quarters (Fort Huachuca 2003). No off-post family housing units are currently being leased. In addition to these quarters, there are 250 transient bachelor/guest quarters and 3,151 troop billeting spaces. On-post housing is not sufficient to house all military personnel. Military personnel and their families may live off-post, either making real estate purchase or renting property. The information in Table 6 is based on data maintained by Fort Huachuca's Housing Division (USAIC, FH 2003b).

Table 6 Military Off-Post Residency

	September 2001	September 2002	September 2003
Own Home	39	230	296
Rent Home	308	685	449
Own Manufactured Home	0	30	7
Rent Manufactured Home	6	6	16
Rent Apartment	1,239	895	634
TOTAL	1,592	1,846	1,402

Source: USAIC, FH 2003b.

12.2 ECONOMIC CONDITIONS

Fort Huachuca is a major employer in southern Arizona. In FY03 Fort Huachuca provided 12,193 jobs in Cochise County. This consisted of 11,939 directly employed and 254 contractors employed off-post (USAIC, FH 2003b).

Fort Huachuca, just like civilian communities, is a consumer of goods and services in support of its day-to-day operations. In addition to those goods and services that are common to civilian communities, Fort Huachuca is a consumer of high technology industrial goods because of the intelligence-related and information system missions and activities located there. Fort Huachuca expended \$941.2 million in FY03 when pay and other categories of expenditures are added to goods and services; 53.7% (659.0 million) was expended in Arizona. Overall expenditures by the Fort show a decrease of \$182.6 million from FY02 to FY03, while expenditures in Arizona reflect a \$56.0 million increase from FY02 to FY03 (USAIC, FH 2003b).

1 Fort Huachuca expended \$281.8 million of the purchase of goods and services in Arizona during FY03.
2 Fort Huachuca's purchases outside Arizona amounted to \$282.2 million, a 46.8% decrease from the 520.8
3 million in FY02. In FY03, Fort Huachuca spent \$622.6 million in Cochise County, which is an increase
4 of 9.3%, or \$52.9 million, from the previous year's expenditures (USAIC, FH 2003b).

5 **13 HEALTH AND SAFETY**

6 **13.0 LAW ENFORCEMENT**

7 Police services and law enforcement are provided off-post by community police forces and the Arizona
8 Department of Public Services. On Fort Huachuca, the law enforcement division of the Directorate of
9 Public Safety is primarily responsible for the security of the installation and enforcement of rules,
10 regulations, and laws governing the Fort Huachuca community.

11 **13.1 MEDICAL SERVICES**

12 Cochise County is served by six hospitals located in Benson, Bisbee, Wilcox, Douglas, Sierra Vista, and
13 Fort Huachuca. The two facilities most likely to be affected by changes that could result from the
14 Proposed Action or alternatives due to their location are the Sierra Vista Regional Health Center
15 (SVRHC) and Raymond W. Bliss Army Health Center. The SVRHC is located in Sierra Vista is an acute
16 care facility with 82 beds. In addition, the facility has 79 physicians and allied health professionals on the
17 active medical staff, and more than 7,600 annual patient visits (SVRHC 2004). Raymond W. Bliss Army
18 Health Center is one of the largest, best equipped, and most modern health care facilities in Cochise
19 County and provides emergency services and outpatient services for medical, surgical, and pediatric
20 patients (Fort Huachuca 2001). Emergency medical evacuation to Tucson by air from either facility takes
21 approximately twelve minutes.

22 **13.2 FIRE PROTECTION**

23 Fire protection services are provided under a mutual assistance agreement between Fort Huachuca, Sierra
24 Vista, Cochise County, and U.S. Forest Service (USFS). Sierra Vista maintains two fire stations. Cochise
25 County fire districts respond to county calls and can provide additional assistance to other agencies when
26 needed. The Fry Fire District maintains a station within Sierra Vista as well as in surrounding parts of the
27 county.

28 The USFS maintains and operates additional fire suppression facilities that are available to respond to
29 forest and range fires within Coronado National Forest and adjacent areas, including lands within Fort
30 Huachuca, pursuant to a cooperative fire agreement between the installation and the USFS. The USFS
31 seasonally maintains an aviation fire suppression support facility (tanker base) at LAAF. The purpose of
32 the tanker base is to provide logistical support and fire suppression supplies necessary for regional fire-
33 fighting activities. Additional resources include three 200 gallon/4 wheel drive engines, one 600 gallon/2
34 wheel drive engine, and one fire prevention technician and fire lookout on Red Mountain (USFS 2000).
35 In January 2004, the Coronado National Forest engaged in amending its 1986 Forest Land and Resource
36 Management Plan with a Wildland Fire Amendment. This amendment updates the existing wildland fire
37 management direction to comply with the 2001 Federal Wildland Fire Management Policy. The proposed
38 changes primarily address lightning-ignited fires within the forest. Under the amendment, fire managers
39 would be permitted to manage and not necessarily suppress lightning caused fires to help reach
40 management goals. All human-caused wildfires would continue to be suppressed using appropriate
41 suppression response strategies (USFS 2004).

42 Fort Huachuca currently maintains three stations, two within the cantonment area and one at LAAF. New
43 stations on the West Range near the UAV complex area and at LAAF are being considered. Along with
44 these new stations would come vehicles, firefighters, and equipment. In addition, crash trucks at LAAF

1 are available for responding in the event of an aircraft crash. According to FAA, existing crash trucks and
2 staffing at LAAF are insufficient. The crash trucks are at the end of the acceptable age limit and are not of
3 sufficient capacity based on the size of the aircraft that use the facility. In addition, the crash trucks are
4 only equipped with a single fire suppression agent (foam) when two are required. This is a result of the
5 removal of all halon from the installation (Peter Nussbickel, Personal Communication, 12 October 2004).
6 Additional crash response personnel are also needed (Peter Nussbickel, Personal Communication, 12
7 October 2004).

8 Range Control is responsible for regulating and coordinating activities on the ranges, and is supported by
9 Law Enforcement Division and the Fire Department. Law Enforcement is responsible for securing and
10 patrolling the ranges, and the fire department coordinates with Range Control regarding procedures and
11 scheduling of controlled burns, and preventing, fighting and extinguishing range fires. In addition, the
12 Directorate of Installation Support assists in maintaining firebreaks (USAIC, FH 2001). Range Control
13 Standard Operating Procedures and regulations define allowable practices on the ranges and necessary
14 precautions that must be taken. These measures ensure training activities and other uses of the ranges are
15 conducted in a way that minimizes the risk of fire or injury and identifies a course of action should a fire
16 occur. SOPs for the use of pyrotechnics define when and where such materials may be used. These SOPs
17 require that a fire suppression plan be submitted to Range Control and the Fort Huachuca Fire Department
18 no less than 10 days prior to the training event. In addition, the officer in command of the training
19 exercise must obtain a weather report on the morning of the training exercise and advise the Fort
20 Huachuca Fire Department of pyrotechnic use no less than two hours prior to receive a go or no go from
21 the fire station. Use of pyrotechnics can be limited during times of high fire danger and are determined on
22 a case by case basis (USAIC, FH 2001).

23 Fire history data have been collected at Fort Huachuca since 1973 with a gap from 1975 to 1977. Most
24 areas of Fort Huachuca have experiences no more than one fire greater than one acre in size every ten
25 years. Higher incidences of wildfires occur in Training Area Tango in portions of the area used for live
26 ammunition fire (USAGFH 2002).

27 14 UTILITIES AND SERVICES

28 14.0 WASTEWATER COLLECTION AND TREATMENT SYSTEM

29 The wastewater system at Fort Huachuca consists of collection and treatment facilities. Included in these
30 facilities are a limited number of portable toilets and septic tanks and the components of the sewage
31 system itself: individual sanitary sewers and truck lines, lift stations, force mains, sewage ejectors and
32 Waste Water Treatment Plant (WWTP) #2. WWTP #1 is closed and the ponds are now used as a treated-
33 effluent holding/pumping facility. The Fort's wastewater collection system is primarily a branched
34 gravity flow system, with approximately 95 percent of total flow conveyed by gravity alone. System
35 capacity is 2 million gallons per day (MG/D). Currently the system is operating at .75 MG/D, or 38% of
36 system capacity. Treatment consists of separation of solids to the digester tanks, and processing of the
37 remaining wastewater through a trickle filter process, sand filtration, chlorination, and dechlorination.
38 Portable facilities and individual holding tanks serve isolated facilities and outlying range and training
39 areas.

40 Fort Huachuca has used treated effluent to water the golf course and a large parade field for three
41 decades. Currently, approximately 40 percent of the installation's treated effluent is used for landscape
42 maintenance at the Golf Course, Chaffee Parade Field, and the Outdoor Sports Complex.

43 14.1 ELECTRICITY

44 Tucson Electric Power Company (TEP) furnishes electrical power to Fort Huachuca via a substation near
45 Greely Hall on the Fort. Electricity is delivered from TEP's Vail Substation via a 54-mile long

1 transmission line. The capacity of the primary transmission line is 138 kV and 46 kV for the main
2 substation. Electricity on the Fort is distributed by overhead and underground transmission lines.

3 **14.2 NATURAL GAS AND PROPANE**

4 Natural gas and propane are used at Fort Huachuca for space heating and in absorption chillers to provide
5 cooling. Southwest Gas Company furnishes natural gas to Fort Huachuca through two high pressure
6 underground pipelines. Natural gas is then distributed within the installation via a network of buried
7 transmission lines. Propane is produced off-site and transported to the Fort via tank trucks.

8 **14.3 RENEWABLE RESOURCES**

9 Fort Huachuca has a number of alternative and renewable energy projects. There is one Bergey wind
10 turbine on the West Range and wind data collection equipment on the South Range. Solar energy is used
11 to produce electricity in both grid and non-grid connected photovoltaic systems. The energy generated
12 from these systems is used to heat water for a swimming pool located at Barnes Field House, light the
13 parking lot at the NCO Academy and for domestic use.

14 **14.4 SOLID WASTE DISPOSAL**

15 There are no active landfills on Fort Huachuca. All refuse except the sludge from WWTP #2 is collected
16 and disposed of under contract at the Huachuca City Landfill. The sludge from WWTP #2 is collected and
17 disposed of under contract at the Cochise County Landfill (Kim Taylor, personal communication, 21
18 October 2004). A active recycling program for paper, aluminum cans, glass, and various types of plastics
19 exist on the Fort.

20 **14.5 POTABLE WATER**

21 Groundwater is the source of Fort Huachuca's potable water supply. Details regarding the Fort's
22 groundwater use are in Section 4 of this Appendix.

1

APPENDIX B

2

SITE SPECIFIC CONDITIONS

3

FORT HUACHUCA, ARIZONA

4

NOVEMBER 2004

1 SETTING AND LAND USE

2 1.0 CANTONMENT AREA AND LIBBY ARMY AIRFIELD

3 The cantonment area and other developed lands on the Fort cover approximately 5,720 acres (9 sq. mi.),
4 or approximately 8% of the installation. The majority of the more than 2000 buildings and structures on
5 the installation are located within the main cantonment area. The cantonment area provides the location
6 for a variety of operational and testing facilities, maintenance and production facilities, research,
7 development, test and evaluation, supply facilities, hospital and medical facilities, administrative
8 facilities, housing and community facilities, utility and ground improvements, housing and community
9 support services, as well as administrative and operational directorates and training facilities. Major
10 command headquarters are located throughout the cantonment area as well as maintenance and storage
11 facilities, facilities for research, development and testing, medical care, and training. Within the
12 cantonment and other built-up areas, land management activities and maintenance fall under the direction
13 of the Directorate of Installation Support.

14 1.1 TRAINING AREA INDIA

15 Training Area India is located on the West Range and covers a land area of 2,223 acres (4 sq. mi.). This
16 area is primarily used for intelligence and communications training and testing activities. Wheeled
17 vehicles are permitted on existing roads and maintained trails but no off-road vehicle travel is permitted.
18 Testing and training sites located in protected agave management areas within this training area adhere to
19 special use regulations:

- 20 • No firing of blanks or pyrotechnics within 0.25 miles of these areas.
- 21 • Training and test sites will not be used by personnel on foot unless the activity has a Range
22 Control approved plan for fire suppression and minimal fire fighting equipment.
- 23 • Night operations are prohibited from July 1 to October 31.

24 Patrolling and tactics training is conducted in this area. On occasion, locations across the area are utilized
25 by training units for setting up bivouacs containing sleeping, mess, and other related facilities for the
26 execution of field training exercises (FTX) (see USAGFH 2002 for a discussion of mission and bivouac
27 activities). Training Area India is also used for hunting activities. Hunters are required to observe a 0.25-
28 mile safety zone around buildings, permanent test sites, and houses near post boundary. Antelope and
29 Hidden Ponds are located in this area.

30 1.2 TRAINING AREA JULIET

31 Training Area Juliet is located on the West Range and covers a land area of 1,111 acres (2 sq. mi.). This
32 area is primarily used for intelligence and communications training and testing activities and unmanned
33 aerial vehicle (UAV) operations. Patrolling and tactics training is conducted in this area. Wheeled
34 vehicles are permitted on existing roads in the area but no off-road vehicle travel is permitted. The Black
35 Tower UAV Training Complex is located in Training Area Juliet. This consists of structures, temporary
36 trailers and buildings encompassing the Shadow Training Facility and runway, the Advanced Instruction
37 Building, and paved Rugge-Hamilton UAV runway. On occasion, locations across the area are utilized by
38 training units for setting up bivouacs similar to Training Area India (above) for FTX. Training Area Juliet
39 is also used for hunting activities. Hunters are required to observe similar restrictions as in Training Area
40 India (above). The Sycamore II Pond is located in this area.

41 1.3 TRAINING AREA LIMA

42 Training Area Lima covers an area of 840 acres (1 sq. mi.) and a large percentage of its land is under
43 protected agave management. The area is primarily used for intelligence and communications training and

1 testing activities. Patrolling and land maneuvering training is also conducted in this area. Wheeled
2 vehicles are permitted on existing roads in the area but no off-road vehicle travel is permitted. Testing and
3 training sites located in protected agave management areas within this training area adhere to special use
4 regulations as identified for Training Area India (above). On occasion, locations across the area are
5 utilized by training units for setting up bivouacs similar to Training Area India (above) for FTX. One
6 large, (40 acre) permanent bivouac site is located in this area. Training Area Lima is also used for hunting
7 activities. Hunters are required to observe similar restrictions as in Training Area India (above). The area
8 has a picnic area for recreational activities.

9 **1.4 TRAINING AREA PAPA**

10 Training Area Papa is located on the South Range and covers an area of 3,459 acres (5 sq. mi.). As the
11 general terrain of the area is of the mountainous type, the military activities in the area are generally kept
12 to the relatively flat areas only. This area is primarily used for intelligence and communications training
13 and testing activities. Patrolling and tactics training is also conducted in this area. Wheeled vehicles are
14 permitted on existing roads in the area but no off-road vehicle travel is permitted. On occasion, locations
15 across the area are utilized by training units for setting up bivouacs similar to Training Area India (above)
16 for FTX. The topography of the area contributes to the heavy use of the area for recreational activities.
17 Three picnic areas are located in the Garden Canyon area. Facilities in these recreation areas include play
18 areas, grills, and ramadas. There are numerous hiking and horseback riding trails in this area. Recreational
19 users are prohibited from rock climbing and rappelling. Training Area Papa is also used for hunting
20 activities. Hunters are required to observe similar restrictions as in Training Area India (above).

21 **1.5 TRAINING AREA VICTOR**

22 Training Area Victor covers a land area of 1,599 acres (2.5 sq. mi.) and has a desert-type terrain. This
23 area is primarily used for intelligence and communications training and testing activities. Patrolling and
24 tactics training is also conducted in this area. Wheeled vehicles are permitted on the existing roads in the
25 area but no off-road vehicle use is permitted. Testing and training sites located in protected agave
26 management areas within this training area adhere to special use regulations as in Training Area India
27 (above). This area contains one Helicopter Landing Area for proficiency and emergency operations. On
28 occasion, locations across the area are utilized by training units for setting up bivouacs similar to Training
29 Area India (above) for FTX. Training Area Victor is divided into two parts for game management: V and
30 V1. Training Area V has a golf course and Golf Course Pond. Hunting is not permitted in this area.

31 **1.6 MOUNTED REACTION COURSE TRAINING**

32 Approximately .75 miles of the proposed 3.75-mile MRC exists within Training Area Lima with the
33 remaining 3 miles within Training Area Hotel. Conditions in Training Area Lima are provided above.
34 Training Area Hotel covers an area of 4,200 acres (7 sq. mi.). This area is primarily used for intelligence
35 and communications training and testing activities. Wheeled vehicles are permitted on existing roads in
36 the area but no off-road vehicle travel is permitted. Testing and training sites located in protected agave
37 management areas within this training area adhere to similar special use regulations as in Training Area
38 India. On occasion, locations across the area are utilized by training units for setting up bivouacs similar
39 to Training Area India (above) for FTX. Portions of the installation grazing lands are located in this area
40 (see USAGFH 2002). Training Area Hotel is also used for hunting activities. Hunters are required to
41 observe similar restrictions as in Training Area India (above).

42 **1.7 SMALL ARMS FIRING RANGES ON THE SOUTH RANGE**

43 Small arms qualification and live fire at Fort Huachuca occur on only nine of the seventeen existing live
44 fire ranges in Training Area Tango (Table 1). Firing ranges are used for personnel qualification and

1 training throughout the year. Live fire does not take place at night on Ranges 2, 3, and 4 during the period
 2 July 1 through October 31.

3 **Table 1 Firing Ranges at Fort Huachuca**
 4

Range	Range Utilization	Maximum Ammo Permitted	Maximum Noise Level At Firing Point
Range 1	Currently inactive	NONE	N/A
Range 2	M-16 Rifle Zero Range with 40 firing points and a target width of 100 meters	5.56mm	156 dbP
Range 3	Small bore multi-purpose range with 15 firing points, and 75 meters maximum range	7.62mm	156 dbP
Range 4	Pistol range complex consisting of a competition firing range with 25 firing points and target distances at 25 and 50 meters (Range 4A), and an US Army Standard Pistol Qualification course consisting of four firing points with target distances from 7 to 31 meters (Range 4B)	.45 cal	162 dbP
Range 5	High explosive hand grenade range with 12 firing points. Currently inactive, due to safety considerations	M67 FRAG (ONLY)	171 dbP
Range 6	Fifty firing points and six firing lines from 100 to 1,000 yards	.50 cal	159 dbP
Range 7	Currently inactive	NONE	N/A
Range 8	Automated record fire range with 10 firing points and target distances from 50 to 300 meters	5.56mm	156 dbP
Range 9	Range 9A serves as a multi-purpose machine gun range with four firing points, Range 9B is used for recoilless rifles	.50 cal, 106mm	160 dbP
Range 10	M-79 and M-203 grenade launcher range. High Explosive (HE) cannot be fired on this range	40mm	154 dbP
Range 11	Currently inactive	NONE	N/A
Range 12A	.50 caliber, 7.62mm and 40mm live fire weapons range. HE ammunition cannot be fired on this range	120mm, .50 cal	160 dbP
Range 12B	Tank gunnery range. HE ammunition cannot be fired on this range	NONE	N/A
Range 12C	Tank gunnery range. HE ammunition cannot be fired on this range	NONE	N/A
Range 13	M-16 marksmanship record fire range with 16 firing positions and targets from 50 to 300 meters	5.56mm	156 dbP
Range 14	Currently inactive Squad attack course	NONE	N/A
Range 15	Currently inactive Platoon attack course	NONE	N/A

5
 6 **2 VISUAL RESOURCES**

7 **2.0 CANTONMENT AREA AND LIBBY ARMY AIRFIELD**

8 There are two visually distinct areas of the Fort surrounded by similar landscapes. The majority of the
 9 cantonment area of Fort Huachuca is urban in appearance due to the presence of large administration
 10 buildings, testing and training facilities, and hangars and the air traffic control (ATC) tower at Libby
 11 Army Airfield (LAAF). The southern portion of the cantonment area is suburban in character, with
 12 landscaped areas, smaller structures, and a variety of recreational amenities and housing facilities.

1 Dominant visual elements include Fort structures, such as administration buildings, housing structures,
2 offices, and other buildings.

3 **2.1 TRAINING AREA INDIA**

4 The foreground and middle ground views of the proposed site are characterized by open grasslands with
5 scattered trees with unpaved roads. Background views are dominated by the Huachuca Mountains to the
6 south, Santa Rita Mountains to the distant west, and Whetstone Mountains to the north.

7 **2.2 TRAINING AREA JULIET**

8 The foreground views at the proposed site include development associated with the Black Tower UAV
9 complex to include administrative buildings, training buildings, air traffic observation tower, and parking
10 areas and associated infrastructure surrounded by open grasslands and valleys extending in a northeast-
11 trending direction. Middle ground views of the proposed site are characterized by open grasslands with
12 scattered trees with unpaved roads contoured by rolling hills and valleys. Background views are
13 dominated by the Huachuca Mountains to the south, Santa Rita Mountains to the distant west, and
14 Whetstone Mountains to the north.

15 **2.3 TRAINING AREA LIMA**

16 Foreground views at the proposed site include a medium-sized metal building surrounded by chain linked
17 fence, utility poles and lines, disturbed earthen parking areas, disturbed grasslands, and scattered trees.
18 Middle ground views are dominated by grassland hills and open areas with scattered trees and
19 improvements. Background views include the Huachuca Mountains to the south and the Whetstone
20 Mountains to the north.

21 **2.4 TRAINING AREA PAPA**

22 The proposed site is located in lower Garden Canyon with foreground and middle ground views
23 dominated by rolling hills, grasslands, scattered trees, and a network of unpaved roads. Background views
24 are limited to the Huachuca Mountains to the west, south, and east with topographic relief obstructing
25 distant views to the north.

26 **2.5 TRAINING AREA VICTOR**

27 Foreground and middle ground views at the proposed site are characterized by rolling hills covered with
28 grasslands, unpaved roads, scattered trees, and other improvements such as a metal lighting shelter.
29 Background views to the west and south are dominated by foothills of the Huachuca Mountains.
30 Background views to the north include open grasslands and Whetstone Mountains on the far distant
31 horizon. Background views to the south of the site are obstructed by rolling hills in the middle ground.

32 **2.6 MOUNTED REACTION COURSE TRAINING**

33 The foreground and middle ground views of the proposed MRC route are characterized by open
34 grasslands with scattered trees with unpaved roads. Background views are dominated by the Huachuca
35 Mountains to the south and Whetstone Mountains to the north.

36 **2.7 SMALL ARMS FIRING RANGES ON THE SOUTH RANGE**

37 The foreground and middle ground views at the various firing ranges include disturbed grasslands and
38 open areas with firing points and various target placement systems and shelters used during live fire
39 events. Background views to the west and southwest include rolling topography of the Huachuca
40 Mountain foothills. Background views to the north include the southern portion of the cantonment area
41 with the Whetstone Mountains on the far distant horizon.

1 **3 TOPOGRAPHY, SOILS, AND GEOLOGY**

2 **3.0 CANTONMENT AREA AND LIBBY ARMY AIRFIELD**

3 The topography of the cantonment area is relatively level and gently sloping in a northeast direction from
4 approximately 5000 ft above mean sea level (MSL) along the southwestern boundary to under 4600 ft
5 above MSL along the northern boundary of LAAF. Soils within the cantonment area are predominately
6 Terrarossa complex with 0-45% slope and White House complex with 1-30% slope (USDA 2002).

7 **3.1 TRAINING AREA INDIA**

8 The proposed site is located on a relatively level, north-south trending plateau at approximately 4850 ft
9 above MSL. Soil at the site is Terrarossa-Blacktail-Pyeatt complex with 1-40% slope (USDA 2002).

10 **3.2 TRAINING AREA JULIET**

11 The proposed site is located on a relatively level, north-south trending plateau at approximately 4800 ft
12 above MSL. Soil at the site is White House complex with 1-30% slope (USDA, 2002).

13 **3.3 TRAINING AREA LIMA**

14 The proposed site is relatively level at approximately 5000 ft above MSL. Soil at the site is Terrarossa-
15 Blacktail-Pyeatt complex with 1-40% slope (USDA 2002).

16 **3.4 TRAINING AREA PAPA**

17 The proposed site is located in the foothills of the Huachuca Mountains at an elevation of approximately
18 5300 ft above MSL. The site is located on a southeast facing slope with gentle to moderate sloping
19 hillsides to the immediate north, west, and south. Soil at the site is Gardencan-Lanque complex with 0-5%
20 slopes (USDA 2002).

21 **3.5 TRAINING AREA VICTOR**

22 The proposed site is relatively level at approximately 4800 ft above MSL. Soil at the site is Gardencan-
23 Lanque complex with 0-5% slopes (USDA 2002).

24 **3.6 MOUNTED REACTION COURSE TRAINING ROUTE**

25 The 3.75-mile route extends from an elevation of 4975 ft above MSL down to 4750 ft above MSL in a
26 north-east sloping direction. The route has varied topographic conditions ranging from level, gently
27 sloping grasslands down through stream crossings and back up to the grassland plateau. Soil at the site is
28 predominately Terrarossa-Blacktail-Pyeatt complex with 1-40% slope (USDA 2002). In the northern
29 section of the course the soil is a mix of White House complex with 1-30% slope and Ubik complex with
30 0-3% slope (USDA 2002).

31 **3.7 SMALL ARMS FIRING RANGES ON THE SOUTH RANGE**

32 Firing positions at the small arms firing ranges range vary between 4800 and 4900 ft above MSL with
33 south and southwest range backdrops at higher elevations up to 6500 ft above MSL. Soils in the area of
34 the firing points of the South Range are Terrarossa complex with 0-45% slope and Gardencan-Lanque
35 complex with 0-5% slope.

1 5 BIOLOGICAL RESOURCES

2 5.0 VEGETATION

3 Based on plant community mapping on Fort Huachuca, most of the land potentially disturbed is in
 4 grassland habitat (52 acres, 83 percent) (Table 2). The remaining 11 acres is in Oak (*Quercus* sp.)
 5 Woodland. Short descriptions of the vegetation at each site based on brief surveys in September 2004 are
 6 provided below. Common plant species observed are given but the number of plant species actually
 7 occurring at these sites is much larger. For example, up to 60 species of plants were found in native
 8 grasslands on mesa tops and 130 species on oak savannah on the Audubon Research Ranch a few miles
 9 west of the Post (McLaughlin and Bowers 2000).

10 Table 2 Number of acres of plant community types in sites to be affected by the
 11 Proposed Action at Fort Huachuca, Arizona
 12

Site	Plant community type				Total
	Open grasslands	Oak woodlands	Mesquite grass-savannah	Deciduous woodland	
Training Area India	20	0	0	0	20
Training Area Juliet	10	0	0	0	10
Training Area Lima	0	5 ^a	0	0	5
Training Area Papa	0	6	0	0	6
Training Area Victor	0	0	20	0 ^b	20
MRC Route	2	0	0	0	2
Total	32	11	20	0	63

13 ^a Vegetation map for Training Area Lima indicates that the project site is in grasslands. However, inspection on the
 14 ground indicates that site is in oak woodlands.

15 ^b Vegetation map for Training Area Victor indicates that some of the project site is in deciduous woodlands.
 16 However, inspection on the ground indicates that all is in mesquite grass-savannah.
 17

18 5.1 WILDLIFE

19 Reptiles and Amphibians. Surveys for reptiles and amphibians have not taken place in grasslands on Fort
 20 Huachuca. Based on data collected by Morrison et al (1995) for the oak-juniper savannah, common
 21 species in the grasslands in the project areas are likely whiptails (*Cnemidophorus* spp.) and tree lizard
 22 (*Urosaurus ornatus*).

23 Birds – Game. Upland game birds that may occur in the area of the Training Areas Lima and Papa sites in
 24 oak woodlands include the mourning dove, Montezuma quail (*Cyrtonyx montezumae*), and Gould’s wild
 25 turkey (*Meleagris gallapavo mexicana*) (USAGFH 2001b).

26 Birds – Bird Species of Conservation Concern. Fort Huachuca falls within the Sierra Madre Occidental
 27 (U.S. portion only) Bird Conservation Region (BCR Region 34) (USFWS 2002a). A total of 39 bird
 28 species of conservation concern are within this region and of these, 10 occur or could occur in the
 29 grasslands in the project area (Table 3).

1 **Table 3 Birds of Conservation Concern That Occur or Potentially Occur in Grasslands and**
 2 **Oak Woodlands on Fort Huachuca Based on Species in Bird Conservation Region 34**
 3 **and Arizona PIF Bird Conservation Plan**
 4

Species		Occurrence on Fort Huachuca
Common name	Scientific name	
Grasslands		
Botteri's sparrow	<i>Aimophila botterii</i>	Breeding species on Fort Huachuca.
Rufous winged sparrow	<i>Aimophila carpalis</i>	Likely does not occur on or in the area of Fort Huachuca.
Cassin's sparrow	<i>Aimophila cassinii</i>	Breeding species on Fort Huachuca.
Baird's sparrow	<i>Ammodramus bairdii</i>	Occurs on Fort Huachuca during the winter.
Grasshopper sparrow	<i>Ammodramus savannarum</i>	The <i>perpallidus</i> subspecies occurs during the winter and <i>ammolegus</i> subspecies occurs during the breeding season.
Ferruginous hawk	<i>Buteo regalis</i>	Likely occurs on Fort Huachuca during the winter.
Lark bunting	<i>Calamospiza melanocorys</i>	Likely occurs on Fort Huachuca during the winter.
Chestnut-collared longspur	<i>Calcarius ornatus</i>	Likely occurs on Fort Huachuca during the winter.
Mountain plover	<i>Charadrius montanus</i>	Not known to occur on or in the area of Fort Huachuca.
Aplomado falcon	<i>Falco femoralis septentrionalis</i>	Not known to occur on or in the area of Fort Huachuca.
Oak woodlands		
Buff-breasted flycatcher	<i>Empidonax fulvifrons</i>	Breeding species on Fort Huachuca. Not likely to occur in areas of Training Area Lima and Papa sites.
Mexican spotted owl	<i>Strix occidentalis lucida</i>	Year-round resident on Fort Huachuca. No records of its occurring at or near the Training Area Papa site.
Eastern (Azure) bluebird	<i>Sialia sialis fulva</i>	Year-round resident of the Huachuca Mountains and Fort Huachuca. Could occur in oak woodlands in area of Training Areas Lima and Papa sites.
Montezuma quail	<i>Cyrtonyx montezumae</i>	Year-round resident on Fort Huachuca. Could occur in oak woodlands in area of Training Areas Lima and Papa sites.
Band-tailed pigeon	<i>Columba fasciata</i>	May be year-round resident on Fort Huachuca. Could occur at and in area of Training Area Lima and Training Area Papa.

5 Source: Latta et al 1999, USAIC, FH 2001, USFWS 2002a.

6 Based on this information, grassland bird species of conservation concern that could occur at the
 7 grasslands project sites are the Botteri's, grasshopper, and Cassin's (*Aimophila cassinii*) sparrows.
 8 Wintering species of conservation concern that could occur in these grasslands include Baird's sparrow
 9 (*Ammodramus bairdii*), ferruginous hawk (*Buteo regalis*), lark bunting (*Calamospiza melanocorys*), and
 10 Chestnut collared long-spur (*Calcarius ornatus*). Birds of conservation concern that have the potential to
 11 occur at or near the two sites in oak woodland include the eastern bluebird (*Sialia sialis fulva*) and
 12 Montezuma quail and band-tailed pigeon (*Columba fasciata*).

13 **Mammals.** Mule deer (*Odocoileus hemionus eremicus*) or their sign was observed at all sites surveyed. A
 14 possible black bear (*Ursus americanus*) track was seen at the Training Area Papa site. Other large
 15 mammals that occur in grasslands are the pronghorn antelope (*Antilocapra americana*) and javelina
 16 (*Pecari tajacu*) while the javalina would also be expected to occur in the oak woodlands.

1 **5.2 SPECIAL-STATUS SPECIES**

2 The Training Area Papa site is in the former Mexican spotted owl critical habitat and is an estimated 0.8
3 mile from the nearest protective activity center (PAC). The Training Area Lima site was not in the former
4 critical habitat and is approximately 2.2 miles (3.5 km) from the nearest PAC. Important Mexican spotted
5 owl habitat features as described in the critical habitat ruling are used here to evaluate the potential for
6 habitat at the Training Area Lima and Training Area Papa sites to support owls even though there is no
7 critical habitat on Fort Huachuca. The most important habitat for this species is protected habitat which
8 includes the PACs and all mixed-conifer or pine-oak forest types with slopes of greater than 40 percent
9 where timber harvest has not taken place for at least 20 years (USFWS 2004b). The two project sites are
10 clearly not in protected habitat. Restricted habitat provides foraging habitat and includes other areas of
11 mixed conifer and pine-oak forest not in the protected habitat. The pine-oak type is dominated by netleaf
12 oak (*Quercus rugosa*), silverleaf oak (*Q. hypoleucoides*), ponderosa pine (*Pinus ponderosa*), and Apache
13 pine (*P. engelmannii*) (Miller et al 2003). The Training Area Lima and Training Area Papa project sites
14 are dominated by Emory and Arizona white oak and juniper are the encinal evergreen oak woodlands
15 (Miller et al 2003) and, thus, are not part of the Mexican spotted owl restricted habitat. There are no
16 records of the Mexican spotted owl at and in the area of the two project sites, although these areas can be
17 considered potential habitat for this species (Hessil 2004). There would be a slight chance that a Mexican
18 spotted owl would occur at or in the area of the Training Area Lima and Training Area Papa sites and this
19 would most likely be foraging or dispersing individuals.

20 **5.3 SPECIES OF CONCERN**

21 Huachuca Golden Aster. Based on the known occurring elevations, this species would have the potential
22 to occur at all the project sites.

23 Desert Massasuga. The elevation data indicates the desert massasuga occurs primarily in the lower
24 slopes of the Huachuca Mountains on Fort Huachuca indicating it could occur in project sites dominated
25 by grasslands.

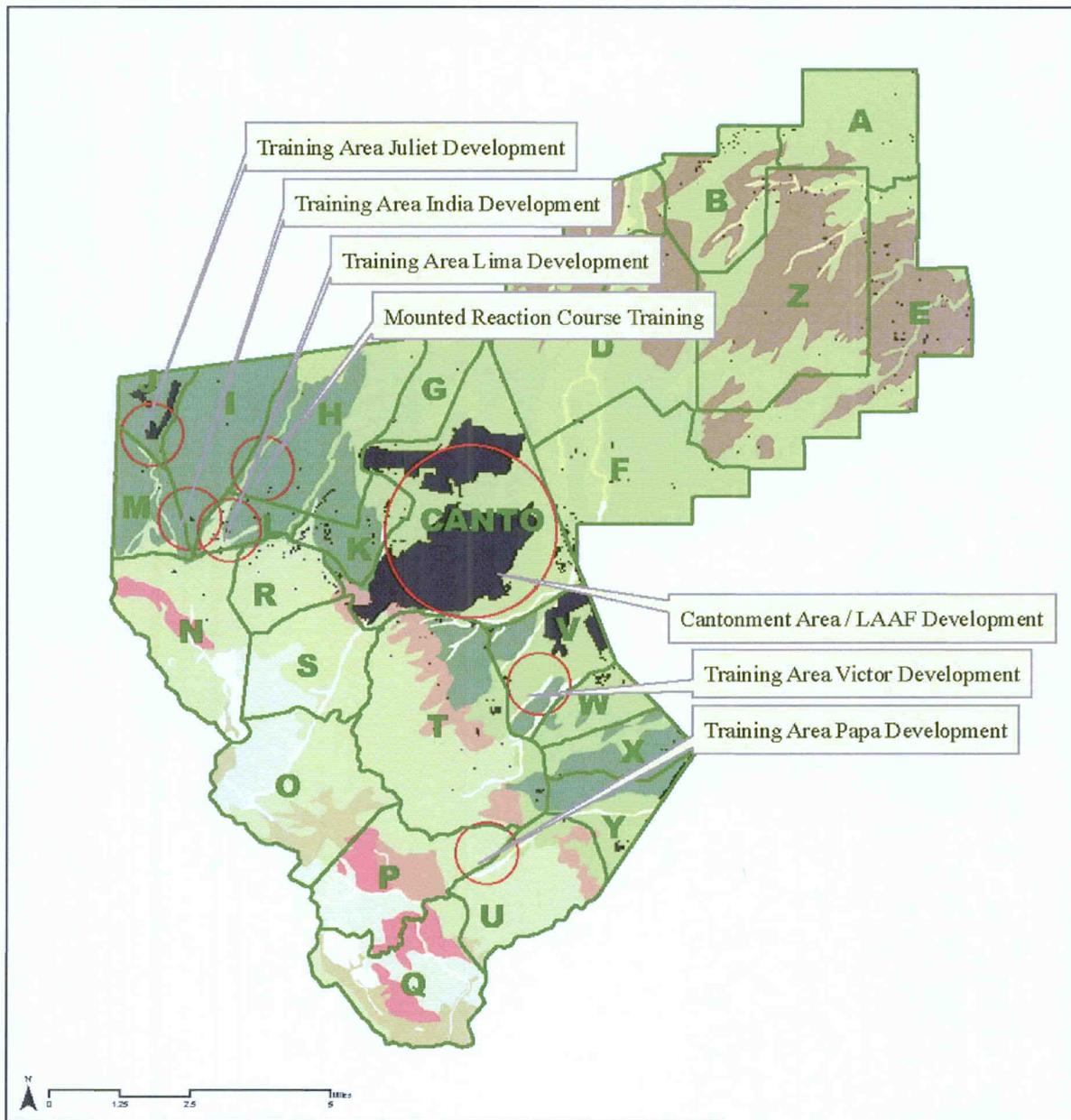
26 Arizona Ridge-nosed Rattlesnake. This species would have a slight potential to occur on and in the area
27 of Training Area Papa.

28 Mexican Long-tongued Bat. Foraging habitat for this species would occur at the Training Area India and
29 MRC Route project sites because agave are available for foraging.

30 Yellow-nosed Cotton Rat. This species could occur within or near the project features but the probability
31 of this may be slight given its use of rocky slopes.

32 **5.4 TRAINING AREA INDIA**

33 The proposed site development area in Training Area India covers 20 acres of open grassland habitat (see
34 Figure B-1; Photograph 1, Section 10). Land had been disturbed around a building and there were areas of
35 bare ground on the northern one-half of the site indicating possible past disturbance. Lovegrass
36 (*Eragrostis* sp.) was the most common grass species observed. Other grass species observed were
37 sideoats gramma (*Bouteloua curtipendula*), blue grama (*Bouteloua gracilis*), and cane bluestem
38 (*Bothriochloa barbinodis*). Low-growing acacia (*Acacia* sp.) was common in some areas and mimosa
39 (*Mimosa grahamii*) was also seen. Mesquite (*Prosopis velutina*) was widely scattered as well as desert
40 broom (*Baccharis serotroides*), prickly pear cactus (*Opuntia* sp.), and cane cholla (*Opuntia spinosior*).
41 Sotol (*Dasyliirion wheeleri*) was generally widely scattered but was more common on slopes above
42 drainages adjacent to the site. Palmer agave (*Agave palmeri*) was widely scattered throughout this area
43 and, as seen for sotol, was more common on slopes of drainages adjacent to the site (Photograph 2,
44 Section 10). The higher density stands of agave are mostly outside the site boundary.



Legend

- | | |
|---|---|
|  Generalized Development Locations |  Oak-Grass Savanna |
|  Training Areas |  Open Grassland |
|  Deciduous Woodland |  Pine Woodland |
|  Mahogany Woodland |  Pinyon-Juniper Woodland |
|  Mesquite Woodland |  Shrub-Grassland |
|  Mesquite-Grass Savanna |  Shrubland |
|  Mixed Woodland |  Urban and Built-Up Land |
|  Oak Woodland | |

Figure B-1

Fort Huachuca Vegetation, 2000

1 **5.5 TRAINING AREA JULIET**

2 The proposed site development area in Training Area Juliet covers 10 acres of open grassland habitat and
3 bare ground (see Figure B-1; Photographs 3 and 4, Section 10). Love grass was the most common grass
4 species observed. Other species of grass included side-oats grama, cane bluestem, and other species.
5 Widely scattered acacia, desert broom, palmer agave, sotol, and mesquite were in evidence.

6 **5.6 TRAINING AREA LIMA**

7 The proposed site development area in Training Area Lima covers 5 acres of open grassland habitat
8 according to the Fort Huachuca vegetation map (see Figure B-1). However, it is next to the oak woodland
9 habitat and there are oaks (*Quercus emoryi*) on this site (Photograph 5, Section 10). Therefore, it is listed
10 as oak woodland for this EA. The land around the existing building particularly to the west has been
11 disturbed and there are relatively large areas of bare ground here (Photograph 6, Section 10). The
12 remainder of this site may also have been previously disturbed because there are smaller areas of bare
13 ground throughout. Lovegrass is very common here while species such as sideoats grama and cane
14 bluestem are much less common. A few desert broom and small junipers occur in this site. Trees were
15 mapped on this site and 32 oak trees and 5 mesquites were counted.

16 **5.7 TRAINING AREA PAPA**

17 The proposed site development area in Training Area Papa covers 6 acres of open oak woodlands in two
18 areas (see Figure B-1; Photograph 7, Section 10). Evidence of past disturbance in this area consists of
19 vegetated mounds of dirt (Photograph 8, Section 10). The oak woodlands are open with relatively large
20 open grassy areas. Lovegrass is found mostly in disturbed land along the dirt road through the site and is
21 uncommon in the rest of the area. Sideoats grama, three awn (*Aristida* sp.), and cane bluestem were
22 common. Arizona cottontop (*Digitaria californica*) and blue grama were also noted. Herbaceous species
23 in bloom included cudweed (*Gnaphalium* sp.), jimsonweed (*Datura wrightii*), prairie sunflower
24 (*Helianthus petiolaris*), and telegraphweed (*Heterotheca grandiflora*). Emoryi oak as well as Arizona
25 white oak (*Quercus arizonica*), and alligator juniper (*Juniperus deppeana*) were the common trees here.
26 Understory species included acacia and pointleaf manzanita (*Arctostaphylos pungens*). Trees were
27 mapped on this site and 16 individual oaks and 7 oak clumps were tallied. In addition, 14 junipers and one
28 mesquite were mapped.

29 **5.8 TRAINING AREA VICTOR**

30 The proposed site development area in Training Area Victor covers 20 acres and most is in the mesquite-
31 grass savannah habitat (see Figure B-1; Photograph 9, Section 10). The plant community here is similar to
32 the open grasslands discussed above. Lovegrass was the most common species observed while sideoats
33 grama, cane bluestem and other species were less common. Herbaceous species in bloom included
34 buckwheat (*Eriogonum* sp.), common ragweed (*Ambrosia* sp.), cudweed, jimsonweed, prairie sunflower
35 and pepper grass (probably *Lepidium densiflorum*). One stand of giant reed (*Arundo donax*) was also
36 observed (Photograph 10, Section 10). Shrubs and small trees were very widely scattered at this site and
37 included desert broom, mesquite, and one desert willow (*Chilopsis linearis*). Based on the vegetation
38 map, a small part of site is in the deciduous woodland. This woodlands is associated with a wash and the
39 only trees were a few widely scattered mostly dead cottonwoods (*Populus fremontii*) (Photograph 11,
40 Section 10). Species such as mule fat (*Baccharis salicifolia*) and Johnson grass (*Sorghum halepense*)
41 were seen here. The riparian vegetation does not extend out of the wash in the area. Given that there will
42 be a buffer zone between the wash and development on the site, it does not appear that deciduous
43 woodlands would be affected which means that all 20 acres of this site is in mesquite-grass savannah.

44 **5.9 MOUNTED REACTION COURSE**

45 The MRC follows existing dirt roads through open grassland habitat for 3.75 miles (see Figure B-1;
46 Photograph 12, Section 10). The road would not be widened but small areas of grasslands would be

1 affected by the construction of pullouts and other project features. As is the case at other sites in open
2 grasslands, lovegrass was the most common species observed while sideoats grama, blue grama, cane
3 bluestem, and other species were observed. Widely scattered mesquite, sotol, and Palmer agave were seen
4 throughout (Photograph 13, Section 10). The agave had a distinct clumped distribution along the route.
5 Other species observed included banana yucca (*Yucca baccata*) (at only one location), cane cholla,
6 juniper, and prickly pear cactus. A few Emory oaks were associated with drainages through the area. The
7 MRC passed through 11 dry drainage channels. The habitat in these areas was essentially all open
8 grasslands except where oak trees were encountered (Photograph 14, Section 10).

9 **6 HISTORICAL AND CULTURAL RESOURCES**

10 Site specific surveys were conducted in Training Areas India, Juliet, Lima, Papa, and Victor and along the
11 MRC during October 2004.

12 **6.0 TRAINING AREA INDIA**

13 No artifacts were recorded during the survey.

14 **6.1 TRAINING AREA JULIET**

15 No artifacts were recorded during the survey.

16 **6.2 TRAINING AREA LIMA**

17 The survey recorded two historic structures whose function could not be determined, but their
18 construction and materials are consistent with other WPA structures on the installation.

19 **6.3 TRAINING AREA PAPA**

20 An isolated occurrence of a 20th century brown glass bottle base was found on the eastern portion of the
21 site. One 20th century canned milk can was found on the western portion of the site.

22 **6.4 TRAINING AREA VICTOR**

23 One isolated non-diagnostic potsherd was found during the survey. No other artifacts were discovered in
24 its immediate area. Small piles of 20th century glass and trash were noted, but no structures or features
25 were associated with them. One green glass marble and one isolated flake were also recorded. Two large
26 rock features were recorded. One was a simple linear feature of large rocks whose function could not be
27 determined. The other was a series of linear features that originally spelled out "USMC". The "U" has
28 since been damaged.

29 **6.5 MOUNTED REACTION COURSE**

30 No diagnostic artifacts were recovered. Isolated occurrences included a unofficially worked rhyolite core
31 and one tested rhyolite cobble.

32 **7 TRANSPORTATION AND CIRCULATION**

33 **7.0 CANTONMENT AREA AND LIBBY ARMY AIRFIELD**

34 The majority of paved streets occur within the cantonment area on the Fort. The transportation network
35 within the cantonment area includes primary and secondary collector streets and residential streets. On-
36 post primary collector streets include Hatfield Street, Irwin Street, Allison Road, Whitside Road, Brainard
37 Road, Winrow Road between the Main Gate and Allison Road, and Smith Avenue between Hatfield
38 Street and Whitside Road. Secondary collector streets on the Fort include Cushing Street, Arizona Street,
39 Squire Avenue, Smith Avenue east of Hatfield Street, Hines Road, Windrow Road west of Allison Street,
40 and Carter Street south of Hatfield Street. The remaining streets within the cantonment area are

1 considered residential streets (USAGFH 2000b). Traffic regulations for the cantonment area at Fort
2 Huachuca are specified in the Motor Vehicle Traffic Code, Fort Huachuca Regulation 190-5 (USAIC, FH
3 2003a).

4 **7.1 TRAINING AREA INDIA**

5 Training Area India site is currently accessed primarily via paved roads with a short unpaved road leading
6 into the site. The short unpaved road would be paved as part of the Proposed Action.

7 **7.2 TRAINING AREA JULIET**

8 The proposed improvement within Training Area Juliet is accessible via existing paved roads.

9 **7.3 TRAINING AREA LIMA**

10 Training Area Lima site is located north of Canelo Road (paved road) and accessed via unpaved roads.

11 **7.4 TRAINING AREA PAPA**

12 Training Area Papa site is accessed via Garden Canyon Road (paved) and an unpaved road.

13 **7.5 TRAINING AREA VICTOR**

14 Training Area Victor site is accessed via a paved road south from the cantonment area and subsequently a
15 series of unpaved roads.

16 **7.6 MOUNTED REACTION COURSE**

17 The testing and training component of the Proposed Action would include converting an existing loop of
18 unpaved roads into a MRC. The site is located within Training Areas Hotel and Lima and would be
19 accessible via unpaved roads.

20 **7.7 SMALL ARMS FIRING RANGES ON THE SOUTH RANGE**

21 The small arms and weapons fire ranges on the South Range would also be refurbished under the
22 Proposed Action. The proposed modifications would include road improvements. These sites are located
23 south of the cantonment area and most are accessed via Garden Canyon Road (paved).

24 **7.8 EAST RANGE TRAINING**

25 Under the Proposed Action, increased east range company-level cadre training would occur within
26 Training Areas Alpha, Bravo, Delta, and Foxtrot. Access to these training areas is along exiting paved and
27 unpaved roads.

28 **8 HAZARDOUS WASTE, SUBSTANCES, AND MATERIALS**

29 **8.0 CANTONMENT AREA AND LIBBY ARMY AIRFIELD**

30 The exact location of proposed development is unknown. Due to the level of existing development in this
31 area it is assumed that hazardous materials are used or stored in the cantonment area and on LAAF.

32 **8.1 TRAINING AREA INDIA**

33 There are no known hazardous materials stored or used at the proposed site location.

34 **8.2 TRAINING AREA JULIET**

35 The existing Black Tower complex is a POL use location. There is a hazardous materials storage area in
36 the southwest area of the complex. Two 3,000 gallon above-ground storage tanks (AST) that contain

1 propane are located in the southeast corner of the complex (USAGFH 2003). North of the Black Tower
2 complex is an existing bunker that was used to store munitions in the past.

3 **8.3 TRAINING AREA LIMA**

4 Adjacent to the proposed site is an existing facility that has a 250 gallon AST that contains propane
5 (USAGFH 2003).

6 **8.4 TRAINING AREA PAPA**

7 There are no known hazardous materials stored or used at the proposed site location.

8 **8.5 TRAINING AREA VICTOR**

9 There is an asbestos containment area on the west side of the access road to the proposed site. This area is
10 fenced and marked with signage.

11 **8.6 MOUNTED REACTION COURSE TRAINING**

12 There are no known hazardous materials stored or used at the proposed site location.

13 **9 UTILITIES AND SERVICES**

14 **9.0 CANTONMENT AREA AND LIBBY ARMY AIRFIELD**

15 The exact location of proposed development is unknown. All utilities are widely available in the
16 cantonment area and at LAAF.

17 **9.1 TRAINING AREA INDIA**

18 Water, sewer, telephone, and other cable utilities exist adjacent to the site. Overhead power lines occur
19 adjacent to the site.

20 **9.2 TRAINING AREA JULIET**

21 Water, sewer, telephone, and other cable utilities exist adjacent to site via buried lines along the edge of
22 the main roadway. Overhead power lines occur on site.

23 **9.3 TRAINING AREA LIMA**

24 Water and telephone occur adjacent to the site via buried lines. Power occurs adjacent to the site via
25 overhead lines. Potable toilets exist on site.

26 **9.4 TRAINING AREA PAPA**

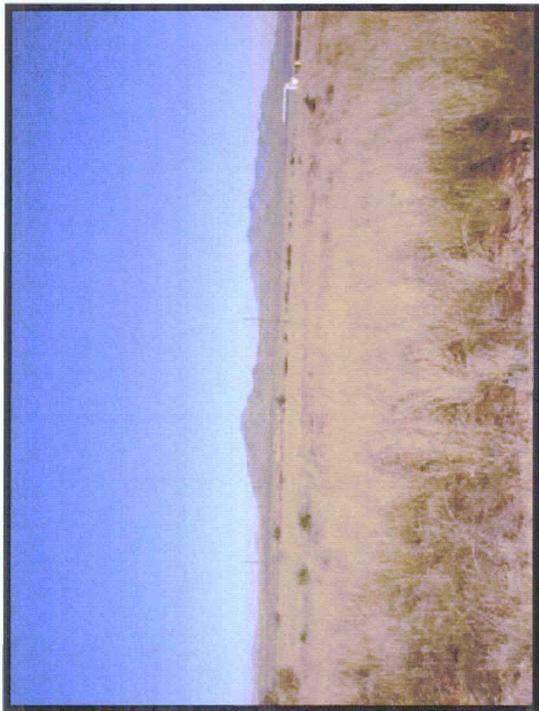
27 No existing utilities occur on or immediately adjacent to site.

28 **9.5 TRAINING AREA VICTOR**

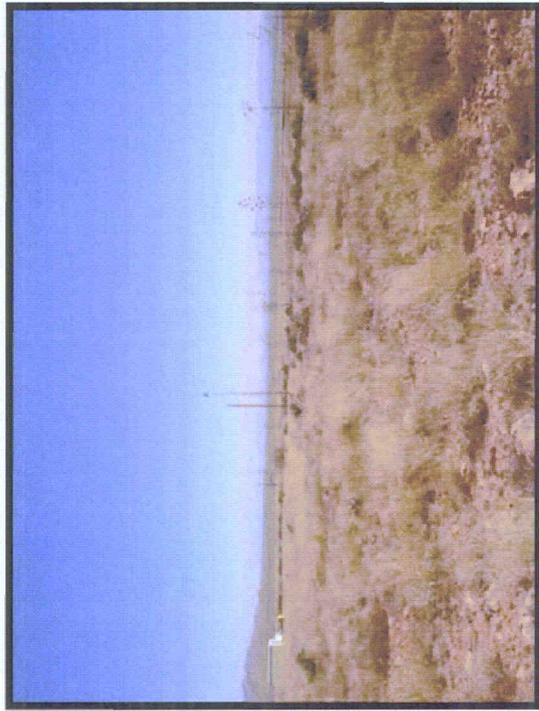
29 No existing utilities occur on or immediately adjacent to site.

30 **9.6 MOUNTED REACTION COURSE TRAINING**

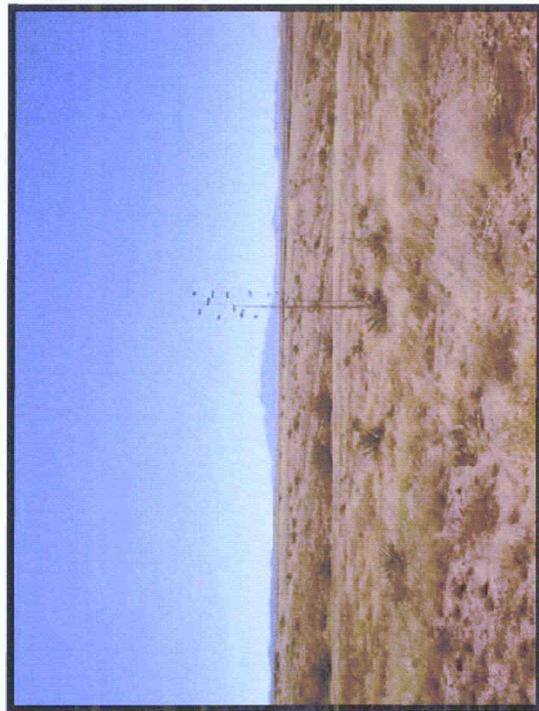
31 Telephone and other cable utility lines are buried adjacent to the existing roadway in some parts of the
32 proposed course, mostly on the western side. Overhead power lines border and cross the existing roadway
33 in the southern portion of the course.



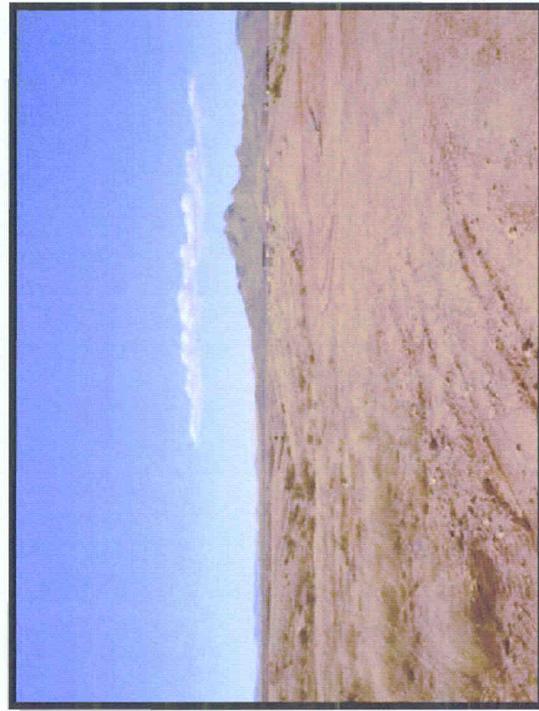
Photograph 1. Open grasslands at the Training Area India site.



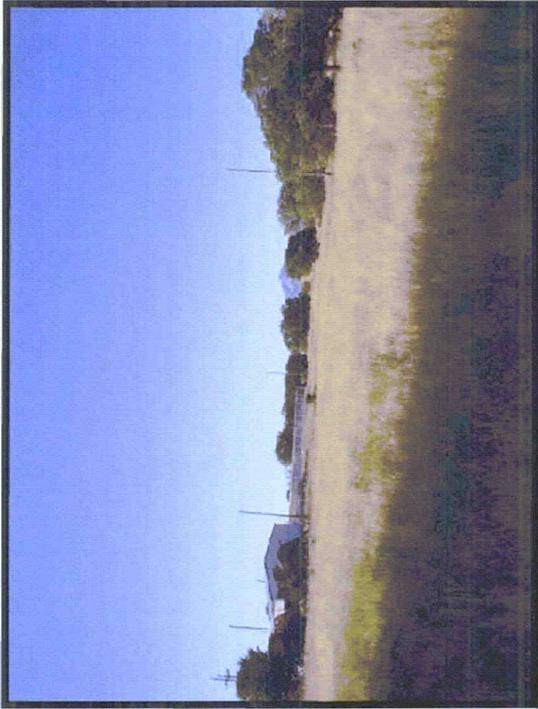
Photograph 2. Dense agave stand adjacent to eastern boundary of the Training Area India site.



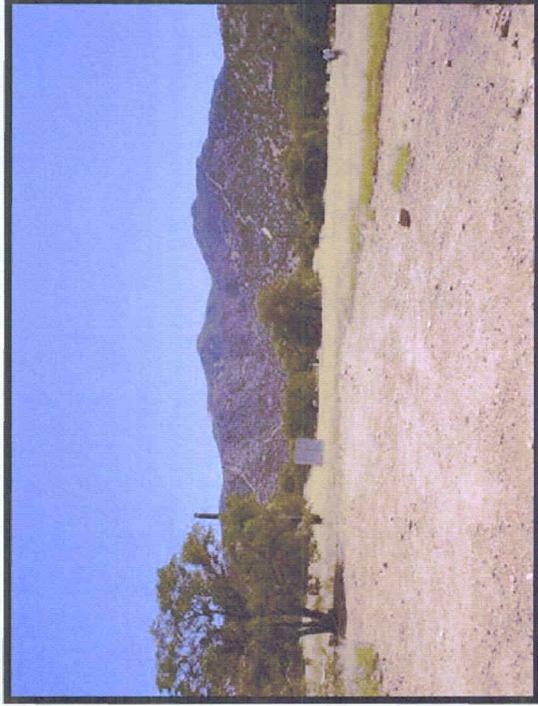
Photograph 3. Grasslands with scattered agave at the Training Area Juliet site.



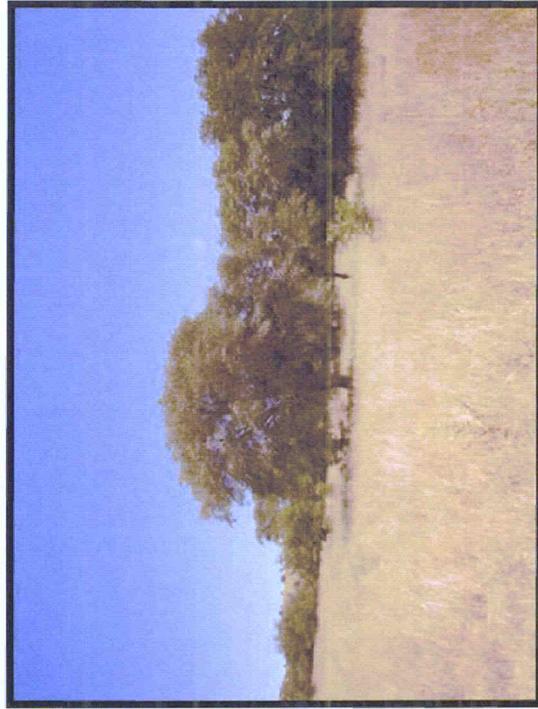
Photograph 4. Bare ground at the Training Area Juliet site.



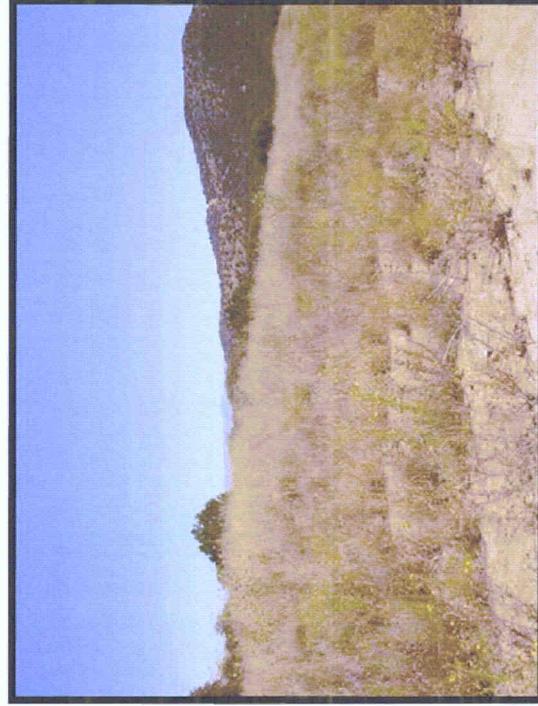
Photograph 5. Open oak woodlands at the Training Area Lima site.



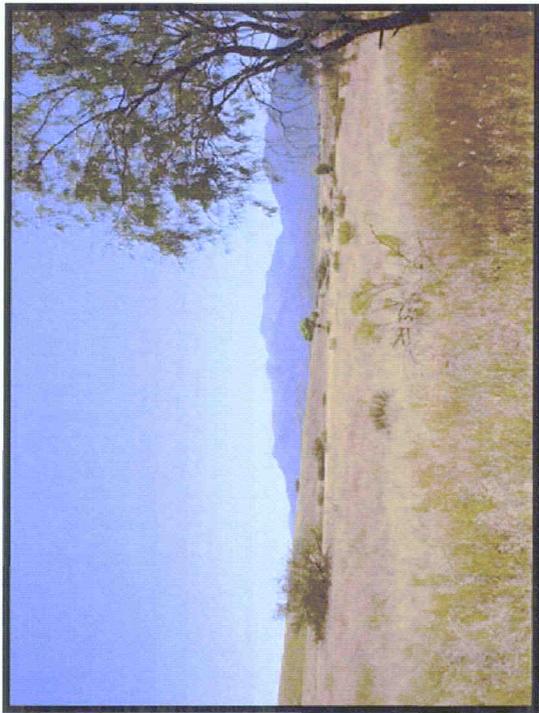
Photograph 6. Bare ground at the Training Area Lima site.



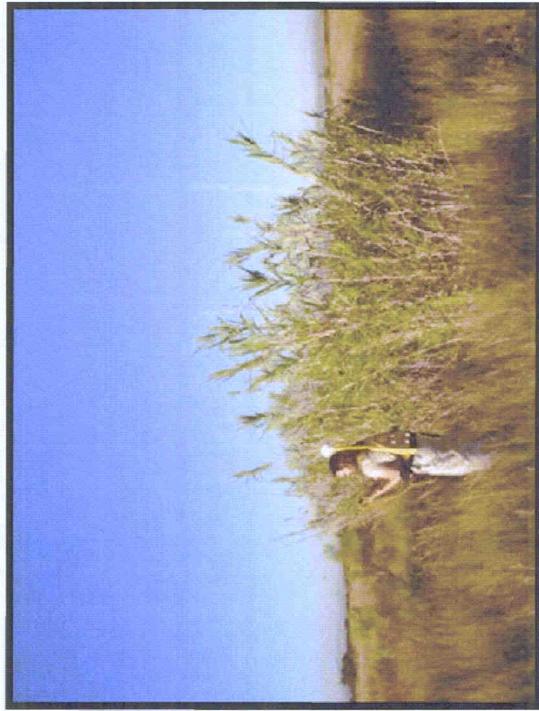
Photograph 7. Open oak woodlands at the Training Area Papa site.



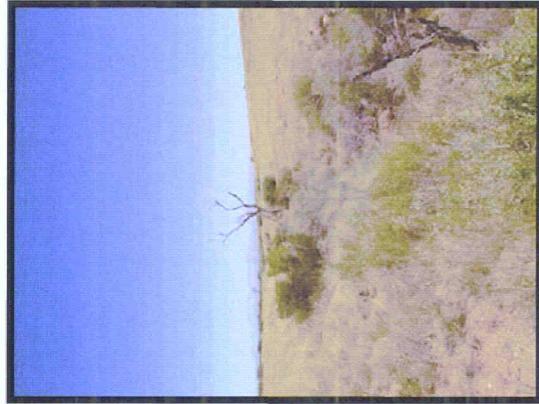
Photograph 8. Vegetated mound at the Training Area Papa site.



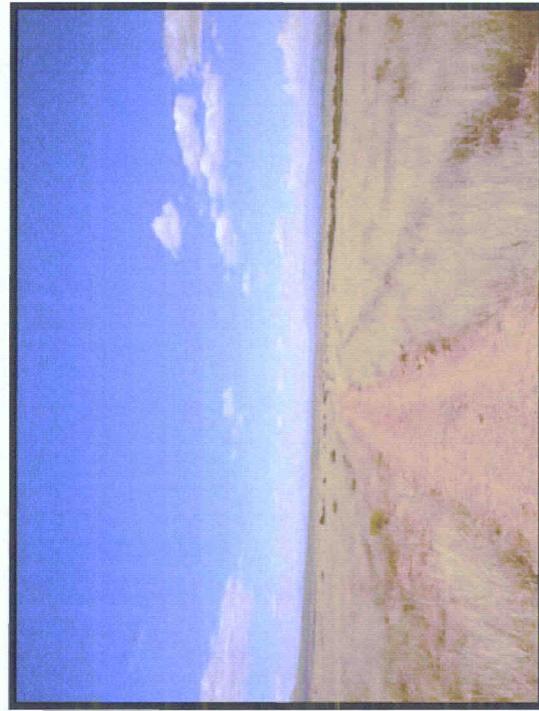
Photograph 9. Open mesquite-grass savannah at the Training Area Victor site.



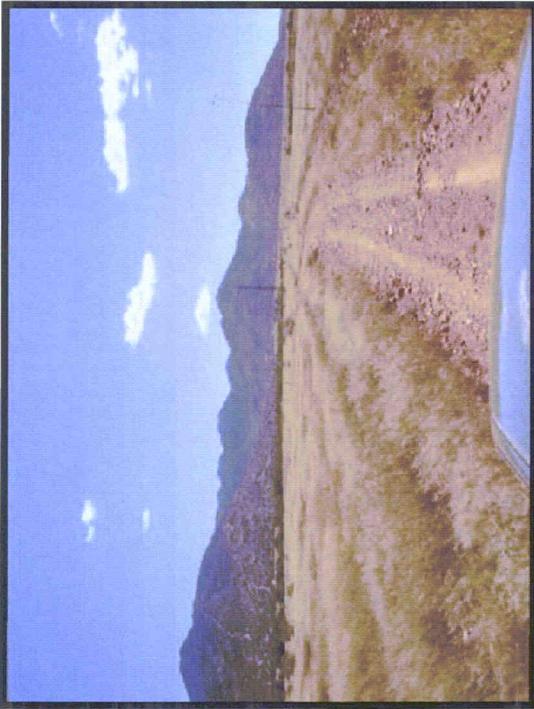
Photograph 10. Stand of giant reeds at the Training Area Victor site.



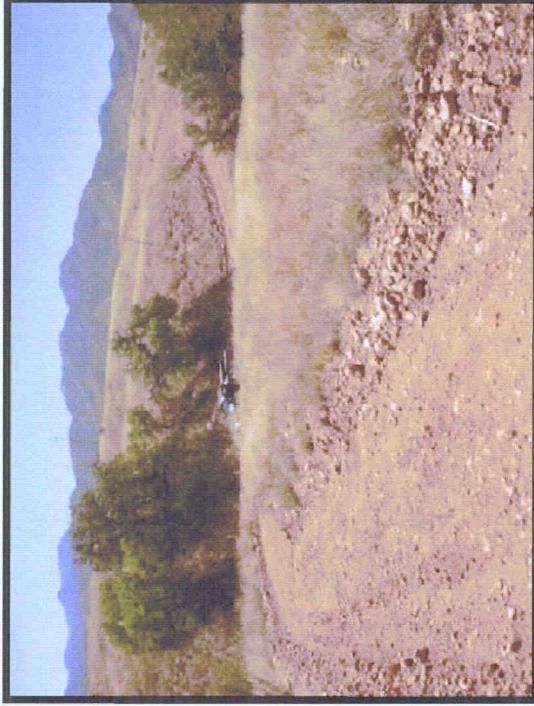
Photograph 11. Wash near southern boundary of the Training Area Victor site.



Photograph 12. Open grasslands along the MRC.



Photograph 13. Scattered agave along the MRC.



Photograph 14. Oak trees along drainage along the MRC.