FINAL ENVIRONMENTAL ASSESSMENT

THE INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN AND REAL PROPERTY MASTER PLAN AT FORT HUACHUCA, ARIZONA



Prepared for:



Environmental and Natural Resources Division Directorate of Public Works U.S. Army Garrison Fort Huachuca, Arizona

Prepared by:



September 2009

HOW THIS ENVIRONMENTAL ASSESSMENT IS ORGANIZED

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

- SECTION 1 PURPOSE AND NEED discusses the purpose and need for the proposed action, the regulatory background surrounding this project, and the scope of this Environmental Assessment.
- SECTION 2 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES discusses the Proposed Action and alternatives addressed in this Environmental Assessment.
- SECTION 3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES describes the existing environment within the Region of Influence. It also provides a comparison of environmental consequences associated the alternative. Conservation and mitigation measures are also addressed in this section.
- SECTION 4 FINDINGS AND CONCLUSIONS
- SECTION 5 ACRONYMS AND ABBREVIATIONS
- SECTION 6 REFERENCES provides bibliographical information for sources cited in the text of this Environmental Assessment.
- SECTION 7 LIST OF PREPARERS AND CONTRIBUTORS
- SECTION 8 DISTRIBUTION LIST
- SECTION 9 LIST OF INDIVIDUALS AND AGENCIES CONSULTED

APPENDICES

FINAL ENVIRONMENTAL ASSESSMENT

FOR THE INTEGRATED NATURAL RESOURCES MANAGEMENT PLAN AND REAL PROPERTY MASTER PLAN AT FORT HUACHUCA, ARIZONA

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September 2009

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EXECUTIVE SUMMARY

2 This Environmental Assessment (EA) was prepared to analyze the potential for significant 3 environmental impact associated with the implementation of an Integrated Natural Resources 4 Management Plan (INRMP), September 2009, and Real Property Master Plan (RPMP), October 5 2008, at Fort Huachuca, Arizona. Fort Huachuca is a military installation encompassing 6 73,142 acres of land located in the City of Sierra Vista, Cochise County, Arizona. The 7 installation is located approximately 75 miles southeast of Tucson and 63 miles northeast of 8 Nogales, Arizona. The southernmost boundary of the installation is approximately 8 miles from 9 the international border with Mexico. Arizona State Highway 90 divides the installation into 10 eastern and western sections. Fort Huachuca is a Joint Department of Defense Installation 11 supporting approximately 60 deployable and non-deployable tenant organizations. The overall 12 mission of Fort Huachuca is to provide equitable, effective and efficient management of the 13 installation to support mission-readiness and execution; enable the well-being of soldiers. 14 civilians and family members; improve the Army's aging infrastructure; and preserve the 15 environment. This EA provides a programmatic evaluation of potential impacts that is broad 16 enough in scope to assist in the evaluation of future unknown actions that are comparable to 17 those projects and activities that are currently identified and evaluated herein. 18 Under the Proposed Action alternative, the updated INRMP and RPMP would be implemented

19 using sustainable management methods. The goals and objectives in both the updated INRMP 20 and the RPMP incorporate the Army's sustainability strategy. The strategy includes meeting 21 current and future mission requirements, protecting human health while improving the quality of 22 life and enhancing the natural environment. Fully implementing both plans, adhering to 23 established goals and objectives, supports the Army's sustainability strategy and Fort 24 Huachuca's goals as described in Section 1.2 of this EA. Implementation of the Proposed 25 Action would include an ecosystem management approach that not only addresses current 26 short-term goals and objectives for specific resource areas, but incorporates long-term and 27 cumulative goals and objectives to ensure a sustainable environment for the future. This type of 28 management suggests that over the long-term, the ecosystem approach will maintain and 29 improve the sustainability and biological diversity of terrestrial and aquatic ecosystems while 30 supporting sustainable economies, human use, and the environment required to support the 31 Army mission.

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1 Alternative 2 would involve the implementation of the updated INRMP and RPMP using 2 compliance-based management, rather than sustainable management methods. Goals and 3 objectives outlined in both plans would be selected for implementation based on regulatory 4 requirement, rather than overall sustainment of the Installation's mission and environment. 5 Therefore, activities that are not required by law or regulation, such as recommended 6 conservation measures or managing land use for operational efficiency and cost effectiveness, 7 would not be carried out. This alternative would limit development and would not be consistent 8 with the Army's sustainability strategy.

- 9 Under the No Action Alternative, Fort Huachuca would not implement the updated INRMP or
- 10 RPMP and would continue current status-quo management practices. The current
- 11 management practices are becoming outdated and will not support the Army's sustainability
- 12 strategy. The No Action Alternative would maintain rather than enhance natural resources and
- 13 mission support capability. This could potentially increase the loss of sustainable training lands
- 14 over the long term.
- 15 At a programmatic level, the potential impacts associated with implementing the Proposed
- 16 Action at Fort Huachuca would not result in any significant adverse impacts. Any anticipated
- 17 adverse impacts would be local in context with the exception of air quality and transportation,
- 18 which although regional in context, would still only constitute a minor impact due to low levels of
- 19 anticipated emissions and increased traffic. Likewise the intensity of potential adverse impacts
- 20 is anticipated to be minor or negligible for all resources evaluated. Consequently, the overall
- 21 environmental effect of implementing the updated INRMP and RPMP at Fort Huachuca is
- 22 anticipated to be beneficial. Similarly, a beneficial contribution to cumulative impacts is
- 23 anticipated. A summary of potential impacts and measures to minimize adverse impacts is
- 24 provided in Table ES-1.
- 25 Based on the analysis contained herein, it is the conclusion of this EA that neither the Proposed
- Action, Alternative 2 nor the No Action Alternative would constitute a major federal action with
- significant impact on human health or the environment and that a Finding of No Significant
- 28 Impact for the Proposed Action should be issued to conclude the National Environmental Policy
- 29 Act documentation process.

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

	L	.evel o Impac	of :t	
Resource Area	Significant	Less than Significant	No Impact	Summary of Potential Impacts and Measures to Minimize Impacts
Land use		Х		Long-term, beneficial, direct and indirect impacts would be anticipated as a result of upgrades made to existing ranges and training facilities. No impact on adjacent land uses.
Topography, Geology, and Soils		Х		Minor short-term impacts anticipated for soil resources during construction activities. Long-term beneficial impacts on soils would occur, due to improved erosion and stormwater control. No impacts to topography, geology or prime and unique farmlands.
Hydrology and Water Resources		X		Minor short-term indirect impacts are expected due to potential increases in stormwater runoff during construction and certain activities, such as prescribed burns. Long-term beneficial impacts to groundwater and surface water would occur due to improvements proposed in the updated INRMP and RPMP. As required by the 2007 Biological Opinion (BO), the Fort must offset any increases in water demand associated with population fluctuations.
Biological Resources and Wetlands		Х		Short-term and long-term beneficial impacts to wildlife and vegetation are expected.
Cultural Resources		X		No adverse impacts are expected; however further evaluation of potential impacts to cultural resources would be undertaken in areas where improvements would occur. The need for consultation with State Historic Preservation Office (SHPO) or surveys would be determined on a project-by- project basis. Long-term beneficial impacts would result from proposed preservation projects.
Air Quality		×		Short-term and long-term direct impacts to air quality would occur. Minor short-term impacts would be associated with construction activities. Construction equipment would generate ozone precursors as well as PM_{10} . Wet suppression would be used to minimize PM_{10} emissions. Minor long-term impacts would result from operating new facilities. However, new facilities would be constructed to meet Leadership in Energy and Environmental Design (LEED) Silver standards.
Visual Resources		Х		Minor short-term impacts are expected during construction activities. However, these impacts would be temporary in nature, only occurring during construction. Long-term beneficial impacts would result from improvements and projects proposed in the INRMP and RPMP.
Noise		Х		Minor short-term direct impacts are anticipated. Short-term noise would result from construction activities.
Socioeconomics and Environmental Justice		X		No adverse impacts are expected. Short and long-term beneficial impacts to the local economy would be expected. Short-term impacts would result from construction activities. Long-term impacts would result from improvements that would allow for an increase in number of individuals training at the installation and contributing to local sales volumes.
Transportation and Circulation		Х		Short-term minor impacts during construction and minor intermittent, long- term impacts to transportation and circulation in the area surrounding Fort

	L	Level of Impact		
Resource Area	Significant	Less than Significant	No Impact	Summary of Potential Impacts and Measures to Minimize Impacts
				Huachuca are expected. Improvements to roadways and gates would result in beneficial impacts to the transportation and circulation on the Installation.
Utilities		x		Minor long-term indirect impacts would result from the additional amount of solid waste produced during construction activities. However, these impacts would not significantly affect local landfills. Long-term beneficial impacts are expected due to the upgrades to the utility infrastructure.
Hazardous and Toxic Substances		Х		Minor short-term impacts are anticipated. Short-term impacts that would result from construction activities include handling or disposing of hazardous materials. Complying with Fort Huachuca hazardous waste plans and programs and local, state and federal laws and regulations would minimize the potential for adverse impacts.
Human Health and Safety		Х		No significant adverse impacts to human health and safety are expected. Proposed improvements would result in a long-term indirect beneficial impact to human health and safety due to improved wildfire management and prevention activities.

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1 PURPOSE AND NEED

2 1.1 Introduction

This Environmental Assessment (EA) was prepared to analyze the potential for significant
environmental impacts associated with the implementation of the updated Integrated Natural
Resource Management Plan (INRMP), September 2009, and Real Property Master Plan
(RPMP), October 2008, at Fort Huachuca, Arizona.

Fort Huachuca is a military installation encompassing 73,142 acres of land located in the City of
Sierra Vista, Cochise County, Arizona (Figure 1-1). The installation is located approximately
75 miles southeast of Tucson and 63 miles northeast of Nogales, Arizona. The southernmost
boundary of the installation is approximately 8 miles from the international border with Mexico.
Arizona State Highway 90 divides the installation into eastern and western sections.

Fort Huachuca is a Joint Department of Defense Installation supporting approximately 60 deployable and non-deployable tenant organizations. The overall mission of the Fort Huachuca Garrison is to provide equitable, effective and efficient management of the installation to support mission-readiness and execution; enable the well-being of soldiers, civilians and family members; improve the Army's aging infrastructure; and preserve the environment (USACE 2008).

18 **1.2 Purpose and Need for Action**

19 The purpose of the Proposed Action is to implement the updated INRMP at Fort Huachuca in 20 coordination with the Installation's updated RPMP to ensure cohesive, efficient and sustainable 21 management of natural resources and installation lands. This approach is needed to meet Fort 22 Huachuca's goals for environmental stewardship, bring management practices in line with the 23 current mission, and comply with federal regulations. This EA provides a programmatic 24 evaluation of potential impacts that is also broad enough in scope to assist in the evaluation of 25 future unknown actions that are comparable to those projects and activities that are currently 26 identified and evaluated herein.

In accordance with the Sikes Act Improvement Act (SAIA, 16 USC 670 *et seq.*, as amended),
the INRMP provides:

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Figure 1-1. Regional Location Map

1 2	 fish and wildlife management, land management, forest management, and fish and wildlife recreation;
3	 fish and wildlife habitat enhancement or modifications;
4 5	 wetland protection, enhancement, and restoration, where necessary for support of fish, wildlife, or plants;
6	• integration of, and consistency among, the various activities conducted under the plan;
7 8	 establishment of specific natural resource management goals and objectives and time frames for the proposed action;
9 10 11	 sustainable use by the public of natural resources to the extent that the use is not inconsistent with the needs of fish and wildlife resources and does not produce an unacceptable risk to safety or military security;
12	 enforcement of applicable natural resource laws and regulations;
13	 no net loss in the capability of military installation lands to support the military mission;
14	 other activities determined appropriate by the Secretary of the Army.
15 16 17 18 19 20 21	The goals and objectives established in the INRMP ensure natural resource management and conservation efforts protect and enhance natural resources while supporting the military mission. The implementation of the INRMP goals and objectives in coordination with the RPMP allows for effective and efficient development and sustainment of Installation land while promoting sustainable multipurpose use of the natural resources at the Installation. The updated INRMP would supersede the previous INRMP that was prepared for Fort Huachuca in 2001.
22 23 24 25	The RPMP guides the Installation's growth and development and establishes a long-range vision to sustainably support the changing command goals, mission objectives and policies. The RPMP updates the 1997 version of the document and primarily satisfies Army Regulation (AR) 210-20 <i>Real Property Master Planning for Army Installations</i> .
26 27 28	In October 2004, the <i>Army Strategy for the Environment: Sustain the Mission – Secure the Future</i> was released. The new strategy identifies sustainability as a keystone for successful environmental management. Sustainability includes meeting current and future mission

1 requirements, protecting human health while improving the quality of life and enhancing the

2 natural environment. This new strategy transitions the compliance-based environmental

3 program to a mission-oriented program based on the principles of sustainability.

Fort Huachuca is committed to environmental stewardship as an integral part of its mission and
to ensure sustainability and has developed the following goals that incorporate the Army's new
strategy:

- Goal 1: Foster a Sustainability Ethic. Fort Huachuca shall foster an ethic within the
 Army that moves beyond environmental compliance to sustainability.
- 9 Goal 2: Strengthen Army Operations. Fort Huachuca shall strengthen Army
 10 operational capabilities by reducing its environmental footprint through more sustainable
 11 practices.
- Goal 3: Meet Testing, Training, and Mission Requirements. Fort Huachuca shall
 meet current and future training, testing, and other mission requirements by sustaining
 land, air, and water resources.
- Goal 4: Minimize Impacts and Total Ownership Costs. Fort Huachuca shall minimize
 impacts and total ownership costs of Army systems, materiel, facilities, and operations
 by integrating the principles and practices of sustainability.
- Goal 5: Enhance Well-Being. Fort Huachuca shall enhance the well-being of its
 soldiers, civilians, families, neighbors, and communities through leadership in
 sustainability.
- **Goal 6**: **Drive Innovation**. Fort Huachuca shall use innovative technology and the principles of sustainability to meet user needs and anticipated future Army challenges.
- Implementation of the updated INRMP and RPMP is necessary to ensure that the Installationmeets these goals.

25 **1.3 Regulatory Framework**

- 26 The National Environmental Policy Act (NEPA) is the basic national charter for the protection of
- 27 the environment, and it mandates that federal agencies use a systematic, interdisciplinary
- 28 approach to ensure that the impacts of federal actions on the environment are considered
- 29 during the decision making process. The NEPA process is not intended to fulfill the specific

requirements of other environmental statutes and regulations. However, the process is
designed to provide the decision maker with an overview of the major environmental resources
that may be affected, the interrelationship of these components, and potential impacts to the
natural and human environment. Hence, the NEPA process:

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

11 NEPA is intended to be incorporated in the early stages of the decision making process to

- 12 ensure that planning and decisions reflect environmental values, avoid delays later in the
- 13 process, and minimize potential impacts to the natural and human environment. In addition,
- 14 NEPA compliance provides for ongoing evaluation of environmental effects for actions that will
- 15 continue over time.
- In addition to NEPA, this EA has been prepared in compliance with two Department of the Army(DA) regulations that provide guidance for environmental analyses.
- 18 32 Code of Federal Regulation (CFR) Part 651, Environmental Analysis of Army Actions 19 dated 29 March 2002, is designed to provide policy, responsibilities, and procedures for 20 integrating environmental considerations into Army planning and decision making. It 21 establishes criteria for determining which of five review categories a particular action 22 falls into, and thus, what type of environmental document should be prepared. If the 23 Proposed Action is not covered adequately in any existing EA or Environmental Impact 24 Statement (EIS), then a separate NEPA analysis must be completed prior to the 25 commitment of resources (personnel, funding, or equipment) under the Proposed Action.
- AR 200-1, Environmental Protection and Enhancement dated December 2007,
 describes DA responsibilities, policies and procedures to preserve, protect, and restore
 the quality of the environment. The regulation incorporates a wide range of applicable
 statutory and regulatory requirements.

1 **1.4** Use of this Environmental Assessment

- 2 This EA documents and analyzes the potential environmental effects associated with the
- 3 Proposed Action and Alternative, relative to the No Action Alternative. Based on this EA, the
- 4 Army would determine if a Finding of No Significant Impact (FNSI) is appropriate or if a Notice of
- 5 Intent (NOI) to prepare an EIS should be issued before implementing the Fort Huachuca INRMP
- 6 and RPMP. If the Army prepares a FNSI, then the Army may tier specific INRMP and RPMP
- 7 projects and activities that are consistent with this EA off this document in the future.

8 **1.5 Public Participation Opportunities**

- 9 In keeping with established Army policy by providing a transparent and open decision-making
- 10 process, this EA and draft decision document will be made available to applicable federal and
- 11 local agencies and the general public for review and comment. A Notice of Availability (NOA)
- 12 will be published in the Sierra Vista Herald newspaper and a copy of the EA and supporting
- 13 documents will be made available to the general public at the following library and online at
- 14 <u>www.army-nepa.info</u>.

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

- 15 Comments must be postmarked within 30 days from the publishing date of the NOA to be
- 16 considered during the NEPA process. Comments should be submitted to:
- 17 Mr. Wes Culp
- 18 NEPA Coordinator
- 19 U.S. Army Garrison
- 20 ATTN: IMWE-HUA-PWB
- 21 3040 Butler Road, Building 22526
- 22 Fort Huachuca, Arizona 85613-7010
- 23 Telephone: (520) 533-1863
- 24 Upon completion of the 30-day review period and after the Army has considered all comments
- and taken all appropriate actions, a final decision document in the form of a FNSI or a NOI to
- 26 complete an EIS will be issued.

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2 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

Three alternatives are considered in this EA: Alternative 1 (Proposed Action), which
implements the Fort Huachuca INRMP in coordination with the RPMP using sustainable
management methods; Alternative 2, which implements the INRMP using compliance-based
management methods; and the No Action alternative, which evaluates the status quo and
provides a basis for comparison of impacts. No other reasonable alternatives were
identified.

8 2.1 Alternative 1 (Proposed Action)

9 The Proposed Action, the Army's preferred alternative, involves the implementation of the 10 updated INRMP and RPMP using sustainable management methods. Both the updated 11 INRMP and the RPMP incorporate the Army's sustainability strategy in their goals and 12 objectives (Appendices 1 and 2, respectively). The strategy includes meeting current and 13 future mission requirements, protecting human health while improving the quality of life and 14 enhancing the natural environment.

- 15 The updated INRMP and RPMP are programmatic documents that identify specific
- 16 management goals and objectives for various programs at the Installation. The intent of
- 17 each goal is to be visionary, ideal and general in character and to provide long-term
- 18 guidance in defining the direction and purpose of the program. The objectives provide
- 19 tangible and measurable benchmarks to help meet the program goals. Fully implementing
- 20 both plans, adhering to established goals and objectives, supports the Army's sustainability
- 21 strategy and Fort Huachuca's goals as described in Section 1.2.
- 22 Implementation of the Proposed Action would include an ecosystem management approach
- 23 that not only addresses current short-term goals and objectives for specific resource areas,
- but incorporates long-term and cumulative goals and objectives to ensure a sustainable
- environment for the future. This type of management suggests that over the long-term, the
- 26 ecosystem approach will maintain and improve the sustainability and biological diversity of
- 27 terrestrial and aquatic ecosystems while supporting sustainable economies, human use, and
- the environment required to support the Army mission. A fundamental element of
- 29 sustainability is planning; therefore, by integrating the goals and objectives of the RPMP, the
- 30 Army's environmental program can better adapt to the changes in mission requirements.

1 2.2 Alternative 2

- 2 This alternative would involve the implementation of the updated INRMP and RPMP using
- 3 compliance-based management, rather than sustainable management methods. Goals and
- 4 objectives outlined in both plans would be selected for implementation based on regulatory
- 5 requirement, rather than overall sustainment of the Installation's mission and environment.
- 6 Therefore, activities that are not required by law or regulation, such as recommended
- 7 conservation measures or managing land use for operational efficiency and cost
- 8 effectiveness, would not be carried out. This alternative would limit development would not
- 9 be consistent with the Army's sustainability strategy.

10 2.3 No Action Alternative

11 Council on Environmental Quality (CEQ) regulations require the evaluation of a No Action 12 Alternative, and it is therefore analyzed in this document. Under the No Action Alternative, 13 Fort Huachuca would not implement the updated INRMP or RPMP and would continue 14 current status-quo management practices. The current management practices are 15 becoming outdated and will not support the Army's sustainability strategy. The No Action 16 Alternative would maintain rather than enhance natural resources and mission support 17 capability. This could potentially increase the loss of sustainable training lands over the long 18 term.

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3 AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

2 3.1 Introduction

3 This section describes conditions of and possible impacts to, environmental resources 4 potentially affected by the Proposed Action and alternatives. The description of existing 5 conditions provides a baseline understanding of the resources from which any 6 environmental changes that may result from the implementation of an alternative can be 7 identified and evaluated. Following the existing conditions, potential changes or impacts to 8 the resources are described as environmental consequences. As stated in CEQ Guidelines, 9 40 CFR 1508.14, the "human environment potentially affected" is interpreted 10 comprehensively to include the natural and physical resources and the relationship of 11 people with those resources (CEQ 1978). The term "environment" as used in this EA 12 encompasses all aspects of the physical, biological, social and cultural surroundings. In 13 compliance with guidelines contained in NEPA and CEQ regulations, the description of the 14 affected environment focuses only on those aspects potentially subject to impacts. Finally, 15 cumulative impacts are addressed, as defined by CEQ regulations (40 CFR 1500-1508) as 16 those impacts attributable to the Proposed Action combined with other past, present, or

17 reasonably foreseeable future impacts regardless of the source.

18 3.2 Land Use

19 3.2.1 Affected Environment

20 Fort Huachuca is a military installation located in the City of Sierra Vista, Cochise County,

- 21 Arizona. The Installation has been operated by the U.S. Army Training and Doctrine
- 22 Command (TRADOC) since 1990 and is home to many tenants, including the Network
- 23 Enterprise Technology Command (NETCOM), National Unmanned Aerial Vehicle (UAV)
- 24 Training Center, U.S. Army Intelligence Center and School (USAIC), U.S. Army Electronic
- 25 Proving Ground (USAEPG), Joint Interoperability Test Command (JITC), Intelligence
- 26 Electronic Warfare Test Directorate (IEWTD), U.S. Army Communications Electronic
- 27 Command (CECOM), U.S. Army Garrison and many other smaller tenant organizations.
- 28 The Installation encompasses 73,142 acres, which is divided into the East Reservation
- 29 (28,544 acres) and the West Reservation (44,598 acres) by Arizona State Highway 90. The
- 30 cantonment area (7,760 acres) is primarily located in the West Reservation. The
- 31 cantonment area is divided into thirteen land use categories, as defined by the Technical

1 Manual (TM) 5-803-1, Installation Master Planning Technical Manual, and includes:

- 2 Administrative Facilities; Airfield; Community Facilities; Family Housing; Troop Housing;
- 3 Transient Housing; Industrial; Maintenance and Supply/Storage; Medical Facilities; Open
- 4 Space; Outdoor Recreation; Research, Development and Testing; and Training Areas.
- 5 Airfield and Open Space make up the majority of the cantonment area, accounting for
- 6 25 and 40-percent, respectively.

7 The remaining 65,382 acres outside of the cantonment area are range and training lands 8 that are mostly used for intelligence training and equipment testing. The South and West 9 Ranges are located in the West Reservation. The South Range contains the majority of 10 small arms firing ranges and is used for various training exercises, such as rappelling and 11 land navigation. Some areas of the South Range are restricted for wildlife habitat 12 management and outdoor recreational activities. The West Range is used for tactical 13 training, UAV operations and electronics and communications testing. There are no live-fire 14 ranges located on the West Range. The East Range makes up the East Reservation and 15 contains six training ranges, a demolition range, a tactical assault landing strip, an impact 16 area and seven air operations drop-zones for personnel and equipment. Some areas of the 17 East Range are used for live-fire.

18 Communities surrounding Fort Huachuca that may be directly affected by Installation actions 19 are Cochise County, which includes the cities of Sierra Vista and Huachuca City, and Santa 20 Cruz County. Fort Huachuca is located in the southwestern portion of Cochise County, 21 which is approximately 6,219 square miles and is comprised of diverse topography, climate 22 and ecological communities. Over 90 percent of Cochise County is designated as rural area 23 and agriculture remains the dominant land use (JLUS 2007). Although these rural areas 24 have the potential for future development, there are other areas of the county that have 25 been specifically identified for future development. Areas of urban growth are located 26 adjacent to Fort Huachuca along the southwestern portion of the Installation's border and 27 west of the Installation. Community growth areas, which are rural areas transitioning into 28 urban areas, are located near the southwestern Fort boundary south of Sierra Vista and 29 near the East Range (JLUS 2007). Land use and development for Cochise County is 30 guided by the Cochise County Comprehensive Plan and Zoning and Subdivision 31 ordinances.

1 Sierra Vista is the largest city in Cochise County, encompassing 139 square miles, including 2 the 119 square miles that make up Fort Huachuca. Outside the Installation, Sierra Vista is 3 urbanized and is near complete build-out. The City of Sierra Vista and Cochise County 4 signed a Joint Planning Agreement in 2002 and incorporated it into the City's Vista 2020 5 General Plan which guides future development within the City (JLUS 2007). Huachuca City 6 is located in southeast Cochise County and borders Fort Huachuca to the north and east. 7 Multiple subdivisions are planned for Huachuca City (JLUS 2007). The County of Santa 8 Cruz is located to the west of Fort Huachuca and is the smallest county in Arizona. Overall, 9 development in the county has mostly been along the Santa Cruz River and development 10 trends indicate that future development will be limited, leaving most of the County as open 11 space (JLUS 2007). The Coronado National Forest is located to the west and south of the 12 Installation.

13 A Joint Land Use Study (JLUS) was developed through a collaborative effort between Fort 14 Huachuca, local municipalities, community groups and other stakeholders and was finalized 15 in June 2007. The purpose of the JLUS is to facilitate the implementation of compatible land 16 uses in the areas critical to the mission and operation of the Installation through a 17 cooperative program of affected jurisdictions in Cochise and Santa Cruz counties that have 18 the authority to implement land use regulations, along with Fort Huachuca and other 19 interested parties (JLUS 2007). The JLUS identified operations occurring at the Installation 20 that extend beyond the boundaries of the Fort and into the surrounding communities, 21 including uses of the restricted airspace and the electromagnetic environment that 22 surrounds the Installation.

23 The limited amount of developed land that surrounds the Installation provides an 24 electromagnetic environment that is an unparalleled asset for testing and training operations 25 carried out on the Installation. It is the only U.S. location where aggressive, offensive 26 electronic warfare testing can be conducted and that has a frequency coordination zone 27 protected by federal mandate (JLUS 2007). The restricted airspace surrounding Fort 28 Huachuca is a vital resource for military missions at Fort Huachuca and other military 29 installations in Arizona and also for the aviation needs of other organizations and agencies. 30 The restricted airspace extends well beyond installation boundaries and supports aviation 31 missions associated with Fort Huachuca's Libby Army Airfield (LAAF), approaches to the 32 Hubbard Assault Strip and Unmanned Aerial System (UAS) training (JLUS 2007).

The updated RPMP identifies areas within the Fort's cantonment area that are incompatible
 with surrounding land use. Future development proposed in the RPMP will help correct
 these occurrences.

4 3.2.2 Environmental Consequences

5 <u>Proposed Action</u>

6 The implementation of the Proposed Action would result in a beneficial effect on land use at 7 Fort Huachuca. The updated RPMP includes proposed actions that would result in the 8 arouping of like and compatible land uses on the Installation and allow incompatible land 9 uses to be separated spatially. Updates made to the Land Use Plan, as part of the RPMP, 10 aid in resolving inaccurate land use classifications and realistically define current land use. 11 The majority of future development at Fort Huachuca is confined to the cantonment area, 12 which is already highly developed. All construction and demolition projects will occur well 13 within the Installation boundaries and will not affect land use in surrounding communities.

- 14 Future development may allow an additional need for training activities to occur within the
- 15 restricted airspace and the electromagnetic field surrounding Fort Huachuca. However, the
- 16 RPMP incorporates the Fort Huachuca JLUS into development strategies to ensure that
- 17 impacts resulting from these changes in mission requirements would be minor.
- 18 Projects proposed in the updated INRMP would also improve the condition of land at Fort
- 19 Huachuca. For example, rehabilitation of training lands on the East Range would improve
- 20 training conditions, creating an indirect beneficial impact to land use.

21 <u>Alternative 2</u>

- 22 Implementation of Alternative 2 would result in impacts similar to the Proposed Action.
- 23 However, projects would be completed based on regulatory requirements only and would
- 24 not incorporate the sustainable management practices described in the updated RPMP and
- 25 INRMP. While this would not result in adverse impacts, the beneficial impacts of locating
- 26 compatible land uses adjacent to each other would not occur under Alternative 2.

27 No Action Alternative

- 28 Under the No Action Alternative, current land use would continue at Fort Huachuca. The
- 29 updated RPMP identifies current incompatible land uses in the cantonment area. The No
- 30 Action Alternative would not implement the updated RPMP and therefore would not correct
- 31 the land use incompatibilities. Some new facilities would be anticipated to be constructed as

1 needed; however, the opportunity to improve the compatibility of adjacent land uses and

2 efficiency of facility use within the Installation would be reduced in the absence of the use of

3 the RPMP.

4 <u>Cumulative Impacts</u>

5 The Fort Huachuca JLUS was completed in 2007. The purpose of the JLUS is to facilitate 6 the implementation of land uses at Fort Huachuca and surrounding areas that are 7 compatible with military missions and local community needs. Although JLUS strategies are 8 incorporated into the updated RPMP, the JLUS is independent of the Proposed Action and 9 alternatives. Since the JLUS will likely be implemented regardless of the alternative 10 implemented as a result of this analysis, no cumulative impacts related to incompatible land 11 use are anticipated to occur.

12 3.3 Topography, Geology and Soils

13 3.3.1 Affected Environment

14 <u>Topography</u>

15 Fort Huachuca is located in the Mexican highland section of the Basin and Range

16 Physiographic Province. Topography of the Installation is depicted in Figure 3-1. The

17 landscape consists of isolated mountain ranges and broad, relatively flat valleys or basins.

18 The mountains are of fault-block origin and linear orientation and range from Precambrian to

19 Cretaceous time periods. The Huachuca Mountains, which trend northwest to southeast,

20 run through parts of Fort Huachuca while the remainder lie southwest of the Installation and

- 21 the Whetstone Mountains are situated northwest of Fort Huachuca on the north side of the
- 22 Babocomari River (USACE 2008). Elevations at Fort Huachuca range from approximately
- 23 3,925 feet above mean sea level (amsl) in the northeast corner of the East Reservation near
- 24 the San Pedro River to about 8,625 feet amsl at the crest of Sheelite Canyon in the
- 25 Huachuca Mountains. Within the cantonment area the elevation is approximately 5,050 feet
- amsl. Steep slopes in the Western Reservation transition to gradual slopes toward the San
- 27 Pedro River east of the Installation (USACE 2008).
- 28 This part of Arizona experiences periodic heavy rains that create dry washes known locally
- as arroyos. The cantonment area also is relatively flat and has a slope of roughly two
- 30 percent, but this area is surrounded by foothills to the west with slopes of 35 degrees and
- 31 mountains beyond the foothills with slopes over 50 degrees. Deeply incised ephemeral



Figure 3-1 Topography of Fort Huachuca

1 stream beds flow out of the mountains and across the cantonment area toward the San

2 Pedro River and Babocomari River (USACE 2008).

3 <u>Geology</u>

4 The unconsolidated and semi-consolidated sediments of the Upper San Pedro River Basin 5 (USPB) consist of three layers. The lowest unit is a thick, cemented conglomerate (Pantano 6 Formation) that is overlain by the lower basin fill unit, composed of weakly to strongly 7 cemented layers of interbedded sandy clay, silty sand, and sandy gravel. This layer is 8 approximately 235 feet thick in the Fort Huachuca well field. The upper basin fill unit in the 9 vicinity of the Fort consists of very permeable, flat-lying layers of weakly compacted clay, 10 gravel, sand, and silt of middle to late Pleistocene age that is approximately 650 feet thick. 11 When combined, the upper and lower basin fill units form the USPB's principal groundwater 12 reservoir. The floodplain alluvium overlying the upper basin fill in the San Pedro River 13 Valley is composed of highly permeable unconsolidated gravel, sand, and silt. Although 14 limited in extent, the alluvium seems to play an important role in sustaining the flow of the 15 Upper San Pedro River (USAGFH 2004).

- 16 The Huachuca Mountains along the southwestern edge of the Installation are comprised 17 primarily of granitoid and sedimentary rocks. Further to the west, the composition of the
- 18 Huachuca Mountains consists of sedimentary rocks with volcanic units (ADWR 2005).
- The Huachuca fault zone occurs just west of the San Pedro River between the International Border and Arizona State Highway 90. The most recent rupture associated with this fault occurred 100,000 to 200,000 years ago. The fault displaces lower and middle Pleistocene alluvial-fan deposits, but the upper Pleistocene and Holocene deposits are not faulted (Pearthree 1996).
- 24 <u>Soils</u>

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

- 29 The Soil Survey of Fort Huachuca (NRCS 1997) characterizes the types of soils that occur
- 30 at the installation, locations of the soil types, and potential constraints. This characterization
- 31 classifies soils into one of four groups (Hydrologic Soil Groups A, B, C, and D) based upon



Figure 3-2 Soils of Fort Huachuca

1 infiltration capacity and ability to transmit water through them. Group D soils types have 2 very slow infiltration rates when saturated and have an extremely low water transmission 3 rate due to high percentages of clays, claypan or clay layers near the surface, or impervious 4 bedrock near the surface. Group C soil types have moderate to slow infiltration rates when 5 thoroughly wetted and slow water transmission rates. Storm-related runoff and stream flow 6 are likely to occur with both Group C and D soil types. Conversely, Group A and B soil 7 types have a high to medium (respectively) infiltration capability and water transmission 8 rates. Fort Huachuca is dominated by soils classified in Group D with some types occurring 9 in the Group C category, particularly on the South and West Ranges, while some of the East 10 Range soils are classified as Group B and Group C (NRCS 2009b).

11 Many soils in the hilly and mountainous areas, particularly on the South and West Ranges, 12 are shallow with steep slopes; these soils tend to have a low available water capacity and 13 are susceptible to erosion. The high sodium and gypsum contents of many soils on the East 14 Range make these soils subject to gully erosion and piping; they also are very corrosive to 15 concrete and steel. The soil of the cantonment area consists of alluvial fan soils. Almost 16 one-quarter of the post land area has deep red clay soils that have slow permeability and 17 tend to be poorly drained. They become very slippery when wet and are susceptible to 18 compaction. Other properties of soils on the Installation influencing land use and 19 management are gravely or rocky soils, soils with hard pans and deep, droughty, sandy 20 soils (USAGFH 2004).

Based on soil characteristics, areas most suitable on Fort Huachuca for development occur on the western half of the East Range, eastern portions of the South Range and pockets just west and north of the cantonment area on the West Range. The majority of soil types found within the Installation and the cantonment area present challenges to development. Though development is not restricted in these areas due to soil type, the presence of unsuitable soils increases the cost of construction in these areas (USACE 2008).

The Fort actively takes measures to reduce the effects of erosion on the Installation. Some of the practices to promote grass establishment include mesquite mastication, upland revegetation, the placement of gabions and erosion control structures, prohibiting vehicle traffic off of designated roads, limiting operations during periods of heavy rains and wet soils and the retirement of unnecessary roads and fire breaks. All construction disturbances in excess of one acre require a Storm Water Pollution Prevention Plan (SWPPP). Most plan

1 components include silt fencing, water bars, limiting operations during periods of heavy rain 2 and wet soil, and other best management practices. In addition, soils mapping, plant 3 inventories and cooperative efforts with other federal land managers and the Natural 4 Resource Conservation Service (NRCS) assist in monitoring and developing improved 5 conditions across the Installation. While erosion control is a concern in all areas of the Fort, 6 special emphasis is placed on the East Range, as this area is more prone to erosion due to 7 soil properties and less existing vegetative ground cover. Erosion control projects help lower sediment loads, provide recharge, reduce velocity of stormwater flows and protect 8 9 archaeological sites on the East Range (USAIC & FH 2006b).

10 3.3.2 Environmental Consequences

11 Proposed Action

12 No impact to topography, geology, or prime and unique farmland is anticipated to occur as a

13 result of implementing the updated INRMP and RPMP. Some minor leveling and earthwork

14 would occur for redevelopment and construction associated with the RPMP, but this

15 earthwork would not affect the topography of the area.

16 According to the Farmland Protection Policy Act (FPPA) (7 United States Code [U.S.C.] 17 4201), "Prime Farmland is land that has the best combination of physical and chemical 18 characteristics for producing food, feed, fiber, forage, oilseed and other agricultural crops 19 with minimum inputs of fuel, fertilizer, pesticides and labor, and without intolerable soil 20 erosion, as determined by the Secretary. Prime farmland includes land that possesses the 21 above characteristics but is being used currently to produce livestock and timber. It does 22 not include land already in or committed to urban development or water storage." Further, 23 construction for national defense purposes is not subject to the FPPA (NRCS 2009a). The 24 implementation of the updated INRMP and RPMP would not adversely affect prime or 25 unique farmland occurring off the installation.

The updated INRMP provides numerous elements addressing the control and management of erosion, both independently and as an element of other resource management measures (such as wildland fire management, biological resources and water conservation measures). Erosion control, particularly on the East Range where vegetation is more limited and soils are highly prone to erosion, continues to be a primary focus in the INRMP, and these measures would be implemented to promote sustainable use of the land with regards to this resource. The Fort would proactively implement erosion control measures such as

1 vegetation mastication and native grass and upland seeding to promote grass establishment 2 and the use and maintenance of retention structures and gabions. Trails, fire breaks and 3 helipads would be rehabilitated and maintained and operations would be limited during 4 times of heavy rains and wet soils to reduce erosion concerns in these locations. The 5 prohibition of vehicle use off designated roads would also continue. The Proposed Action 6 would include monitoring of erosion on the Installation and the use of Geographic 7 Information Systems (GIS) to track and identify and characterize erosion that is occurring to 8 improve the understanding and management of soil resources and to assist in decision-9 making processes.

10 Prescribed burns would continue to occur under the Proposed Action. Prescribed burns are 11 far less intense than wildfires and allow the fuel load to be reduced without changing the 12 physical characteristics of the soil (ability to absorb water and a loss of productivity). By 13 minimizing the potential for a hotter, uncontrolled fire to occur, the existing soil 14 characteristics will be better maintained. Erosion immediately following burns is increased 15 due to reduced vegetation to stabilize the soil. Best management practices (BMPs) would 16 be used to minimize erosion during and following prescription burns and wildfires (USAIC & 17 FH 2006a, USFS 2009). With the implementation of BMPs to reduce soil erosion, the 18 implementation of fire management and prescription burns would have an indirect positive 19 impact on soil resources by protecting them from the deleterious effects of a catastrophic 20 fire.

21 Erosion control associated with the implementation of the RPMP would also occur under this 22 alternative. New facilities and construction would incorporate sustainable practices to 23 minimize potential for erosion both during construction and for the life of the facility. All 24 construction projects in excess of one acre of land disturbance would comply with an 25 approved SWPPP as required by the National Pollutant Discharge Elimination System 26 (NPDES). Most plan components would include silt fencing, water bars and other BMPs. 27 The Proposed Action would include the development and refinement of the BMPs used to 28 ensure the latest technology and tools are being implemented. Revegetation of disturbed 29 areas at the conclusion of construction would help restore soil stability and reduce the 30 potential for long-term impacts. The long-term control of stormwater through both controlled 31 conveyance and retention would be incorporated into all new facilities. All new construction 32 would comply with the Department of Public Works Stormwater Mitigation Memorandum, 33 which requires that all new facilities mitigate potential flooding and erosion and provide safe

and efficient collection and control of stormwater at the site of development. Some of the
measures included in this memorandum include the use of landscaped stormwater
retention/detention areas, the capture of rain water for landscape irrigation, and the use of
pervious pavement or other permeable surfaces for parking areas and walkways.

5 The implementation of the Proposed Action is anticipated to result in long-term beneficial 6 effects on soil resources. Some minor short-term adverse impacts would be associated with 7 construction activities related to the implementation of the RPMP and in areas within the 8 Installation where unanticipated erosion may occur. The potential for unanticipated erosion 9 to occur would decrease as monitoring and tracking of erosion on the Installation improves. 10 Potential adverse impacts are anticipated to be minor in severity and context.

11 <u>Alternative 2</u>

12 As with the Proposed Action, no impact to topography, geology, or prime and unique 13 farmland is anticipated to occur as a result of implementing Alternative 2. Under this 14 alternative, erosion control measures would be implemented as required by regulations and 15 control measures would primarily be implemented to protect special-status species and their 16 habitat in compliance with the 2007 Biological Opinion (BO) (USFWS 2007b) and the 17 Endangered Species Act (ESA), to protect wetlands as required by during construction as 18 required by NPDES and the Clean Water Act (CWA) and in general compliance with the 19 CWA. Under AR 200-1, the Fort is required to manage soil resources of the Installation as 20 directed in the INRMP. Measures identified in the regulation that must be met include 21 limiting soil erosion from water within limits defined by NRCS soil surveys, limiting sediment 22 entering wetlands and waterways within compliance limits, minimizing land use soil impacts 23 by locating physically intensive uses on least erodible soils and timing intensive mission 24 operations with weather to minimize impacts and identifying and rehabilitating land disturbed 25 by operations and real property management activities (DA 2007).

Under this alternative, the Fort would implement the portions of the INRMP soil conservation and erosion control elements that best meet these legal requirements. In doing so, the Installation would remain in legal compliance with these requirements, but there is a potential for erosion control efforts to be reactionary and piecemeal, only occurring once problems arise. Fire management would continue to be performed as described in the Proposed Action. BMPs would be implemented during and following prescribed burns and wildfires to minimize erosion. Fire-related impacts would be the same under Alternative 2 as
 described for the Proposed Action.

Construction associated with the implementation of the RPMP would result in some ground
disturbance, increasing the potential for erosion to occur. Regulations would require
compliance with NPDES and the implementation of a SWPPP in most cases (disturbances
greater than one acre), which would reduce the erosion potential. Revegetation of disturbed
areas would help to stabilize the soil following construction. As with the Proposed Action,
measures required by the Storm Water mitigation memorandum would be implemented
under Alternative 2.

10 Some long-term impacts, both beneficial and adverse, are anticipated to occur under 11 Alternative 2. Some of the elements that would be implemented to manage erosion, such 12 as limiting the season and location of intensive land uses, would be proactive, as would the 13 erosion-minimizing measures required by the BO for some areas supporting special-status 14 species. These actions would result in beneficial effects on soil resources. Conversely, 15 other elements, such as monitoring sediment load entering waterways or wetlands and 16 taking action when thresholds are approached or met would be more reactionary, allowing 17 for some level of deterioration to occur before initiating control measures. While there would 18 be a mix of impacts, neither the severity nor the context is anticipated to be significant. 19 Construction-related impacts would be temporary and would also be minor in severity and 20 context.

21 No Action Alternative

No impact to topography, geology, or prime and unique farmland would occur under the NoAction Alternative as describe in the Proposed Action.

24 Under the No Action Alternative, the Fort would continue to implement the existing programs

to control erosion on the Installation. While technically operating under the 2001 INRMP,

- 26 the Fort is proactively implementing measures that exceed the former INRMP's objectives,
- 27 many of which are driven by the 2007 BO. Some of the measures described in the
- 28 Proposed Action are currently being implemented and would continue to be used; however,
- 29 the No Action Alternative is operating in a somewhat reactive manner as the INRMP
- 30 directing natural resource management was not developed based on sustainable practices.
- 31 As a result, measures for controlling erosion are often resource specific (e.g. protection of a

special-status species such as the Huachuca water umbel) or reactive (reinforcing an area
 where erosion may undercut a road).

Impacts associated with the implementation of the RPMP as described in the Proposed Action would not occur under the No Action Alternative. Some development would be anticipated to occur as needed on the Installation. Impacts to soils associated with this construction would be the same as those described for construction under the Proposed Action but would be anticipated to be at a reduced scale due to fewer construction projects occurring. The requirements identified in the Storm Water Mitigation Memorandum would be complied with under the No Action Alternative.

10 Fire management would continue to be performed as described in the Proposed Action.

11 BMPs would be implemented during and following prescribed burns and wildfires to

12 minimize erosion. Impacts would be the same under the No Action Alternative as described

13 for the Proposed Action.

14 This alternative is anticipated to result in beneficial long-term impacts. The actions being 15 taken to minimize potential and mitigate existing erosion are occurring, resulting in long-term 16 beneficial impacts. The somewhat reactionary framework in which erosion control is 17 occurring is resulting in short-term adverse impacts. Erosion is occurring and continues until 18 measures to mitigate the problem can be implemented. Because this alternative does not 19 modify the approach or implement monitoring and the use of GIS to better understand 20 erosion and its processes, this impact is anticipated to continue to occur. While individual 21 areas of erosion are temporary, these occurrences are anticipated to continue more 22 frequently than under the Proposed Action. Minor short-term construction related impacts 23 would occur. BMPs and compliance with an approved SWPPP would minimize the impact. 24 No long-term impacts would be anticipated as new projects would be designed to 25 accommodate stormwater discharges during operation. Construction-related impacts would 26 be temporary and would also be minor in severity and context.

27 <u>Cumulative Impacts</u>

- 28 The potential impacts to soil resources associated with all the alternatives are generally
- 29 anticipated to be beneficial with adverse impacts being temporary. Erosion control
- 30 measures identified in the INRMP and the use of BMPs during construction related to the
- 31 RPMP would help ensure the stability of soils throughout the Installation. The Proposed
- 32 Action is anticipated to result in improved levels of erosion control and would not contribute

1 to adverse cumulative effects. The more limited scope of Alternative 2 would result in a 2 greater level of adverse impacts due to erosion. This erosion combined with other erosion 3 that is occurring on neighboring lands adversely affects the water quality along the San 4 Pedro River and in other areas within the Sierra Vista subwatershed. However, 5 Alternative 2 is managing erosion that affects special-status species as directed by the 6 2007 BO. Given the very limited level of impact and the measures taken to ensure the 7 habitat health of the special-status species, the level of cumulative impact is anticipated to 8 be less than significant. The No Action Alternative would have less of a contribution to 9 cumulative impacts than Alternative 2. Monitoring and management practices are in place 10 to ensure that erosion-related impacts to special-status species are minimized. Cumulative 11 impacts under the No Action Alternative would also be less than significant.

12 3.4 Hydrology and Water Resources

13 3.4.1 Affected Environment

14 Floodplains

Floodplains within Fort Huachuca are not represented on Federal Emergency Management
 Agency (FEMA) maps. However, available data indicates that a network of floodplains

17 surrounds the main developed area within the cantonment area. Most of the floodplains are

18 located in open space, training areas, or recreation areas. However, as many as

19 80 buildings on the Installation may be within a floodplain (USACE 2008). The RPMP

20 identifies the need for an updated study and delineation of floodplains so that appropriate

21 avoidance and mitigation measures can be taken to prevent issues with developing the land

22 within the floodplain.

23 Groundwater

- 24 The Arizona Department of Water Resources (ADWR) has divided the USPB into
- 25 subwatersheds to better define and manage available water resources. Fort Huachuca,
- 26 Sierra Vista and most of the San Pedro Riparian National Conservation Area (SPRNCA)
- 27 occur within the Sierra Vista subwatershed. The limits of the subwatershed are the
- 28 International Border on the south, Mule Mountains on the east, Huachuca and Mustang
- 29 mountains on the west and State Route 82 on the north (USAGFH 2004).
- 30 Two aquifers provide groundwater within the USPB, the regional and the floodplain aquifers.
- 31 The regional aquifer is located within the upper and lower basin fill and to a lesser extent the

1 Pantano Formation. The floodplain aquifer is located within the lower basin-fill unit. The

- 2 floodplain aquifer is generally recharged by stormwater runoff and discharge from the
- 3 regional aquifer. In some reaches of the San Pedro River, recharge occurs through the
- 4 stream channel. Agricultural return flows and underflow across the International Border may
- 5 also recharge the alluvial aquifer (ADWR 1990).

6 Groundwater is believed to move from the valley margins towards the San Pedro River.

- 7 However, an exception to this may occur near Fort Huachuca and Sierra Vista well fields
- 8 where water is believed to flow towards a cone of depression within which drawdowns up to
- 9 75 feet in depth have been reported (Goode and Maddock 2000 in USAIC & FH 2006b).

Groundwater within the USPB is of potable quality. Wells within the basin are used to meet
all the water needs of the communities within the basin, which strains groundwater supplies.
Groundwater level declines between 1990 and 2001 for the Fort Huachuca-Sierra Vista area
have averaged about 0.5 to 0.6 foot per year, while the Fort Huachuca-Huachuca City area
showed a decline between about 0.1 and 0.5 foot per year (ADWR 2005). Potable water
quality and services is addressed in Section 3.12, *Utilities*.

- 16 The declines in groundwater are reported to have had an adverse impact on the San Pedro
- 17 River and the associated riparian habitat this system supports. In an effort to reduce the
- 18 impacts associated with regional groundwater withdrawal, Fort Huachuca has implemented
- 19 a broad spectrum of water conservation, recharge and reuse measures (USAIC & FH
- 20 2006b).
- 21 Artificial aquifer recharge is one component of this conservation program, and in 2005 it
- resulted in the recharge of approximately 426 acre-feet (AF) of treated effluent from the
- 23 Fort's Waste Water Treatment Plant (WWTP) (USAIC & FH 2006b). One AF is equivalent to
- 24 325,851 gallons; to put this volume in perspective, 426 AF is equivalent to 138,812,526
- 25 gallons of treated effluent. Storm water recharge during 2006 was estimated at 185 AF
- 26 (USDI and USPP 2008). The total net effect of all the combined efforts initiated by Fort
- 27 Huachuca has reduced the net groundwater consumption by approximately 2,272 acre-feet
- 28 annually (AFA) or 71 percent since 1989 (USAIC & FH 2006b).
- 29 More efficient water use is also occurring both on the Fort and in the surrounding
- 30 communities. Annual pumping from Fort Huachuca production wells decreased from a high
- 31 of 3,200 AF in 1989 (USAIC & FH 2006b) to a low of approximately 1,159 AF in 2006
1 (USACE 2008), and since 1993, there has been a general decline in groundwater pumping 2 despite a multi-year drought that began in 1999 (USAIC & FH 2006b). More efficient water 3 use has decreased the amount of water used by Sierra Vista from 191 gallons per capita per 4 day (GPCD) in 2000 to 156 GPCD in 2005, which equates to a two percent decrease in pumping (USAIC & FH 2006b). In 2006 the use rate continued to show a decrease at 153 5 6 GPCD (USDI and USPP 2008). Pumping of water for agricultural purposes has decreased 7 by approximately 50 percent from 5,000 AFA in 1985 to 2,500 AFA in 2002 (USAIC & FH 8 2006b).

- 9 Measures that the Fort has implemented to accomplish water efficiency and savings include 10 fixture upgrades (e.g. replacement of high water use plumbing fixtures with low water use 11 fixtures), facility infrastructure removal/consolidation (e.g. demolition of facilities), aggressive 12 leak detection and repair, water conservation education, xeriscaping including the use of 13 artificial turf and replacing turf areas with gravel and implementation of a strict landscaping 14 watering policy in the military family housing area (USFWS 2007b).
- The Fort has entered into agreements and partnerships with other groups and agencies for the purpose of reducing water use in the USPB. Agricultural pumping has decreased as a result of the retirement of agriculture associated with creation of the SPRNCA and through the purchase of conservation easements by Fort Huachuca in partnership with The Nature Conservancy. In addition, Fort Huachuca is an active member of the Upper San Pedro Partnership, a consortium of 21 agencies that collaborates to meet water needs in the region while protecting the San Pedro River (USACE 2008).
- 22 As the use of water on the Fort decreases, the amount of wastewater reaching the Fort's 23 WWTP and ultimately the recharge basins also decreases. This is evident in that recharge 24 in 2005 was 426 AF while it was only 410 AF in 2006 (USACE 2008, USDI and USPP 25 2008). However, during this same time period, the amount of water withdrawn from wells 26 was reduced from 1,400 AF in 2005 to 1,159 AF in 2006. A plan to connect the Fort 27 Huachuca WWTP to the Huachuca City wastewater facility and ultimately almost double the 28 amount of water available for recharge at Fort Huachuca is in the planning and approvals 29 process.
- 30 Conservation and recharge efforts by the Fort are exceeding the goals set. The forecasted
- 31 deficit-reducing yield for 2006 was 8,410 AF and the estimated actual yield for 2006 was
- 32 9,600 AF (USDI and USPP 2008). The most recent report to Congress includes a summary

- 1 table that identifies both the goals for 2006 and the actual performance for a variety of
- 2 aguifer improvement approaches. The portions of the table that represent actions taken by
- 3 Fort Huachuca, Sierra Vista and Cochise County are provided in Table 3-1.
- 4

Table 3-1. Planned and Estimated Actual Yields for 2006 in AFA

		2006 Yield	2006 Yield			
Description	Measure Type	Planned	Actual			
Fort Hua	chuca					
Conservation measures ¹	Conservation	100	415			
Effluent recharge ²	Recharge	640	410			
Storm water detention basins ³	Recharge	120	185			
Cochise County						
Conservation measures ⁴	Conservation	110	110			
Sierra Vista						
Conservation measures ¹	Conservation	290	840			
Improved golf course efficiency		15	15			
Effluent recharge ⁵	Recharge	2,090	2,230			
Storm water detention basins ⁶	Recharge	80	130			
The Nature Conservancy and Fort Huachuca						
Retirement of agricultural pumping ⁷	Conservation	100	0			
Source: USDI and USPP 2008						

5

Source: USDI and USPP 2008.

- 6 7 8 9 1. Yield relative to 2002 baseline of zero. Conservation efforts started earlier than 2002 that continue to provide yields do not contribute to a reported yield because they are already incorporated in the baseline actual wateruse figures. See http://www.usppartnership.com/docs/Sec3212007Rep011309.pdf for information on how calculations were completed and additional information.
- 10 2. Effluent recharge based on the 2007 BO.
- 11 3. Recharge occurring because of stormwater detention basins on Fort Huachuca derived from 2007 BO.
- 12 Estimates in the report were based partially on monitoring data, and therefore the yield is subject to the rainfall in 13 2006.
- 14 4. Conservation yield attributable to Cochise County could not be calculated owing to the large number of small
- 15 unmetered wells. The reported yield of 110 acre feet is attributable to toilet-replacement rebates and assumed 16 savings from code changes. Cochise County undertook various code changes (e.g. hot water on demand, gray
- 17 water plumbing, etc.) that should have yielded water savings but that cannot be quantified owning to lack of
- 18 available metered water-use data.
- 19 5. Recharge values based on data provided to the Arizona Department of Water Resources by the Sierra Vista 20 Public Works Operation Division. Recharge values are based on metered inflows to infiltration basins minus an 21 22 estimate of evaporative loss. Approximately 1,000 acre feet/year in the wastewater treatment and recharge process is not currently accounted for and may recharge the aguifer in addition to the cited amounts.
- 23 6. Recharge occurring because of Sierra Vista's stormwater detention basins for 2006 based on a Sierra Vista
- 24 calculation derived from a Partnership sponsored study of runoff and recharge (Stantec Consulting and
- 25 Geosystems Analysis Inc 2006 in USDI and USPP 2008).
- 26 7. Retirement of irrigated agriculture or other high water-consumption uses by consensual agreement.
- 27 Surface Water
- 28 Fort Huachuca occurs within the Sierra Vista subwatershed of the USPB (U.S. Geological
- 29 Survey [USGS] Cataloging Unit: 15050202). The headwaters of the San Pedro River are
- 30 located in Mexico. The river flows north through Arizona for approximately 100 miles before

converging with the Gila River. The SPRNCA encompasses approximately 40 miles of the
 Upper San Pedro River (USACE 2008). To the north of Fort Huachuca is the Babocomari
 River. The Babocomari River sustains a perennial flow in two reaches totaling twelve miles
 (ADWR 1990). This river drains the Mustang Mountains, Canelo Hills, and the north end of
 the Huachuca Mountains and carries this water to its confluence with the San Pedro River.

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

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

- The alluvial fans south of the Babocomari River Valley within the West Range are dissected
 by three major drainages: Blacktail Canyon, Slaughterhouse Canyon and Huachuca
 Canyon. Within the East Range, the primary drainage is Soldier Creek (Figure 3-3). These
 drainages are intermittent and flow in response to rainfall. Huachuca Canyon Creek serves
 as a major stormwater interceptor for Huachuca Canyon and the Fort's cantonment area
 (USAGFH 2004).
- 26 Measurements of surface water flows in the San Pedro River (Charleston gauge) from 1913
- 27 to 2002 show that flow has decreased more than 60 percent from 57,700 to 22,000 AFA
- 28 (USDI and USPP 2008). Surface flows are seasonal and are most notably affected by near-



Figure 3-3 Surface Waters of Fort Huachuca

- 1 stream groundwater withdrawal more so than weather combined with changes in riparian
- 2 vegetation (Thomas and Pool 2006 in USDI and USPP 2006). In addition, changes in upland
- 3 vegetation from predominantly grassland to shrubland have also been a major factor in surface
- 4 water levels due to declined levels of runoff. Thomas and Pool also noted that groundwater
- 5 pumping from the regional aquifer at a distance from the river was not a major factor in the
- 6 declines in surface flow as this effect was ruled out based on the seasonal change in the
- 7 streamflow and the year-round pumping from the regional aquifer (USDI and USPP 2008).
- 8 However, based on the principals of hydrology, withdrawals from the aquifer will eventually
- 9 result in changes in natural inflows or outflows and the form these changes take will likely
- 10 depend on where in the pumping is occurring (USDI and USPP 2008).

11 Coastal and Marine Resources

12 No coastal or marine resources occur within or near Fort Huachuca.

13 Wild and Scenic Rivers

- 14 The wild and scenic rivers system was created by the Wild and Scenic Rivers Act (16 USC1271
- 15 *et seq.*). No wild or scenic rivers occur within Southern Arizona (Wild and Scenic Rivers 2009).

16 3.4.2 Environmental Consequences

17 Proposed Action

Based on best available data, no impact to floodplains is anticipated. The RPMP identifies that development within the floodplain should be avoided and mitigated if necessary. The INRMP does not include any construction within the floodplain. With mitigation, if necessary (in the case of the RPMP), the Proposed Action is not anticipated to result in direct or indirect impacts on floodplains. No direct or indirect impact to coastal and marine resources or wild and scenic rivers would occur as these resources do not occur within or near Fort Huachuca.

- The Proposed Action includes a number of measures from the INRMP that are designed to improve the surface and groundwater conditions at the Fort and within the SPRNCA. Some of these include monitoring stream flow and groundwater recharge for critical habitat and aquifer protection by USGS as required by the BO and ESA, engaging in cooperative agreements with other groups and agencies including the Upper San Pedro Partnership, groundwater modeling, increasing water conservation, recharge and reuse using methods such as effluent recharge, conservation easements, enhancing stormwater capture and use and other innovative
- 31 approaches. For surface waters, both hardened stream crossings and non-structural stream

bank enhancements are called for, which would protect surface waters from unnatural sediment
loads. Water conservation awareness programs are also identified in the Proposed Action.
Together, these measures would help to enhance the amount of water recharging to the aquifer
and improve the surface water conditions. Impacts to groundwater resources are anticipated be
long-term and beneficial.

Improved groundwater is anticipated to translate into improved surface water conditions on the
San Pedro River. In addition, mastication of mesquite for grass establishment, the upland
revegetation and planting of native riparian species in riparian areas are anticipated to have a
positive effect on the hydrology of the watershed.

10 According to studies compared and evaluated within the Programmatic BA, as construction 11 converts undeveloped areas to impervious surfaces, a higher level of runoff and a decreased 12 amount of evapotranspiration due to decreased vegetation cover occur. This can result in an 13 increased groundwater recharge either through retaining/detaining stormwater runoff or by 14 water reaching portions of the San Pedro River where recharge can occur efficiently. Typically, 15 water demand also increases as a result of increased growth and development, and this 16 demand exceeds any runoff-related recharge increases. However, as required by the 2007 BO, 17 the Fort must offset increased water demand due to increases in population. All new facilities 18 would be constructed using current water conservation practices. While the Proposed Action is 19 not anticipated to result in changes in population, any fluctuations in population that may occur 20 would be offset as required. Therefore, these fluctuations would not adversely affect the 21 aquifers in the subwatershed.

22 The Proposed Action includes the continued use of prescribed burns to control fuel load. 23 Following a fire, there is a higher likelihood of runoff occurring which can result in diminished 24 surface water quality and water quantities may be reduced (USFS 2009). Every prescribed 25 burn will be developed independently and designed and mitigated as necessary to minimize 26 impacts on natural resources, including water quality and quantity. Water use for prescribed 27 burns is already occurring and would continue under the Proposed Action. Minor adverse short-28 term indirect impacts would potentially occur if runoff resulting from decreased vegetation 29 causes temporary changes in water quality. The use of water would not be anticipated to 30 change from current conditions.

1 <u>Alternative 2</u>

As stated in the Proposed Action, no impact to floodplains, coastal and marine resources, or wild and scenic rivers would occur.

4 Alternative 2 would implement many of the measures identified in the Proposed Action. 5 Reducing the demand for water on Fort Huachuca is mandated by the 2007 BO and ESA. 6 Under this alternative, the degree to which these measures are implemented and the particular 7 methods selected would be reduced to meet the minimum water conservation requirement that 8 is mandated. This would result in an adverse impact to water resources. Since a minimum 9 level of water conservation is provided in the BO based on best available data, it is presumed 10 that minimum contributions to the annual water savings in the watershed would result in a less 11 than significant impact. Impacts associated with the continued use of prescribed burns would be 12 anticipated to be the same under Alternative 2 as the Proposed Action, a short-term indirect 13 impact that is less than significant. Prescribed burn-related impacts would be minimized and

14 mitigated during the design of the burn.

15 No Action Alternative

16 As stated in the Proposed Action, no impact to floodplains, coastal and marine resources, or

17 wild and scenic rivers would occur.

18 The water resources impacts associated with the No Action Alternative are anticipated to be

- 19 similar to the Proposed Action with slightly less of a total benefit. Currently the Fort is
- 20 exceeding the goals set for water use reduction and recharge as exemplified in Table 3-1.
- 21 Where the Proposed Action would actively seek new and different methods of conserving and
- recharging water, under this alternative, the existing level of recharge and conservation would
- 23 continue into the future. This would not result in an adverse impact; however, the ultimate result
- 24 of the No Action Alternative would accomplish less to improve the watershed conditions than the
- 25 Proposed Action. As with the other two alternatives, the No Action Alternative would result in
- less than significant short-term indirect impacts due to the continued use of prescribed burns.
- Prescribed burn-related impacts would be minimized and mitigated during the design of theburn.

29 <u>Cumulative Impacts</u>

- 30 No long-term adverse cumulative impacts to water resources are anticipated to occur. The
- 31 potential for short-term water quality changes following a prescribed burn could occur and could

1 combine with other impacts to surface water quality occurring such as erosion. Given the short 2 duration of the added impact, it is unlikely that the effect of the temporary change in water 3 quality would result in any lasting damage to the surface water system or related habitat areas. 4 By controlling the intensity of the burns during a prescribed effort, the fire would be cooler than a 5 catastrophic fire and have less of a potential to change the physical properties of the soil 6 (hydrophobicity and downward movement of organic material in response to intense heat) 7 (USFS 2009). Cumulatively, water quality may decrease in areas downstream from a 8 prescribed burn area, but these impacts would be temporary and rebound as vegetation 9 reestablishes in the burned area and the surface runoff rates return to pre-fire rates.

10 Cumulative impacts are anticipated to be less than significant because of this temporary nature.

11 3.5 Biological Resources

12 3.5.1 Affected Environment

The SPRNCA, established by an Act of Congress in 1988, is managed by the Bureau of Land
Management (BLM) Tucson Field Office. It is the dominant geographic feature in the San Pedro
Basin and is managed for a variety of wildlife, environmental and recreational uses.

16 Management of this area is directed by the San Pedro River Riparian Management Plan and

17 Environmental Impact Statement (BLM 1989), with the purpose of protecting the riparian area

18 and the aquatic wildlife, archaeological, paleontological, scientific, cultural, educational and

19 recreational resources within the authorized boundary of the area. The SPRNCA extends as a

20 publicly owned corridor from the community of Curtis at its north end, to a few miles south of

21 Hereford, immediately north of the Mexican border. The SPRNCA corridor lies as close as one-

- half mile from the northeastern boundary of the Installation and approximately 10 miles separate
- 23 the boundaries of the two federal properties to the south. The SPRNCA is approximately five-
- 24 miles wide at its widest point and encompasses approximately 40 miles of the San Pedro River.

25 <u>Vegetation</u>

- 26 A total of 12 plant communities have been documented on Fort Huachuca. These communities
- 27 vary according to gradient, moisture regime and elevation and include: shrubland, open
- 28 grassland, mesquite-grass savanna, oak-grass savanna, pine woodlands, mesquite woodlands,
- 29 oak woodlands, mixed woodlands, deciduous woodlands, mahogany woodlands, pinyon-juniper
- 30 woodlands and urban and built land (USAIC & FH 2006b). The dominant plant communities at
- 31 Fort Huachuca are: mesquite-grass savannah (14,182 acres), shrubland (12,295 acres) and oak
- 32 woodland (11,509 acres), respectively. Trees occurring in these vegetation types include:

1 evergreen oaks (including Quercus arizonica and Q. emoryi), alligator juniper (Juniperus 2 deppeana) and velvet mesquite (Prosopis velutina). Shrubs generally consist of agaves (Agave 3 palmeri and A. parryi), yuccas (Yucca spp.), sotol (Dasylirion wheeleri), rabbit brush 4 (Chrysothamnus nauseosus), sacahuista (Nolina microcarpa), Schott yucca (Yucca schottil), 5 manzanita (Arctostaphylos patula.), Wright silktassle (Garrya wrightii), skunkbush sumac (Rhus 6 trilobata), Mearn's sumac (Rhus virens) and narrowleaf hoptree (Ptelea angustifolia). Cacti 7 include cholla (Cylindropuntia spp.), prickly pear (Opuntia spp.), pincushion (Mammillaria spp.), 8 hedgehog (Echinocereus spp.) and rainbow cactus (Echinocereus rigidissimus). Common 9 grasses and forbs are muttongrass (Poa fendleriana), sedges (Carex spp.), bouvardia 10 (Bouvardia glaberrima), meadow rue (Thalictrum fendlerii), wild beans (Phaseolus spp.), 11 goosegrass (*Eleusine indica*), wood-sorrel (*Oxalis spp.*), gentian (*Gentiana spp.*), crane's-bill 12 (Geranium spp.), bullgrass (Muhlenbergia emersleyi), deergrass (M. rigens), sideoats grama 13 (Bouteloua curtipendula), pinyon ricegrass (Piptochaetium fimbriatum), prairie junegrass 14 (Koeleria macrantha), plains lovegrass (Eragrostis intermedia), dryland sedge (Carex 15 occidentalis), grama grass (Bouteloua spp.), lovegrass (Eragrostis spp.), multy grass

- 16 (Muhlenbergia spp.) and beggartick (Aristida orcuttiana).
- 17 The federally endangered Huachuca water umbel (Lilaeopsis schaffneriana var. recurva) is
- 18 found in riparian areas at elevations of 4,000 to 6,500 feet amsl at Fort Huachuca and the
- 19 Lemmon fleabane (*Erigeron lemmoii*), a candidate species for federal listing and United States
- 20 Forest Service (USFS) sensitive plant, is found on cliff faces within Scheelite Canyon (EEC
- 21 2002b, EEC 2007, Warren and Reichenbacher 1991).
- 22 <u>Wildlife</u>
- 23 A variety of fauna including mammals, reptiles, birds, fish and invertebrates is present at Fort
- 24 Huachuca. Of the almost 500 species of birds found in southwest Arizona, approximately
- 25 313 species occur on Fort Huachuca (Taylor 1995). Among these birds are the federally
- 26 protected bald eagle (Haliaeetus leucocephalus) and the Mexican spotted owl (Strix occidentalis
- 27 *lucida*) (USAIC & FH 2006). The Apache goshawk (*Accipiter gentilis apache*), a bird species
- that is a likely candidate for protection under the ESA, also occurs on Fort Huachuca
- 29 (Snyder 2000a, 2000b). The Department of Defense (DoD) in corporation with Partners-in-
- 30 Flight (PIF) prepared a management plan for bird species of conservation concern (DoDPIF
- 31 2002). Initially, the focus of bird species of conservation concern was on species that breed in
- 32 temperate North America and winter in the tropics (neotropical migrants) that are in decline.
- 33 The pool of potential species of concern was expanded to include all landbirds breeding in the

continental U.S. (DoDPIF 2004) as well as some aquatic bird species. Lists of bird species of
 conservation concern were prepared by conservation region. Fort Huachuca is in Conservation
 Region 34 (DoDPIF 2006).

4 Breeding birds in the grasslands of Fort Huachuca were determined from the work of Aid 5 (1990). There are no breeding bird surveys from the shrubland and wooded habitats on Fort 6 Huachuca so information from the close by Patagonia North American Breeding Bird Survey 7 (BBS) Route was used. This route traverses mostly shrubland and wooded habitat and surveys 8 were conducted along this route for 29 years from 1968 to 2007 (Sauer et al 2008). Based on 9 these studies, breeding bird species of conservation concern that likely occur in the project area 10 include the grasshopper sparrow (Ammodramus savannarum) and Botteri's sparrow (Aimophila 11 botterii) in grassland areas (Aid 1990). Species of concern that occur in the shrubland habitat in 12 the project area may include Gambel's quail (Callipepla gambelii), ash-throated flycatcher (Myiarchus tyrannulus), Cassin's kingbird (Tyrannus vociferans), Bewick's wren (Thryomanes 13 14 bewickii), phainopepla (Phainopepla nitens), canyon towhee (Pipilo fuscus) and rufous-crowned 15 sparrow (Aimophila cassinii) (Sauer et al. 2008).

16 Large mammals on Fort Huachuca include the Coues white-tailed deer Odocoileus virginianus 17 couesi), desert mule deer (O. hemionus eremicus), pronghorn antelope (Antilocapra 18 americana), collared peccary or javelina (Peccari tajacu), mountain lion (Puma concolor) and 19 black bear (Ursus americanus). Approximately 18 species of reptiles, 18 species of small 20 terrestrial mammals and 18 species of bats have been documented on Fort Huachuca, including 21 the federally endangered lesser long-nosed bat (Leptonycteris curasoae yerbabuenae). Six 22 species of amphibians are found on the Installation which include the federally endangered 23 Sonora tiger salamander (Ambystoma tigrinum stebbinsi), the Huachuca/Canelo population of 24 the Arizona treefrog (*Hyla wrightorum*) (a candidate for federal listing) and one species that is 25 the subject of a Conservation Agreement under the ESA, the Ramsey Canyon leopard frog 26 (Rana subaguavocalis) (Sam Houston State University 1996). Non-native fishes are the only 27 fish species that have been documented on Fort Huachuca since 1893 due to stocking and 28 introductions for recreational fishing. These fishes include rainbow trout (Oncorhynchus 29 mykiss), bullhead (Ameiurus spp.), channel catfish (Ictalurus punctatus), largemouth bass 30 (Micropterus salmoides), bluegill sunfish (Lepomis macrochirus) and redear sunfish 31 (L. microlophis) (Sam Houston State University 1996). Over 180 species of invertebrates have 32 been identified at Fort Huachuca, including the Huachuca springsnail (*Pyrgulopsis thompsoni*),

which is a federal candidate species and an Arizona Wildlife Species of Concern (Bailowitz and
 Upson 1997).

3 Special Status Species

4 The ESA protects federally listed animal and plant species and their critical habitats. The U.S. 5 Fish and Wildlife Service (USFWS) maintains a listing of species that are considered 6 threatened, endangered, proposed, or candidates under the ESA. An endangered species is 7 defined as any species in danger of extinction throughout all or a significant portion of its range. 8 A threatened species is defined as any species likely to become an endangered species in the 9 foreseeable future. Candidate species are those which the USFWS has enough information on 10 file to propose listing as threatened or endangered, but listing has been precluded by other 11 agency priorities. Although Fort Huachuca is not required by the ESA to consider candidate 12 species, AR 200-1 requires the Army to consider candidate species in all actions that may affect 13 them. The Bald and Golden Eagle Protection Act (BGEPA) provides federal protection to bald 14 and golden eagles, including their parts, nests, or eggs. Ten federally protected species have 15 been documented on or near Fort Huachuca and are listed in Table 3-2.

16 17

Table 3-2.	Federally	Protected	Species	Occurring	On or	Near Fo	ort Huachuca

Common Name	Scientific Name	Status
Huachuca water umbel	Lilaeopsis schaffneriana var. recurva	Endangered
Lemmon fleabane	Erigeron lemmonii	Candidate
Bald eagle	Haliaeetus leucocephalus	BGEPA ¹
Mexican spotted owl	Strix occidentalis lucida	Threatened
Yellow-billed cuckoo	Coccyzus americanus	Candidate
Lesser long-nosed bat	Leptonycteris curasoae yerbabuenae	Endangered
Sonora tiger salamander	Ambystoma tigrinum stebbinsi	Endangered
Arizona treefrog ²	Hyla wrightorum	Candidate
Ramsey Canyon leopard frog	Rana subaquavocalis	Conservation Agreement under ESA
Huachuca springsnail	Pyrgulopsis thompsoni	Candidate
Southwestern willow flycatcher ³	Empidonax traillii extimus	Endangered

18¹BGEPA – Federally protected under the Bald and Golden Eagle Protection Act

19²Huachuca/Canelo population

20³Occurs on SPRNCA, but not on Fort Huachuca. It could potentially occur on Fort Huachuca if habitat improves.

1 Huachuca water umbel

The Huachuca water umbel is a federally endangered plant that has been documented along 2 3 the Garden Canyon watershed on Fort Huachuca since 1958 (EEC 2002b, 2007) and, more 4 recently, at Sawmill Spring and within McClure Canyon (Vernadero 2009a). It is identified with 5 bright yellow-green, cylindrical, hollow leaves with no pith and typically borne two or three per 6 node, having septa (thin partitions) at regular intervals (AGFD 1997). It requires elevations of 7 4,000 to 6,500-feet amsl, perennial water, gentle stream gradients, small- to medium-sized 8 drainage areas and mild winters. This species is best adapted to periodic, low-intensity 9 disturbances (Warren et al. 1991b). Approximately 3.8 miles of the Garden Canyon watershed 10 on Fort Huachuca has been designated as critical habitat for this plant species. 11 The Huachuca water umbel was located in the SPRNCA in 1994. Surveys of 31.7 miles of the

designated critical habitat within the SPRNCA in 2001 identified 43 meta-populations, including
17 new locations when compared with BLM records dated 1995-1999 (EEC 2002a). Surveys in

14 2004 documented 30 meta-populations within the SPRNCA. Fourteen of the 30 meta-

15 populations appear to be located at previously documented sites in 2001 (EEC 2005a).

16 Surveys in 2007 documented 28 historic water umbel meta-populations and 12 new

17 meta-populations. The 2007 inventories revealed the continued persistence of the water umbel

18 at some sites, including 14 meta-populations re-documented 2004 and 12 meta-populations

19 re-documented 2001. The water umbel occupancy along the SPRNCA between 2004 and 2007

20 appeared relatively stable (EEC 2008). Surveys in 2008 documented 29 meta-populations, of

21 which 21 were re-documented and 8 were new sightings (Vernadero 2009b).

22 Primary threats to this species include alteration of ground and surface water flows (USFWS

23 1997a) increased soil erosion, reduced water infiltration (Rinne and Neary 1996), stability of

24 perennial water systems (AGFD 1997) and increased rate of invasive plant colonization (EEC

25 2008, Vernadero 2009b).

26 Lemmon fleabane

27 The Lemmon fleabane is a candidate plant species for federal listing. It is a small, flowering,

- 28 prostrate perennial with stems that spread four to eight inches in length. Its daisy-like flowers
- 29 are white or light-purple outer petals and yellow inner petals at the end of leafy branches
- 30 (Warren et al. 1991a). It can be found growing in dense clumps only on vertical cliffs located at
- 31 elevations between 6,300 and 6,600 feet amsl in Scheelite Canyon of the South Range of Fort

Huachuca in the Huachuca Mountains; however, potential habitat may occur elsewhere on Fort
 Huachuca (Warren et al. 1991a and Tandy 1997).

The primary threat to Lemmon fleabane is its vulnerability to the impacts of a single catastrophic event or combinations of localized events, such as drought and wildfire, due to its very specific habitat requirements (USFWS 2008).

6 Bald eagle

7 The bald eagle, formerly protected as endangered and later down listed to threatened under the 8 ESA, is currently federally protected under the BGEPA. This large raptor is dark brown in color 9 with white head and tail feathers. Bald eagles inhabit estuaries, large lakes, reservoirs and 10 major rivers. Preferred habitat for nesting is near the coast, large lakes and along rivers in large 11 tree tops located in areas with little or no human populations. Roosting occurs in trees that 12 extend above the forest canopy which provide a protected microclimate for resting eagles. The 13 diet of bald eagles consists of fish, waterbirds, small mammals and mammal carcasses 14 (Stalmaster 1987). Only one record of a bald eagle present at Fort Huachuca is known. The 15 individual bird was documented flying over the West Range in February 1998. Bald eagle use 16 of Fort Huachuca is expected to be very low because suitable nesting or winter concentration 17 habitat is not present on the Fort.

The primary threats to bald eagles include illegal shooting and disturbance/loss of habitat. Other threats include electrocution on power lines, starvation, or poisoning due to scavenging on an animal that escaped a hunter (lead poisoning) or ingested poison.

21 Mexican spotted owl

22 The Mexican spotted owl is a federally threatened bird species that is described as an ashy-23 chestnut brown color with white and brown spots on its abdomen, back and head and dark-24 colored eyes. Mexican spotted owls have been documented in the southwestern portion of Fort 25 Huachuca in the Huachuca Mountains in rocky canyons or in several forest types at elevations 26 ranging from 3,690 to 9,610 feet amsl. Below 4,264 feet, spotted owls are found in steep 27 canyons containing cliffs with stands of live oak, Mexican pine and broad-leaved riparian 28 vegetation (Ganey and Balda 1989). Above 5,904 feet, spotted owls are found in mixed conifer 29 and pine-oak forests. Mid-elevation observations included sites with Arizona cypress (USFWS 1995b). Nest sites are described as Madrean pine-oak woodland with montane 30

31 conifer species and some broadleaf riparian component (Duncan 1991).

1 Although the USFWS has designated 8.6 million acres on Federal lands in Arizona, New 2 Mexico, Colorado and Utah as critical habitat for this species, no critical habitat is currently 3 listed on Fort Huachuca. According the Recovery Plan for this species, Fort Huachuca lies 4 within the Basin and Range-West Recovery Unit, which includes most of southern Arizona and 5 a small portion of southwestern New Mexico, (USFWS 1995b). Eleven Protected Activity 6 Centers (PACs), which are areas of no less than 600 acres that enclose the best owl habitat in 7 the area, with the nest or activity center near the center, are located within Fort Huachuca 8 boundaries. These PACs are located on approximately 6,729 acres in higher elevations of the 9 Fort within the Huachuca Mountains.

10 Threats to the Mexican spotted owl include actions that create forest openings, remove mature 11 or old-growth forests and human activity (hiking, shooting, off-road vehicle activity) in or near 12 nesting, roosting, or foraging sites. Trampling, vegetation removal, or increased fire adversely 13 affects the Mexican spotted owl's habitat; thereby indirectly affecting the Mexican spotted owl.

14 Yellow-billed cuckoo

15 The vellow-billed cuckoo is a candidate bird species for federal protection under the ESA, a 16 Wildlife Species of Concern in Arizona and is listed as a Sensitive Species by the USFS, 17 Region 3 (AGFD 1998). Adults are described as having a long tail, with brown on the dorsal 18 surfaces and black-and-white below and a black curved bill with yellow especially on the lower 19 portion. There is also a yellow ring around the eye. This bird species nests in mature Sonoran 20 riparian deciduous forest, cottonwood-willow riparian forests, Sonoran riparian scrub and in 21 mature mesquite bosques (Corman and Magill 2000). The only record of yellow billed cuckoo 22 on Fort Huachuca occurred in 2001, when a single male cuckoo was heard calling at Middle 23 Garden Canyon Pond during Huachuca water umbel surveys (USAIC & FH 2006). Although no 24 cuckoo surveys were historically conducted on the Fort, surveys are currently in progress 25 (Daw 2008).

Recent surveys along the San Pedro River have shown that the SPRNCA has the highest
concentration of breeding yellow-billed cuckoos in Arizona and throughout the southwestern
United States (EEC 2001). Thirty-six cuckoos (paired and single), were incidentally detected
during willow flycatcher surveys in the SPRNCA in 2001 (EEC 2002b), 81 were incidentally
detected in 2002 (EEC 2002b), while 47, 24, 34 and 35 were incidentally detected in 2003,
2004, 2005 and 2006, respectively (EEC 2003; 2004, 2005b, 2006). Cuckoos were detected in

all nine survey transects in 2006, compared to eight of the nine in 2005 and seven of the nine in
 2004.

The primary threats to this species are the result of modification to its habitat. These changes
include the loss, degradation and fragmentation of mature cottonwood-willow riparian habitat,
stream diversion, agriculture, urbanization, overgrazing, recreation and invasion of non-native
invasive species.

7 Southwestern willow flycatcher

8 The southwestern willow flycatcher was listed as a federally endangered species in 1995 9 (58 FR 39495) and is designated as a Wildlife Species of Concern in Arizona. The 10 southwestern willow flycatcher is one of four subspecies. It is a neotropical migrant that breeds 11 in the southwestern U.S. from approximately 1 April to 1 September and migrates to Mexico, 12 Central America and possibly northern South America during the non-breeding season (Phillips 13 1948, Unitt 1987, Stiles and Skutch 1989, Peterson 1990, Browning 1993, Ridgely and Tudor 14 1994, Howell and Webb 1995). The flycatcher is a riparian obligate, nesting along rivers, 15 streams and other wetlands where dense growths of willow (Salix sp.), seepwillow (Baccharis 16 sp.), buttonbush (Cephalanthus sp.), boxelder (Acer negundo), saltcedar (Tamarix chinensis), or 17 other plants are present, often with a scattered overstory of cottonwood and/or willow. 18 Few southwestern willow flycatchers nesting attempts have been documented from the upper

19 San Pedro River in recent years. Since 2001, 11 flycatchers, mostly migrants, have been

20 detected within the SPRNCA, with detections occurring in six of the nine surveyed transects

- 21 (EEC 2006).
- 22 Riparian habitat suitable for nesting southwestern willow flycatchers is generally lacking at Fort
- 23 Huachuca. Marginal habitat was reported near Arizona State Highway 90 just north of the main
- gate in 1998 (SAIC 1998) and on-post at Gravel Pit Pond and Middle Garden Canyon Pond.
- 25 These sites were re-evaluated in May 2000 and were reclassified as unsuitable nesting habitat
- 26 based on habitat structure used by the southwestern willow flycatcher for nesting (EEC 2000).
- 27 Two principal factors have resulted in the decline of this species. These include the extensive
- loss, modification and fragmentation of its riparian breeding habitat (Krueper 1993) and brood
- 29 parasitism by the brown-headed cowbird (Molothrus ater) (Sogge et al. 1997).

1 Lesser long-nosed bat

2 The lesser long-nosed bat has been federally listed as endangered since 1988, is designated by 3 Arizona Game and Fish Department (AGFD) as a Wildlife Species of Special Concern and is 4 listed as a Sensitive Species by the USFS, Region 3 (USFS 2000). The lesser long-nosed bat 5 is migratory and is found from southern Arizona and extreme southwestern New Mexico, 6 through western Mexico and south to El Salvador. Lesser long-nosed bats have been 7 consistently recorded at Fort Huachuca from late June through October and as late as 8 November 26 (Sidner 2000). Maximum population counts on the Fort increased from 3,000 in 9 1999-2001 to between 6,000-7,000 during 2002-2003, then jumped to 9,400 in 2004, 14,043 in 10 2005, 14,357 in 2006, and 15,124 in 2007 (Sidner 2006, 2007, 2008).

Fort Huachuca is located within the lesser long-nosed bat migratory corridor, which is used during the southward seasonal movement of post-maternity disbursal of juveniles and adult females. Semidesert grasslands and lower oak woodlands on Fort Huachuca provide critical summer and early fall foraging habitat, enabling bats to the gain the mass critical for survival during migration (Sidner 1996). Pyeatt Cave, Manila Mine and Wren Bridge, located in the west-central portion of Fort Huachuca, are known roost sites (Sidner 1994, 1996, 1999).

17 The lesser long-nosed bat consumes the nectar and pollen of agave flowers and the nectar,

18 pollen and fruit produced by columnar cacti. Palmer's agave exists on the South and West

19 ranges and is the primary food source on Fort Huachuca (Howell and Robinett 1995). The

20 lesser long-nosed bat roosts occur on the West Range; there are no known suitable roost sites

21 on the South and East Ranges. They are known to fly distances up to 38 miles from roost sites

to foraging sites (Dalton et al.1994, USAIC & FH 2006). The two critical resources for the lesser

23 long-nosed bat are suitable day roosts and concentrations of food plants (Fleming 1995).

The primary threats to this species are the disturbance/loss of roost and foraging habitat and thetaking of individual bats during animal control programs.

26 Sonora tiger salamander

27 The Sonora tiger salamander has been listed as a federally endangered species since 1997

28 (USFWS 1997a) and is an Arizona Wildlife Species of Special Concern. They are black, with

29 yellow spots and stripes and may grow up to 13 inches long. Although they may spend the dry

30 season living in crevices, animal burrows and rotted logs, the Sonora tiger salamander ventures

31 out during the rainy season at night, returning to ponds for breeding. Tiger salamanders have

been documented in Upper Garden Canyon Pond and the junction of Sawmill and Garden
 canyons on Fort Huachuca.

Primary threats to the salamander include predation by nonnative fish and bullfrogs, diseases,
catastrophic floods, drought, illegal collecting, species interbreeding, trampling by cattle. In
addition, habitat degradation caused by loss of cover and erosion is a threat to this species

6 (USFWS 2002).

7 Arizona treefrog

8 The Huachuca/Canelo population of the Arizona treefrog has been a candidate for federal listing
9 since 2007 (USFWS 2007a). This species is not listed as an Arizona Species of Concern.

10 The Arizona treefrog is a small (up to 2.25 inches in length) amphibian with a green or bronze 11 back, a dark colored stripe through the eye extending to the rump and a tan colored chin. It 12 breeds in shallow pools, ponds and slow moving streams during and after rains during June, 13 July and August. Breeding typically lasts for only two to three days, after which most frogs 14 leave the breeding habitats. Outside of the breeding habitats, little is known about this species. 15 They have been found in trees as well as on the ground in wet or damp places such as 16 meadows (Rorabaugh 2008). This distinct population is known from Madrean oak woodland 17 and savannah, pine-oak woodland and mixed conifer forest at elevations of approximately 5,000 18 to 8,500 feet amsl (USFWS 2007a). It is estimated that the total breeding habitat for this 19 population is less than 10 acres cumulatively, approximately 30 percent of which occurs on Fort 20 Huachuca. The remaining 70 percent occurring in the Coronado National Forest (USFWS 21 2008).

The most significant threats to the Arizona treefrog are: habitat loss, direct mortality due to catastrophic fire, drought or floods, predation by introduced species and habitat degradation caused by sedimentation and environmental contamination. The effects of these threats are exacerbated by small population sizes and low genetic diversity, as the Huachuca/Canelo population has less than 20 known localities, each with observed breeding populations of 2-30 individuals (USFWS 2007a).

28 Ramsey Canyon leopard frog

29 The Ramsey Canyon leopard frog is a former candidate for federal listing and currently receives

- 30 protection by the State of Arizona as a Wildlife Species of Concern. The species declined from
- 31 96 frogs in 1990 to 26 frogs in 1995 (ESWR 1996) and as a result, the USFWS, The Nature

Conservancy (TNC), AGFD, USFS, a private land owner, and Fort Huachuca developed a five year conservation agreement for the Ramsey Canyon leopard frog on 16 July 1996. This
 agreement was implemented in order to reduce threats to the species, stabilize the species
 population and maintain its habitat. A new conservation agreement was developed in 2007;

5 however, Fort Huachuca is not a signatory on that document (AGFD 2007).

6 The Ramsey Canyon leopard frog occurs only in stock ponds and pools that are 1.0 to 4.3 feet 7 deep in the Huachuca Mountains at elevations 5,400 to 5,700 feet amsl. Plant communities that 8 surround these sites are typically oak woodland or semidesert grassland. This species is limited 9 to artificial ponds in Brown, Ramsey, Miller, Carr and historically Tinker canyons within a 10 3.7-mile radius on the east slope of the Huachuca Mountains (AGFD 2001). In September of 11 1996, the Ramsey Canyon leopard frog was introduced into the Lower Garden Canyon pond; 12 however, this population has since been extirpated due to limited water, exotic bullfrogs and 13 mosquitofish (Gambusia affinis). Surveys conducted from 1994 through 1997 by AGFD did not 14 find any additional populations of the Ramsey Canyon leopard frog outside of Tinker Pond 15 (USAIC & FH 2006), and it has not been observed on Fort Huachuca since Tinker Pond dried 16 out in the early 2000s (Stone 2008).

A major threat to the species is the loss of genetic variation due to small population sizes. In
addition, floods, drought, habitat destruction, disease, introduction of non-native predators and
vandalism threaten the Ramsey Canyon leopard frog.

20 Huachuca Springsnail

The Huachuca springsnail was listed as a candidate species in February 1996. It is also protected by the Arizona Game and Fish Commission under Order 42: Crustaceans and Mollusks (AGFD 2005).

The Huachuca springsnail is a small 0.05 to 0.15 inch long mollusk with a conical-shaped shell with three to five convex whorls. This species occupies the shallow areas of springs and cienegas that are typically marshy that occur within plains grassland, oak and pine-oak woodlands and coniferous forest vegetation communities. These springs contain vegetation, have a slow to moderate flow and have root, wood, or rock substrates. Populations are locally abundant, but suitable habitat is typically very limited.

30 Nine populations of this species are located within the higher elevations in Garden, Sawmill,

31 McClure, Huachuca and Blacktail canyons (USFWS 1997b; AGFD 1993). Potential habitat for

1 the snail on Fort Huachuca exists in the spring outlets, limited aquatic areas of cienegas with a

2 spring source (USFWS 1997b) and in some perennial stream flows below the spring outlet (Tsai

3 et al. 2007).

4 A number of modifications to or destruction of this species' habitat affects its population size.

5 These modifications include habitat destruction by development, water diversions, spring

6 development, recreational use and sedimentation (USFWS 1995a).

7 Habitat for Other Protected Species

8 Habitat is present on Fort Huachuca for seven federally endangered or threatened species

9 including one bird, one reptile, one amphibian, two fishes and two mammals; however, none of

10 these species have been documented on Fort Huachuca. These species include: jaguar

11 (Panthera onca), ocelot (Felis pardalis), Gila topminnow (Poeciliopsis occidentalis), Desert

12 pupfish (Cyprinodon macularius), Northern aplomado falcon (Falco femoralis septentrionalis),

13 Chiricahua leopard frog (Rana chiricahuensis) and New Mexican ridge-nosed rattlesnake

14 (Crotalus willardi obscurus).

15 <u>Wetlands and Aquatic Habitat</u>

16 The U.S. Congress enacted the CWA in 1972 to restore and maintain the chemical, physical 17 and biological integrity of the Nation's waters (33 U.S.C. 1251 et seq.). Section 404 of the CWA 18 delegates jurisdictional authority over wetlands to the U.S. Army Corps of Engineers and the 19 Environmental Protection Agency (EPA). Waters of the U.S. protected by the CWA include 20 rivers, streams, estuaries, as well as most ponds, lakes and wetlands. The Corps of Engineers 21 and the EPA jointly define wetlands as "areas that are inundated or saturated by surface or 22 ground water at a frequency and duration sufficient to support and that under normal 23 circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil 24 conditions". Wetlands on Fort Huachuca are primarily associated with streams and ponds. 25 Fort Huachuca contains 64 acres of wetlands and 770 acres of riparian habitat (USACE 2008).

- 26 Most of the wetlands on Fort Huachuca are palustrine unconsolidated bottom wetlands
- 27 (65 percent) or palustrine emergent wetlands (13 acres). The predominant riparian type is
- 28 emergent alkali sacaton (188 acres). Garden, Huachuca and McClure Canyons support most of
- 29 the riparian habitat at Fort Huachuca.

1 3.5.2 Environmental Consequences

2 Proposed Action

3 Under the Proposed Action, Fort Huachuca would implement the updated INRMP and the 4 RPMP. As a result of implementing these actions, a pro-active approach to the management of 5 biological resources occurring on Fort Huachuca would be implemented that is not only driven 6 by regulations, but is driven by creating and maintaining a sustainable ecosystem that: meets 7 current and future mission requirements, provides for sustainable development, protects human 8 health while improving the quality of life and enhances the natural environment. This approach 9 provides for effective, efficient development and sustainability of Installation land, while 10 promoting sustainable multipurpose use of the natural resources at the Installation. As a result, 11 future development on Fort Huachuca would incorporate the current and future military mission 12 and vision while promoting environmental stewardship. More specifically, the Proposed Action 13 would implement energy efficient building design, water conservation, wise use of land 14 resources through recognition of land use constraints and appropriate future planning, efficient 15 use of developed land, partnerships with other natural resources agencies and organizations, 16 encroachment reduction, adaptive ecosystem management, sustainability measures, 17 cooperative wildlife and wildfire plans, enhancement of habitat, removal of non-native species

- 18 and other measures that would have overall beneficial short- and long-term effects on the
- 19 biological resources at Fort Huachuca.

20 Alternative 2

Under Alternative 2, only measures required to maintain compliance with applicable regulations would be implemented. This approach would be more reactive in scope and could result in a loss of habitat for some protected species as a consequence of a lack of preventative actions such as cooperative agreements, sustainable development, encroachment buffers, habitat restoration and/or enhancement, restoration of native fire regimes and other measures. While having no adverse impact for some species, this alternative would have overall negative shortand long-term effects on most biological resources at Fort Huachuca.

28 No Action Alternative

- 29 Under the No Action Alternative, Fort Huachuca would continue to implement the existing
- 30 INRMP. Although the existing INRMP contains measures that benefit some biological
- 31 resources, it does not contain additional measures such as the Army's Sustainability Strategy or
- 32 updated information concerning biological data, beneficial partnerships and other valuable

1 natural resources management tools. The Army Sustainability program promotes 2 environmentally friendly building practices and procurement, provides a mechanism to detect, 3 assess and correct damage to lands from military training, prevents pollution, reduces operating 4 costs and encourages the use of Compatible Use Buffers to benefit both the military mission 5 and wildlife. Failure to adopt additional programs such as the Army Sustainability Strategy 6 would result in diminished resources for land managers and ultimately negatively affect their 7 programs. Failure to implement the RPMP would result in non-sustainable development, 8 causing inefficient use of both fiscal and natural resources. In summary, implementation of the 9 No Action Alternative would positively benefit some biological resources, while negatively 10 affecting others.

11 Cumulative Impacts

12 Positive cumulative impacts are anticipated to biological resources with the implementation of 13 the Proposed Action. Federally protected and other status species would benefit from habitat 14 restoration and enhancement, removal of non-native species, buffers and cooperative 15 agreements with conservation agencies and organizations. Development would consider 16 environmentally friendly designs that contribute to the sustainability of biological resources. 17 Restoration of native fire regimes would benefit most vegetation communities and assist in the 18 removal of non-native vegetation. Adaptive management strategies would enable natural 19 resources managers to monitor conditions and modify management practices to fit changing 20 conditions or to anticipate changes.

21 3.6 Cultural Resources

22 3.6.1 Affected Environment

23 Cultural resources is a broad term that includes all aspects of human activities, including 24 material remains of the past and the beliefs, traditions, rituals and cultures of the present. As 25 mandated by law, all federal installations and personnel must participate in the preservation and 26 stewardship needs of archaeological and cultural resources and must consider potential impacts 27 to these resources prior to any installation undertaking. Resources include archaeological sites, 28 historic sites, buildings, landscapes and objects that are listed, or eligible to be listed, on the 29 National Register of Historic Places. The Integrated Cultural Resources Plan (ICRMP) for Fort 30 Huachuca, dated July 2008, indicates that 53,414 acres of the Fort has been surveyed for 31 prehistoric and archaeological sites. Surveys have identified 426 archaeological sites,

32 consisting of 3 paleontological sites, 273 prehistoric sites, 84 historic period sites,

1 46 multicomponent sites and 20 undated sites. The "Old Post" of Fort Huachuca is listed in the

- 2 National Register of Historic Places (NRHP) and as a National Historic Landmark (NHL) District.
- 3 The "Old Post" area includes 57 acres and contains 86 buildings, two sites and two structures.
- 4 There are 122 buildings located outside of the NHL that are considered historic. Five sacred
- 5 sites have been identified on Fort Huachuca by federally recognized Indian tribes, including: the
- 6 Garden Canyon Site, the Garden Canyon Pictographs Site, the Rappel Cliffs Rockshelter Site,
- 7 the Apache Flats and the Apache Scout Camp (USAGFH 2007).
- 8 The National Historic Preservation Act (NHPA) of 1966 and AR 200-1 constrain land uses and
 9 development where cultural resources are affected. The Fort Huachuca ICRMP guides the
- 10 Installation's cultural resources management program. Specific guidance and procedures for
- 11 managing and maintaining historic buildings is provided in TM 5-801-1, Historic Preservation
- 12 Administrative Procedures, and TM 5-801-2, Historic Preservation Maintenance Procedures.
- 13 Based on information provided in the 2008 ICRMP, about two-thirds of the Installation has been
- 14 surveyed for cultural resources. Therefore, additional surveys are necessary in some areas.
- 15 Fort Huachuca is steward to an abundance of cultural and archaeological resources.
- 16 Implementation of the ICRMP ensures that current management complies with applicable laws
- 17 and regulations and effectively combines with public interests to promulgate a plan of action that
- 18 sacrifices neither the integrity of the Installation's mission nor that of the archeological and
- 19 cultural resources. Many requirements include consultation with affected parties before a
- 20 planned action, as well as allowing maximum time for treatment efforts, alternative plans, or
- 21 avoidance actions to be implemented. Determination of effects and decisions regarding
- 22 appropriate treatment are specific to individual actions.
- 23 3.6.2 Environmental Consequences

24 Proposed Action

- 25 Implementation of the Proposed Action is not anticipated to adversely affect any historical or
- 26 archaeological resources. All proposed projects would be conducted following the Standard
- 27 Operating Procedures identified in the Fort Huachuca ICRMP. Proposed projects would be
- 28 evaluated on an individual basis to ensure compliance with the NHPA. Any project determined
- 29 to affect known historic or archaeological resources will include appropriate coordination or
- 30 consultation with the State Historic Preservation Office (SHPO), Tribes and other applicable
- 31 agencies and interested parties. Should previously undiscovered archaeological materials be

- encountered during construction or operation, work will cease and the site will be protected until
 an evaluation has been completed.
- 3 Implementation of the Proposed Action would result in long-term beneficial effects. Both the
- 4 updated RPMP and INRMP include projects that would sustainably manage the historic and
- 5 archaeological sites located on Fort Huachuca. Implementing these projects would ensure
- 6 long-term preservation of these resources.

7 <u>Alternative 2</u>

- 8 Implementation of Alternative 2 would not result in any direct adverse impacts to historic or
- 9 archaeological resources. However, some projects within the updated RPMP and INRMP are
- 10 intended to aid in the preservation of these resources, but would not be carried out since there
- 11 is no regulatory requirement. Eliminating those projects may have an indirect adverse effect on
- 12 cultural resources.

13 No Action Alternative

14 Implementation of the No Action Alternative would result in impacts similar to those described in
15 Alternative 2, but in general would provide better protection to cultural resources.

16 Cumulative Impacts

- 17 Fort Huachuca's cultural resources are well preserved and located within Installation
- 18 boundaries, making them inaccessible to the general public and therefore better protected.
- 19 These cultural resources are independent of regional resources outside the Installation and
- 20 therefore no cumulative impacts are expected from the implementation of the Proposed Action
- 21 or alternatives.

22 3.7 Air Quality

23 3.7.1 Affected Environment

- The Southeast Arizona Intrastate Air Quality Control Region, in which Fort Huachuca occurs, is comprised of Cochise, Graham, Greenlee and Santa Cruz counties. This Region generally has
- 26 favorable air quality conditions due to a lack of heavy industry or dense population centers.
- 27 Emissions, both naturally occurring (wildfires and wind over exposed dirt) and from human
- 28 activities (automobiles, aircraft, use of dirt roads), are dispersed by the prevailing winds. As a
- result, most of Cochise County, including the Fort Huachuca-Sierra Vista area, is designated as
- 30 in attainment of the National Ambient Air Quality Standards (NAAQS). Two areas southeast of

1 the Fort, Douglas (50 miles) and Paul Spur (40 miles), are designated as non-attainment areas

- 2 of the NAAQS. Douglas is a maintenance area for sulfur dioxide and both Douglas and Paul
- 3 Spur are classified as moderate non-attainment areas for particulate matter less than
- 4 10 micrometers in diameter (EPA 2009). Trans-border pollution and high winds crossing dirt
- 5 roads and bare agricultural fields are large contributors to the emissions in these areas
- 6 (USAGFH 2004). Since the air quality at Fort Huachuca and in the surrounding area is in
- 7 compliance with federal standards, a conformity analysis is not required.
- 8 In the past, annual emissions of nitrogen oxides (NO_x) and carbon monoxide (CO) have
- 9 exceeded established thresholds for emissions of 100 tons/year as set by Arizona Department
- 10 of Environmental Quality (ADEQ) and the EPA. In 2003, emissions for NO_x were 191 tons/year
- and 135 tons of CO were emitted (USAGFH 2004). In keeping with 40 CFR 70 and Arizona
- 12 Administrative Code Title 18, Chapter 2, the Fort applied for qualification as a Class II synthetic
- 13 minor. The permit was issued in 2006 (AANG 2008). Under this permit, the Fort voluntarily
- 14 limits the use of natural gas fuels and operating hours of engine generator sets to limit
- 15 emissions of NO_x and CO.

Natural gas fuel consumption of most boilers and heaters is restricted to 40 percent of the maximum fuel consumption possible. Under the permit, new units may be added but they must be under 500,000 British thermal units. Most generators on the Fort are used for emergency backup. As such, the EPA limits their use to 500 annual hours of operation each. The Fort has further limited the use of backup generators to 250 annual hours of each to reduce emissions (USAGFH 2004). By limiting emissions to below the threshold levels, the Fort has avoided classification as a Title V source.

23 3.7.2 Environmental Consequences

24 Proposed Action

25 Vehicular and construction equipment emissions would occur during the implementation of both

- the INRMP and the RPMP. Short-term impacts would occur during construction of facilities
- 27 identified in the RPMP. In addition, it will be necessary to heat and cool these new facilities,
- 28 which would result in additional emissions of NO_x and CO over the long term. All new boilers
- 29 and natural gas consumption will be within the acceptable limits of the Class II synthetic minor
- 30 permit. Wood-fired boilers may be used to heat some facilities, but the design would be such
- 31 that emissions would be equal to or less than natural gas boilers. New facilities will be
- 32 constructed to meet Leadership in Energy and Environmental Design (LEED) Silver standards.

This rating system is based on sustainable design and development concepts and assesses the degree to which the design of a building successfully incorporates consideration of matters such as sustainable sites, water efficiency, energy and atmosphere, materials and resources, and indoor environmental quality, thereby increasing the efficiency of the building and minimizing the amount of heating required to operate the facilities.

6 In addition to construction-related impacts the INRMP identifies a number of measures that 7 would result in earth disturbing activities. These measures include construction of retention 8 areas and water recharge basins, trail and fire break maintenance, manual fuel load 9 management, as well as prescribed burns. The development of water retention and recharge 10 areas and the rehabilitation of fire breaks and trails would result in vehicular and construction 11 equipment emissions as well as the generation of particulate matter due to earthmoving 12 activities. Mechanical fuel load management measures would result in the emission of exhaust 13 from hauling and construction equipment and particulate matter resulting from the use of 14 vehicles on unpaved surfaces and the disturbance of the soil. These emissions would occur 15 periodically and would be temporary in nature, discontinuing at the end of the activity. 16 Pollutants that are released would dissipate quickly and are anticipated to be minor in context 17 and intensity.

The greatest source of air pollutants that would be produced under the Proposed Action would result from managing fuel loads, primarily prescribed burns. State and federal rules identify the smoke generated during a wildfire as a natural event and therefore not considered a violation of air quality standards. In contrast, prescribed fires are classified as an active management practice so the smoke generated during such fires is considered an impact on air quality due to the release of both pollutant emissions and haze (USFS 2009).

24 The Fort would ensure that necessary air permits are obtained, that prescribed burns are 25 conducted in compliance with federal, state and local air regulatory statutes and guidelines and 26 that prescribed burning activities are controlled to minimize visibility reduction and adverse 27 smoke effects on Class I areas (Wilderness Areas and National Memorial Parks), public 28 facilities, private lands and other smoke-sensitive areas (USFS 2009). Prescribed burns would 29 occur over time and each burn is expected to be of short duration. This management activity is 30 only conducted when weather conditions are predicted to produce good to excellent smoke 31 dispersal. Impacts associated with prescribed burns are short-term. As the smoke disperses, 32 the emissions are carried from the local air shed (USFS 2009). ADEQ only issues permits to

1 conduct a prescribed fire if conditions are favorable for burning. According to the Fort

2 Huachuca Integrated Wildland Fire Management Plan (IWFMP), mitigation of smoke related

3 impacts caused by prescribed fires will be addressed in the Prescribed Burn Plan format for Fort

4 Huachuca and monitored in accordance with ADEQ regulations." (USAIC & FH 2006a).

An indirect beneficial impact would occur as a result of conducting the prescribed burns as
required by the IWFMP due to reduced emissions than would be released from a wildfire in the
same area. With reduced fuel loads, the likelihood of an intense crown fire that tend to release

8 high amounts of particulate matter would be reduced (USFS 2009).

9 Alternative 2

10 Alternative 2 would have similar impacts to the Proposed Action. The IWFMP and cooperation

11 with other agencies identified in the IWFMP and fire management to protect special-status

12 species under the 2007 BO and ESA would require the use of mechanical fuel load

13 management as well as prescribed burns to minimize the effects of fire on Fort Huachuca.

14 Retention of stormwater and recharge activities are required under the 2007 BO and would

15 therefore occur. RPMP implementation would also occur as needed to sustain the mission.

16 Fire break and trail rehabilitation would not be completed as it would not be required by

17 regulation, therefore the minor amounts of dust and vehicular or construction equipment

18 emissions associated with these activities would not occur. Therefore, construction-related

adverse impacts associated with Alternative 2 are anticipated to be slightly less than the

20 Proposed Action with beneficial impacts associated with reduced likelihood of crown fires and

21 resulting particulate matter occurring. However, failure to maintain these fire protection features

could adversely affect air quality if the ability to fight a wildfire is impeded. This would result in a

short-term adverse indirect impact that is anticipated to be less than significant.

24 No Action Alternative

25 Under the No Action Alternative, the IWFMP would be implemented and manual fuel load

26 management would occur. This alternative would continue the existing fire management

27 practices that include cooperation with other agencies. Under this alternative, there would be

28 less fire break and trail rehabilitation, and the impacts associated with the No Action Alternative

are anticipated to be the same as Alternative 2.

30 Cumulative Impacts

31 While the actions associated with fuel load management and prescribed burns would result in

32 adverse impacts to the air quality, these effects are temporary in nature and thus cannot

1 combine with other past or future actions. It is unlikely that ADEQ would allow several 2 prescribed burns to occur at the same time or at a time when a wildfire is burning, reducing the 3 potential for cumulative impacts. Limited cumulative effects could result from prescribed burns 4 combining with dust from the use of dirt roads or construction activities resulting in minor short-5 term cumulative impacts. Anticipated impacts would be less than significant.

6 3.8 Visual Resources

7 3.8.1 Affected Environment

8 Much of Fort Huachuca consists of open space and areas of natural habitat that provide an 9 aesthetically pleasing landscape from within the Installation and from outside the Installation 10 boundaries. Portions of the open space are used for range and training exercises and some 11 areas are restricted land use areas to maintain wildlife habitat. The developed area of the 12 Installation is primarily located in the cantonment area, where development is guided by the 13 Installation Design Guide to ensure that buildings and structures are uniform in construction and 14 conform to the overall aesthetics of the area. The Historic District of the cantonment area, listed 15 as a National Historic Landmark of the National Register, provides a unique visual resource. 16 The buildings within the Historic District are managed in an attempt to maintain historic integrity.

17 3.8.2 Environmental Consequences

18 Proposed Action

19 Under the Proposed Action, there would be a short-term adverse impact to visual quality within 20 Fort Huachuca due to proposed construction, renovation and demolition projects outlined in the 21 RPMP. However, in time, a long-term beneficial impact to the visual quality within the 22 Installation would occur due to the development of updated structures and the grouping of 23 compatible land uses. During construction, fencing, equipment, staging and debris would 24 dominate the construction and staging areas. This would result in a temporary decrease in the 25 visual experience that is limited in extent. These projects primarily affect the cantonment area, 26 which is already developed.

- 27 The implementation of the INRMP would provide long-term beneficial impacts to visual
- resources. The INRMP would sustainably manage the natural open spaces located on Fort
- 29 Huachuca. Some proposed INRMP actions may result in short-term impacts to visual
- 30 resources, such as prescribed burning. However, these actions would be limited to short
- 31 durations and eventually result in a healthier ecological community. The view of Fort Huachuca

from outside the Installation is somewhat limited in many areas. The available views are
 consistent with the surrounding areas and do not diminish the visual experience of potential
 viewers.

4 Alternative 2

5 Implementation of Alternative 2 would result in impacts similar to those associated with the 6 Proposed Action. Building maintenance and improvements to facilities and land use would be 7 based on regulatory requirements and changing mission requirements. Upgrades and 8 improvements would take place, but without implementing the sustainability approach outlined 9 in the updated RPMP. Management of natural resource area and open spaces would also be 10 driven by regulatory requirements. Therefore, many projects proposed to enhance the visual 11 aesthetics of the Installation based on the desire to create a more sustainable community would 12 not be carried out, resulting in short and long-term adverse impacts to visual resources on the 13 Installation.

14 No Action Alternative

15 Under the No Action Alternative, the buildings that are outdated and in need of repair would take

- 16 longer to replace and/or repair and many incompatible adjacent land uses would remain. Areas
- 17 with high-quality views (open areas, forested areas, mountains) would be maintained in their
- 18 current state. Overall, the visual quality of Fort Huachuca would remain the same but could
- 19 potentially become more degraded over time, resulting in a minor long-term adverse impact.

20 <u>Cumulative Impacts</u>

The view of and from the surrounding areas is limited. The majority of the Installation is bound by undeveloped land. Development on the Installation is primarily confined to the cantonment area, where buildings and structures are consistent with development in the surrounding community. The temporary visual impacts associated with implementing the Proposed Action, even when considered in conjunction with other past, present or foreseeable visual changes to the area would not contribute greatly to a cumulative visual impact.

27 3.9 Noise

28 3.9.1 Affected Environment

29 The degree to which noise will disrupt an area is dependent on the perception of the people

30 living in the affected area. By definition, noise is unwanted sound; when sound interrupts daily

activities such as sleeping or conversation, it becomes noise. Noise is measured in decibels
(dB) and measurements are frequently adjusted to more accurately reflect what the human ear
perceives. These adjusted measurements are taken in A-weighted decibels (dBA). Receptor
sensitivity to noise is greater at night. To reflect this sensitivity, ambient noise measurements
can be adjusted, adding 10 dB to actual measurements between the hours of 10 PM and 7 AM.
This adjusted unit of measurement is called day-night decibel measurement (Ldn) (USAGFH
2000b).

- 8 The primary Department of the Army strategy is to protect humans and animals from
- 9 environmental impacts through land use planning (DA 2007). The RPMP considered sources of
- 10 noise and acceptable noise thresholds when identifying future land uses for the Installation.
- 11 Sources of noise at Fort Huachuca result from construction activities, military and private
- 12 vehicles uses, aircraft operations, weapons discharge and testing, and training activities
- 13 (USACE 2008), as well as natural resource management activities. Construction projects can
- 14 generate noise levels of 80-90 dBA at a distance of 50 feet. If numerous pieces of equipment
- 15 are operating simultaneously, relatively high noise levels can carry several hundred feet.
- 16 Regardless, locations more than 1,000 feet from construction sites seldom experience
- 17 significant noise levels resulting from construction (USACE 2008). Noise generated during
- 18 vegetation mastication is similar to the operation of a piece of construction equipment.

19 3.9.2 Environmental Consequences

20 Proposed Action

21 The implementation of the updated INRMP and the RPMP would have little impact on sensitive 22 noise receptors on or off Fort Huachuca. Construction-related actions within the INRMP have 23 the potential to generate noise. However, these construction activities would be temporary in 24 duration and away from sensitive receptors. Vegetation mastication would primarily occur on 25 the East Range in areas that are distant from sensitive receptors. In addition, these actions 26 would be small in scale and noise generated is anticipated to be attenuated a short distance 27 from the work being performed. Wildlife occurring in the immediate area would likely flush to 28 nearby areas. Minimal impacts would be anticipated due to the limited level of noise and 29 duration.

- 30 Construction projects identified within the RPMP would occur within the cantonment area.
- 31 Construction noise would be perceived by more people given the proximity to schools,

1 residences, administrative land uses. However, the proposed developments identified in the

- 2 RPMP would be constructed over time, minimizing the potential for multiple construction
- 3 projects to occur in the same area simultaneously. Further, many of the proposed development
- 4 projects are located in outlying areas within the cantonment area. Construction would be
- 5 performed during daylight hours when noise tolerance is greatest. The noise impacts
- 6 associated with the implementation of the RPMP are anticipated to be temporary in duration and
- 7 minor in context and intensity.

8 <u>Alternative 2</u>

- 9 Under Alternative 2, some of the construction actions identified for the INRMP and RPMP would
- 10 not be implemented since only projects that are required by regulation would occur. Reduced
- 11 construction would result in the generation of less noise. Therefore, noise impacts associated
- 12 with Alternative 2 would be anticipated to be less than those identified for the Proposed Action.

13 No Action Alternative

- 14 Under the No Action Alternative, the construction associated with the updated INRMP and
- 15 RPMP would not occur. Erosion control-related construction would take place as required
- 16 under the 2001 INRMP, but delays in the timing could occur due to a more reactive approach.
- 17 These delays could require a greater amount of work be performed to correct the problem. This
- 18 type of construction would likely occur on the ranges. Wildlife occurring in the immediate area
- 19 would likely flush to nearby areas. Minimal impacts would be anticipated due to the limited level
- 20 of noise, distance from sensitive receivers and short duration.

21 Cumulative Impacts

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

1 3.10 Socioeconomics and Environmental Justice

2 3.10.1 Affected Environment

Socioeconomic resources are defined as basic attributes associated with the human
environment, primarily population and economic activity. Population encompasses the
magnitude, characteristics and distribution of people, and economic activity refers to terms of
employment distribution, business growth and individual income.

7 Fort Huachuca is located in the City of Sierra Vista, Cochise County, Arizona. Sierra Vista is 8 the largest city in the county with a population in 2000 of 37,775 (U.S. Census 2000) and an 9 estimated population in 2007 of 44,736 (CCCER 2008). U.S. Census 2000 data shows that the 10 total population for Cochise County was 117,755, and has increased to an estimated 137,200 in 11 2007 (CCCER 2008). The Arizona Department of Economic Security predicted an annual 12 growth rate of 2.8 percent within the City of Sierra Vista. However, data collected by the Center 13 for Economic Research at Cochise College showed a slightly lower annual growth rate, most 14 likely caused by the population decline estimated in 2007 (CCCER 2008). Both the City and the 15 County's economy heavily rely on Fort Huachuca. The Installation has historically and is 16 currently the single largest employer in Cochise County. Other major industries in the County 17 include services, retail trade and construction (JLUS 2007). The Town of Huachuca City is also 18 located within Cochise County and is closely tied economically to Fort Huachuca. The U.S. 19 Census 2000 population for the Town is 1,751 and overall population growth between the 2000 20 and 2007 was 4.6 percent (CCCER 2008).

Santa Cruz County, located west of Fort Huachuca, is the smallest county in Arizona with a U.S.
Census 2000 population of 38,381 and 49,907 in 2007 (Arizona Department of Commerce
2009). The City of Nogales, located in Santa Cruz County, is a major point of entry along the
International Border with Mexico. The Department of Homeland Security is the largest employer
in the County, due to its location along the International Border. Tourism and cross-border
commerce contribute largely to the County's economy and communities are recognized for their
natural and scenic beauty and historic landmarks (JLUS 2007).

- 28 According to the Army Stationing and Installation Plan for Fort Huachuca, the Installation had
- 29 14,885 full-time employees as of August 2007. Of that, 67 percent was civilian personnel and
- 30 28 percent enlisted personnel. An additional 3,500 students are at Fort Huachuca for training at
- 31 any given point in time (USACE 2008). Historically, the Installation's population has fluctuated

by about 3,000 personnel to meet changing mission requirements and account for training
 cycles.

The City of Sierra Vista's unemployment rate for the year 2006 averaged 2.8 percent, which is lower than the county rate of 4.7 percent, state rate of 4.2 percent and national rate of 4.6 percent. While some missions will change over time, employment at Fort Huachuca is predicted to remain constant or increase slightly according to Fort Huachuca personnel. In addition, there is expected to be a growth in tenant operations that will allow for additional contract employment at the Installation.

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

15 3.10.2 Environmental Consequences

16 Proposed Action

17 The Proposed Action would not result in any significant socioeconomic or environmental justice

18 impacts. Minor short- and long-term beneficial impacts will result from the increase in

19 construction and renovation activities on the Installation proposed in the updated RPMP.

20 Beneficial impacts to the local economy would result from additional employment opportunities

21 and sales volume from construction activities. There may be additional sales volume from an

22 increase in the number of individuals coming to the Installation for training as they will be using

23 services provided by the surrounding communities. Construction impacts would be temporary

24 and would discontinue at the completion of construction. However, construction projects would

25 be phased out over many years, resulting in a long-term benefit.

26 Implementation of the updated INRMP may also provide short- and long-term beneficial impacts

27 to local community, because some projects may be completed by local businesses. Similarly,

there is a potential for projects to be completed by local college students as part of internship

29 opportunities.

30 The Proposed Action is not expected to result in any changes in population. Neither the

31 implementation of the updated INRMP nor the RPMP would affect the population occurring on

- 1 Fort Huachuca; however, the RPMP would address how changes in population or mission
- 2 requirements would be accommodated on the installation to minimize conflicting adjacent land
- 3 uses.
- 4 There would be no disproportionate adverse environmental or health effects on low income or
- 5 minority populations as a result of the Proposed Action. No environmental justice impacts are
- 6 anticipated.

7 <u>Alternative 2</u>

- 8 Implementation of Alternative 2 would result in impacts similar to those associated with the
- 9 Proposed Action. However, since projects will be completed based solely on compliance-based
- 10 requirements, there is the potential for less work to be generated. Fewer projects would result
- 11 in a smaller beneficial impact to the local economy.

12 No Action Alternative

- 13 Implementation of the No Action Alternative would result in impacts similar to those associated
- 14 with the Proposed Action. However, continuing the status quo could result in fewer projects
- 15 being carried out and longer timeframes for project completion, resulting in a smaller beneficial
- 16 impact to the local economy.

17 <u>Cumulative Impacts</u>

18 Implementation of the Proposed Action involves a multi-year phased project approach, resulting 19 in long-term beneficial impacts on the local community. When considered with the growth of the 20 surrounding community, there would be minor beneficial cumulative impacts.

21 3.11 Transportation

22 3.11.1 Affected Environment

- The main highway access to Fort Huachuca is Arizona State Highway 90. The Highway divides
 the Installation into the East and West Reservations. The Main Gate is located immediately
 west of Highway 90, at the end of Fry Boulevard, which is a commercial roadway that runs
- through the City of Sierra Vista. The Main Gate is the most heavily used access gate on the
- 27 Installation (USACE 2008). There are two other gates providing access to the Installation, the
- 28 East and West gates. The East Gate is currently located west of the intersection of Brainard
- 29 Road and Carter Street and the control point for the gate is located east of Brainard Road,
- 30 resulting in the closure of Brainard Road. The West Gate is located near the Blacktower area of

the Installation's West Range. The West Gate provides access to individuals who live west of
the Installation, preventing them from having to drive approximately 30 minutes around the
Installation to use the Main or East gates (USACE 2008). A North Gate also exists on the
Installation, but is not functional and is currently not used.

5 Fort Huachuca has considered turning the West Gate into an automated access gate, due to its 6 limited usage. There are improvement projects proposed in the RPMP for the Main and East 7 gates. The improvements will bring both gates into compliance with anti-terrorism force 8 protection (AT/FP) requirements and would increase the number of inbound and outbound lanes 9 to help with the flow of traffic onto and off of the Installation. Commercial truck traffic will be 10 relocated from the Main to the East Gate to improve traffic flow and lessen risks at the Main 11 Gate (USACE 2008). Reconfiguration of the East Gate, allowing Brainard Road to re-open and 12 providing a four-lane security pull-off for truck inspection, would provide a safer and more 13 efficient route for the redirected truck traffic.

14 The existing road network on Fort Huachuca provides access to all operational and residential 15 areas on the Installation. There is approximately 200 miles of paved roadways, 130 miles of 16 gravel roads and 150 miles of firebreak roads and trails located on the Installation. The overall 17 condition of the roadway system is good (USACE 2008) and adequately serves the 18 approximately 14,885 people currently living and/or working on the Installation. Traffic studies 19 have shown that traffic volumes are greatest during two, hour-long periods in the morning and 20 evening as people report to and from work, with peak hours occurring between 645 and 745 and 21 1600 and 1700. A third peak travel time occurs around 1200 as a result of lunch hour traffic. 22 Overall the Installation has little to no congestion and minimal delays (USACE 2008).

23 Primary roads are the main routes that connect the cantonment area with the off-post

transportation network and provide access between different land use areas located on the
 Installation. The primary roads carry the highest traffic volumes and often allow for higher travel

26 speeds. Primary roads within the Installation include Allison Road, Hatfield Street, Lawton

27 Road, Smith Avenue, Squire Avenue and Winrow Avenue. Winrow Avenue provides the main

28 access to and from the Main Gate. Installation traffic is controlled at intersections on the

29 Installation using a variety of means, including traffic circles, stop signs and traffic signals

30 (USACE 2008).

Airfield activities primarily occur at Libby Army Airfield, which is located approximately 1.5 miles
 north of the cantonment area in the West Reservation. The Airfield includes a 12,000 foot-long

- 1 runway, providing service to Fort Huachuca and the City of Sierra Vista Municipal Airport.
- 2 Other airfield activities occur on the range and training lands outside of the cantonment area
- 3 and include operations at Hubbard, Rugge-Hamilton and Pioneer landing strips and more than a
- 4 dozen helipads (USACE 2008).
- 5 No rail service to Fort Huachuca is available. The closest rail service is located in Benson,
- 6 Arizona, which is approximately 30 miles north of the Installation. The City of Sierra Vista Public
- 7 Transit System provides daily bus transportation to the public, with stops located throughout
- 8 Fort Huachuca and the City of Sierra Vista (USACE 2008).
- 9 3.11.2 Environmental Consequences

10 Proposed Action

11 The Proposed Action would result in both short-term and long-term minor adverse impacts and 12 a long-term beneficial impact to traffic on the Installation and in the immediate area surrounding 13 Fort Huachuca. Short-term impacts would occur due to an increase in construction-related 14 traffic and construction delays that could result from detours, partial closures and waits 15 associated with trucks moving from construction sites into the flow of traffic. This impact would 16 cease at the conclusion of construction. Since construction is staged, the impact could persist 17 in various isolated portions of the Installation for many years. The updated RPMP includes 18 proposed improvements for Main and East gates and potential improvements at the West Gate. 19 The RPMP also includes improvements to the road infrastructure, such as widening existing 20 roadways to improve traffic flow. These improvements would result a long-term beneficial 21 impact.

22 Alternative 2

- 23 Implementation of Alternative 2 would result in impacts similar to those associated with the
- 24 Proposed Action. Many construction and renovation projects would be carried out based on
- 25 mission requirements and gates may be improved to comply with AT/FP requirements.
- 26 However, in the absence of regulatory requirements to support roadway improvements, there
- 27 may be a decrease in the amount of long-term beneficial impacts as a result of Alternative 2
- 28 implementation.

29 <u>No Action Alternative</u>

- 30 Under the No Action Alternative, the updated RPMP and INRMP would not be implemented.
- 31 Current transportation management would continue. There would be no increased traffic as a

- 1 result of construction activities. Current transportation infrastructure adequately supports the
- 2 existing population at the Installation. However, improvements necessary to sustainably
- 3 support future mission requirements may not be completed, resulting in minor adverse impacts.

4 Cumulative Impacts

5 Military activities associated with the Proposed Action and alternatives are not anticipated to

6 contribute to any cumulative impacts to regional transportation.

7 3.12 Utilities

8 3.12.1 Affected Environment

9 The primary water supply at Fort Huachuca is groundwater from the Sierra Vista subwatershed 10 regional aquifer. Fort Huachuca's water system is operated and maintained by an Installation 11 service contractor. There are eight operational groundwater production wells on the Installation. 12 Water is treated prior to entering the supply lines and the quality of the water is generally 13 suitable for all uses. The greatest demand on the water supply comes from the Installation's 14 housing area. A water conservation program was developed to educate the Installation 15 residents and personnel on methods to conserve the water supply. Other conservation 16 methods are also implemented at Fort Huachuca, including the use of treated wastewater 17 effluent as irrigation rather than potable water. Water supply and storage at Fort Huachuca is 18 adequate to meet current and future demands (USACE 2008).

19 The Fort Huachuca wastewater collection and treatment system is operated and maintained by 20 an Installation service contractor. Installation wastewater is directed to a single treatment 21 facility. Most wastewater naturally flows to the treatment facility; however some areas, such as 22 a small portion of the housing in the southeastern cantonment area, require wastewater to be 23 pumped through a lift station. After treatment, wastewater is directed to seven effluent recharge 24 basins located on the East Range and then directed to holding ponds for reuse as irrigation 25 water. The current wastewater system at Fort Huachuca is adequate for current flows and 26 could handle up to six times the amount of wastewater (USACE 2008).

- 27 The existing storm drainage system at Fort Huachuca is made up of natural drainage ways,
- channelized improvements and open culverts under roadways. Evaluations of the system have
- 29 identified undersized channels, constricted culverts and portions of the cantonment area that
- 30 periodically flood. The RPMP identifies the need for a comprehensive study to evaluate and
- 31 subsequently improve the system (USACE 2008).
- 1 Natural Gas is provided to the Installation by Southwest Gas. Gas is delivered via two
- 2 400 pounds-per-square-inch supply lines and distributed throughout the Installation. The
- 3 system capacity is adequate to support current and future demands.
- 4 Tucson Electric Power and Sulfur Springs Valley Electric Cooperative supply electrical power to
- 5 Sierra Vista, Fort Huachuca and the surrounding area. The Installation is served by six
- 6 underground distribution circuits, which transfer to overhead poles. The existing distribution
- 7 system adequately supports the current and future needs of the Installation (USACE 2008).
- 8 Solid waste accumulated at the Installation is transported off-post and primarily disposed of at
- 9 the Huachuca City landfill. A small amount of solid waste is directed to the Elfrida landfill, which
- 10 is also located in Cochise County. In addition to these landfills, there is a County operated
- 11 landfill located in Huachuca City. Fort Huachuca operates a recycling program for paper,
- 12 aluminum cans and newspaper (USACE 2008).
- 13 3.12.2 Environmental Consequences
- 14 Proposed Action
- 15 Long-term minor adverse and beneficial effects on Fort Huachuca utility systems would be
- 16 expected. Beneficial effects would be expected from utility system upgrades associated with the
- 17 proposed construction on Fort Huachuca. Adverse effects would result from the generation of
- 18 additional municipal solid waste and construction debris at Fort Huachuca and its effect on local
- 19 landfills.
- 20 The existing potable water infrastructure is sufficient to support the Proposed Action. New
- 21 construction and improvements would use energy-efficient design and material. No impact to
- 22 potable water supply or quality is anticipated. Similarly, the infrastructure on Fort Huachuca is
- 23 capable of accommodating proposed increases in wastewater associated with the Proposed
- 24 Action. No impact to either system is anticipated.
- 25 The current electrical system adequately supports the current needs of the Installation and
- 26 could support additional usage. All new facilities would be energy efficient, constructed to LEED
- 27 Silver standards. Therefore, the construction of additional facilities would not create an adverse
- 28 impact to the electrical system.
- 29 Solid waste would be generated during both construction and operation of the new facilities
- 30 under the Proposed Action. Department of the Army requires that at least 50 percent by weight

- 1 of total construction and demolition waste be diverted from landfill disposal. This can be
- 2 achieved by reusing, recycling, or reselling construction debris (DA 2006). Construction and
- 3 demolition activities would result in a minor long-term adverse impact on local landfills.
- 4 Operational solid waste generation would not be substantial in terms of overall monthly or yearly
- 5 quantity or area landfill capacity and is not anticipated to adversely affect local landfills.

6 Alternative 2

7 The implementation of Alternative 2 would result in impacts similar to the Proposed Action.

8 No Action Alternative

- 9 Under the No Action Alternative, reuse of existing structures would continue. Some repairs or
- 10 upgrades to existing utility infrastructure would likely occur as required to maintain service to the
- 11 Installation. This would result in the generation of less solid waste and therefore a reduced
- 12 adverse impact compared to the Proposed Action.

13 <u>Cumulative Impacts</u>

- 14 The solid waste generated under the implementation of the updated RPMP would add to the
- 15 waste being generated within the Cochise County. Currently, there is abundant capacity at the
- 16 landfills in the vicinity. The Western Regional Landfill is operating at between 20 to 30 percent
- 17 capacity. The additional solid waste generated by construction activities would contribute the
- 18 greatest amount of solid waste to the landfills. The amount disposed would be reduced by
- 19 50 percent of the total generated due to Army requirements (DA 2006). Disposal related to the
- 20 Proposed Action and alternatives is not anticipated to significantly impact the regional landfills.
- 21 No other cumulative impact associated with utilities is anticipated.

22 3.13 Hazardous and Toxic Substances

23 3.13.1 Affected Environment

- Fort Huachuca is an EPA-registered large quantity generator, defined as generating
- 25 1,000 kilograms per month or more of hazardous waste, more than 1 kilogram per month of
- 26 acutely hazardous waste, or more than 100 kilograms per month of acute spill residue or soil.
- 27 Vehicle and aircraft maintenance produce the majority of hazardous wastes generated by the
- 28 Installation, and facility maintenance may also contribute. Hazardous substances typically
- associated with these operations such as fuels, antifreeze, paints, cleaners and petroleum, oil
- 30 and lubricants (POL) are stored, transported and disposed of in accordance with applicable laws
- 31 and regulations. The Hazardous Waste Management Program at Fort Huachuca complies with

1 Occupational Safety and Health Administration hazardous communications standards; the

2 Installation Spill Contingency Plan; the Installation Hazardous Waste Management Plan;

3 Department of Transportation regulations; and the Directorate of Engineering and Housing

4 (DEH) Environmental Office (USACE 2008).

5 The Fort operates one 90-day accumulation center, approximately 20 satellite accumulation 6 centers and a Hazardous Material Control Center, which allows for collection and withdrawal of 7 usable hazardous materials on the Installation. Frequent inspections of hazardous waste 8 storage and disposal sites are conducted by the DEH Environmental Office and state and 9 federal regulatory agencies. The Department of Reutilization and Marketing Office (DRMO) 10 provides contract service to transport and dispose of hazardous waste off-post.

11 The Army's Installation Restoration Program (IRP) is a comprehensive program to identify, 12 investigate and clean up contamination at Army Installations to eliminate risks to human health 13 and the environment. The IRP includes, but is not limited to, the cleanup of Comprehensive 14 Environmental Response, Compensation and Liability Act (CERCLA) hazardous substances, 15 POLs, hazardous wastes and hazardous waste constituents and low-level radioactive materials 16 or wastes. Historically, there have been 58 IRP sites at Fort Huachuca (USACE 2008). The 17 Fort Huachuca Installation Action Plan, dated 17 April 2006, identifies five remaining IRP sites, 18 three in remediation and two in long-term management.

19 The South Range Landfill (FTHU-10) is an approximately 100 acre former landfill site located 20 two miles southeast of the main cantonment facilities. The landfill was used from 1940 to 1975 21 as a dump site for household garbage, pesticides, herbicides and sodium arsenite. Initial 22 investigations at the site were performed in 1993 and semi-annual, groundwater monitoring and 23 reporting have occurred since 1999. Analysis of the groundwater samples taken from five 24 monitoring wells at the site have detected elevated levels of heavy metals and pesticides. 25 Groundwater monitoring is planned to continue through 2011, re-evaluation will determine if 26 further monitoring is required (USAEC 2006).

The Post Exchange (PX) Gas Station site (FTHU-54A) was formerly a service station located in the northwest portion of the West Reservation. The station was closed in 1996 and eleven 10,000 gallon fuel underground storage tanks (UST) and associated piping were removed from the site during the period of 1983 to 1997. A release of approximately 1,000 gallons of unleaded fuel occurred at the site, causing soil and groundwater contamination. Contaminated soils were removed from the site. Elevated levels of Methyl Tertiary Butyl Ether (MTBE) were found in groundwater samples. Continued use of the air sparging system that was installed in
1994 along with semi-annual monitoring is planned to continue at the site until MTBE levels are
reduced to acceptable levels defined by the ADEQ (USAEC 2006).

The East Range Mine Shaft (FTHU-65) is located in the remote East Range. The mine shaft
was believed to be used from the 1940's to an undetermined point in time for disposal of
garbage, POLs, aircraft parts and possibly unexploded ordnance (UXO). Lead contamination in
soil and groundwater is an issue. Fort Huachuca is working with the ADEQ to monitor the site
and two, five-year reviews are scheduled for 2009 and 2014 (USAEC 2006).

Greely Hall UST Release site (FTHU-85) is located in the rear southern service area of Greely
Hall (Building 61801) in the cantonment area. Fuel to power the emergency generators at
Greely Hall was historically stored in USTs at the site. The piping system was predicted to be
leaking diesel fuel for approximately ten or more years. Elevated levels of total petroleum
hydrocarbons (TPH) confirmed soil contamination at the site. A bioremediation system was
installed at the site in 1997 and bio-venting is planned to continue until cleanup standards are
met, at which time confirmatory soil sampling and system closure will occur (USAEC 2006).

Greely Hall Gasoline Release site (FTHU-90) is also located at the rear southern area of Greely
Hall. A gasoline UST that was used until the 1970s to provide fuel to emergency generators
was removed in 1995. Elevated levels of benzene confirmed soil contamination from years of
gasoline spillage at the site. A Soil Vapor Extraction (SVE) system was installed in 2000. The
SVE system will continue to operate until cleanup standards are met, at which time confirmatory
sampling and system closure will occur (USAEC 2006).

22 The Army's Military Munitions Response Program (MMRP) was established in 2001 to manage

the environmental, health and safety issues associated with UXO, discarded military munitions

24 (DMM) and munitions constituents (MC) at closed, transferring or transferred ranges. An

25 inventory of MMRP eligible ranges was conducted in 2003 and identified fifteen Munitions

26 Response Sites (MRS); three small arms ranges and twelve multiuse ranges. There is a

27 potential for munitions and explosives of concern (MEC) and MC to be present at these sites.

28 Fort Huachuca has remedial activities planned for these sites including remedial investigations,

29 excavation and off-site disposal, institutional controls and monitoring. The MMRP does not

30 assess the conditions of active ranges; however, there is potential for MEC, MC or UXO to

31 occur on active ranges as well. Lead contamination is also an issue at ranges.

1 3.13.2 Environmental Consequences

2 Proposed Action

- 3 The Proposed Action includes the storage, handling and use of hazardous and toxic substances
- 4 and generation of hazardous wastes during demolition, construction and operation. Because
- 5 the substances would be managed in accordance with applicable regulations and management
- 6 plans, the potential for an inadvertent release to the environment is small. Since projects are
- 7 phased to be completed over several years, no significant impacts are anticipated as a result of
- 8 increases in hazardous or solid wastes generated by the Proposed Action.
- 9 Prior to repair, renovation, or demolition of buildings, a determination as to whether hazardous
- 10 materials are present and necessary arrangements for proper abatement and removal, if
- 11 necessary, would be made. If hazardous materials are inadvertently discovered during
- 12 construction, work would cease and applicable regulatory agencies would be notified before

13 work would resume. All work would be completed in compliance with applicable Fort Huachuca

- 14 plans and programs and local, state and federal laws and regulations.
- 15 There are no projects proposed in the updated INRMP or RPMP that would adversely affect the
- 16 known contaminated sites at Fort Huachuca.

17 <u>Alternative 2</u>

- 18 Implementation of Alternative 2 would result in impacts similar to those associated with the
- 19 Proposed Action. As Installation projects involving hazardous waste are typically required by
- 20 law or regulation, those types of projects would be carried out in Alternative 2. Therefore, no
- 21 adverse impacts are expected.

22 No Action Alternative

- 23 Under the No Action Alternative, the updated RPMP and INRMP would not be implemented.
- 24 No adverse impact to hazardous or toxic resources is anticipated.

25 <u>Cumulative Impacts</u>

- 26 The hazardous materials that would be generated in the demolition of existing structures would
- 27 contribute to other hazardous debris that requires disposal off-post. However, only small
- 28 amounts of such materials are anticipated to be generated as a result of the Proposed Action. It
- 29 is anticipated that the contributions of the Proposed Action and alternatives, even when
- 30 considered in combination with other past, present or future actions, would result in a less than
- 31 significant impact on the disposal facility.

1 3.14 Human Health and Safety

2 3.14.1 Affected Environment

Health and safety services can be obtained both on Fort Huachuca and within the surrounding
communities. Law enforcement is provided by community police forces and Arizona
Department of Public Services off-post. On Fort Huachuca, the law enforcement division of the
Directorate of Public Safety has primary responsibility for the enforcement of rules and
regulations and the security of the Installation (USAGFH 2004).

- 8 Off-post, emergency medical services can be obtained at the Sierra Vista Regional Health
- 9 Center. This facility has an 86-bed acute care center, is staffed by 70 active, 37 courtesy and
- 10 9 Allied Health physicians and serves more than 7,600 patients annually (SVRHC 2009).
- 11 Medical services on Fort Huachuca can be received at the Raymond W. Bliss Army Health
- 12 Center. This center provides services to active and retired military personnel and their families.
- 13 Services include internal medicine, general surgery, orthopedics, physical therapy, optometry
- 14 and preventive medicine. This facility does not have an emergency room (U.S. Army Medical
- 15 Department 2009). Emergency medical evacuation to Tucson by air from either facility takes
- 16 approximately 12 minutes (USAGFH 2004).

17 Agreements between Fort Huachuca, Sierra Vista, Cochise County and the USFS are in place 18 to provide mutual assistance. The Sierra Vista Fire Department has three fire stations (City of 19 Sierra Vista 2009). Cochise County fire district responds to calls occurring in the county and 20 can provide additional assistance to other agencies when needed. The Fry Fire District has one 21 station located within Sierra Vista and two additional stations in outlying areas within the county 22 (Fry Fire District 2009). Fort Huachuca also has three stations. Personnel from these stations 23 respond to emergencies on the Fort, at LAAF and in the surrounding area (Fire House Network 24 2009).

- 25 The USFS is responsible for responding to forest and range fires within the Coronado National
- 26 Forest and adjacent areas, including lands within Fort Huachuca, pursuant to a cooperative
- 27 agreement between the Installation and the USFS. The USFS has established a fire protection
- 28 unit at LAAF and other units are stationed adjacent to Fort Huachuca (USAGFH 2004).
- 29 Fort Huachuca and the surrounding area have an active fire regime and wildland fires occur
- 30 regularly. Fire management on the Fort is directed to meet the goals and objectives identified in
- 31 the IWFMP (USAIC & FH 2006a). These goals include protecting life as the highest priority,

1 protecting the Installation and personal property, managing fire to support military training, 2 managing fire to protect natural and cultural resources and coordinating fire operations with 3 neighboring land owners. The plan addresses the management of both wildfires and prescribed 4 burns as well as the treatment of areas supporting sensitive resources (natural and cultural). 5 Four strategies are used to meet these goals. They include suppressing wildland fire around 6 high-use developed and training areas and certain sensitive resources requiring protection, use 7 of prescribed fire to reduce fuels in high-risk areas and to accomplish ecological goals, allowing 8 naturally ignited fires to burn when they meet predetermined prescriptions related to safety and 9 ecological goals and using non-fire methods to control fuel loads in areas where fire is

10 inherently unsafe or undesirable given the fuel loads.

11 Fort Huachuca, the USFS and the National Parks Service are also working together on the 12 Huachuca FireScape Project. This project coordinates fire and fuel reduction activities between 13 the three agencies. This project is intended to increase fire management flexibility, efficiency 14 and consistency across about 400,000 acres of adjoining federal land (USFS 2009). Through 15 integration of fire and fuel management activities, the project is anticipated to reduce costs, 16 resource damage and threats to public and firefighter safety from future wildland fires; restore 17 and sustain ecological processes in fire-dependent ecosystems; create and maintain fuel 18 conditions that produce manageable fire behavior and intensity; encourage the restoration of 19 vegetation and fuel conditions towards their historic conditions and ecological resiliency where 20 feasible; and promote a cost-effective, efficient and coordinated fire and fuel management 21 program among the three agencies (USFS 2009).

22 The coordination and regulation of activities on the ranges is the responsibility of Range Control 23 with the support of the Law Enforcement Division and Fire Department. Ranges are secured 24 and patrolled by Law Enforcement, while the Fire Department is responsible for fighting and 25 extinguishing range fires and the scheduling of prescribed burns. Range Control regulations 26 and standard operating procedures identify allowable range practices and precautions that are 27 required. In some cases, such as the use of pyrotechnics, a fire suppression plan must be 28 submitted to Range Control and the Fire Department at least 10 days prior to the activity. Some 29 activities may be suspended by Range Control during times of high fire danger. These are 30 determined on a case by case basis (USAIC & FH 2001 in USAGFH 2004).

Human health and safety concerns associated with hazardous materials and substances are
 addressed in Section 3.13, *Hazardous and Toxic Substances*.

1 3.14.2 Environmental Consequences

2 Proposed Action

3 The collaborative FireScape Project process would be more efficient for the sustainability of the 4 forest as a whole and reduce the potential for uncontrolled wildfire on a broader scale (USFS 5 2009). As a result, the potential human risk resulting from wildfire both on and off Fort 6 Huachuca is better managed and minimized. The smoke associated with prescribed burns 7 could result in human health and safety concerns if smoke reduced visibility on roadways or if 8 people with respiratory sensitivities are exposed to high concentrations of smoke. Air quality 9 control, both in the form of particulates and chemicals is managed through coordination with 10 ADEQ and the Prescribed Burn Plan.

11 The Proposed Action would include the rehabilitation of trails, fire breaks and helipads which

12 could all be instrumental in controlling the spread of a wildfire. Further, the RPMP identifies a

13 new fire station that will be located in the southern part of the Installation close to housing areas.

14 Performing these actions would result in a beneficial effect on human health and safety.

15 Standard measures would be taken during all construction (including the implementation of the

16 RPMP) to minimize potential risks to personnel in the vicinity of the work being performed.

17 Another element of the Proposed Action is improving the management of nuisance species

18 within the cantonment area and monitoring the number and duration of responses. These

19 actions coupled with awareness programs that identify the risks and limits associated with

20 feeding wildlife would be beneficial to the health and safety of personnel living on the

21 Installation.

22 EO 13045, Protection of Children from Environmental Health Risks and Safety Risks (1997),

23 recognizes a growing body of scientific knowledge that demonstrates that children may suffer

24 disproportionately from environmental health risks and safety risks. The Proposed Action is not

25 anticipated to result in any disproportionate environmental health risk or safety risk to children.

26 <u>Alternative 2</u>

27 Under Alternative 2, fire management and associated risks would be similar to the Proposed

Action as it is required by the Federal Wildland Fire Management Policy, 2007 BO, Endangered

29 Species Act and AR 200-1. As part of the IWFMP, collaboration and cooperation with other

30 agencies would continue to occur. However, rehabilitation to trails, fire breaks and helipads as

31 described in the Proposed Action may not occur as it is not mandated by regulations. These

- 1 features would improve the effectiveness of the fire management program and failure to
- 2 maintain them would adversely affect the fire management program, resulting in a minor long-
- 3 term impact.
- 4 While the RPMP calls for a new fire station in the southern part of the cantonment area, there is
- 5 no legal requirement mandating this service so it is possible that the station would not be
- 6 constructed under Alternative 2. Because of this, Alternative 2 would provide a diminished level
- 7 of safety to the personnel on Fort Huachuca than the Proposed Action.
- 8 Nuisance wildlife would continue to be managed on Fort Huachuca per the Integrated Pest
- 9 Management Plan, AR 200-1 and Fort Huachuca Wildlife Feeding Policy. This management
- 10 would not be as efficient and sustainable as the Proposed Action due to a lack of the proposed
- 11 monitoring of the program and development and monitoring of humane control methods and the
- 12 use of vaccinations. Thus this alternative is anticipated to be less effective at managing
- 13 nuisance wildlife than the Proposed Action.
- 14 There are no disproportionate environmental health risk or safety risk to children concerns
- 15 associated with Alternative 2.
- 16 No Action Alternative
- 17 The impacts on human health and safety under the No Action Alternative would be the same as
- 18 Alternative 2.
- 19 Cumulative Impacts
- 20 No cumulative impacts are anticipated to occur with regard to human health and safety.
- 21

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4 FINDINGS AND CONCLUSIONS

2 This EA is intended to be a concise public document that provides sufficient evidence and 3 analysis for determining whether to prepare a FNSI or an EIS. NEPA requires that agencies of 4 the federal government conduct this type of environmental impact analysis in order to evaluate 5 major federal actions that include projects financed, assisted, conducted, regulated, or approved 6 by a federal agency that have the potential to affect human health or the environment. In order 7 to determine whether an impact is considered significant as it relates to NEPA, both the context 8 and intensity of potential impacts are considered in addition to their cumulative contribution to 9 existing local and regional resource conditions and trends.

10 The context of an impact relates to the setting in which the impact takes place and the 11 anticipated severity of the impact in terms of the type, guality, and sensitivity of the resource 12 involved; the location of the proposed project; the duration of the effect (short- or long-term) and 13 other considerations of context. For example, an increase in traffic on a local roadway 14 connecting two buildings would likely affect traffic just in the local area, and the context of the 15 impact would be the local street system. On the other hand, closure of an interstate highway 16 could have impacts on local, regional, and even national circulation. In this case, the context of 17 the impact would need to be assessed on a local, regional, and national level. Context also 18 takes into account the existing condition of the resource.

- The intensity of an impact is related to the magnitude of the change over the existing conditions.
 Based on the example above, increasing traffic on a local roadway by five trucks a day may be
 a very low-intensity impact if current trips average one hundred trucks per day, but would be a
 high-intensity impact if current trips averaged one truck per day.
- A summary of the potential impacts and measures to minimize adverse impacts is provided in Table 4-1. Impacts associated with implementing the Proposed Action at Fort Huachuca would be local in context with the exception of air quality and transportation, which although regional in context, would still only constitute a minor adverse impact due to very low levels of anticipated emissions and increased traffic. Likewise, the intensity of potential adverse impacts is anticipated to be minor or negligible for all resources evaluated.
- 29 Consequently, the overall environmental effect of implementing the updated INRMP and RPMP
- 30 at Fort Huachuca is anticipated to be beneficial. Improvements made will benefit the overall
- 31 transportation and utilities infrastructure and land use on Fort Huachuca. Other improvements,

1 such as control and management of soil erosion and protection of ground and surface water will

2 provide long-term beneficial impacts. Cultural and natural resources will also benefit from the

3 implementation of the Proposed Action through preservation, habitat restoration and

4 enhancement projects.

5 Cumulative impact is the impact on the environment that results from the incremental impact of 6 the action when added to other past, present, and reasonably foreseeable future actions

7 regardless of what agency (federal or non-federal) or person undertakes such other actions.

8 Cumulative impacts can result from individually minor but collectively significant actions taking

9 place over a period of time (40 CFR 1508.7).

10 Implementing the Proposed Action would result in the minor contribution to cumulative impacts

11 on soils due to compaction and erosion, surface runoff, water quality due to sediment and

12 chemicals being picked up by stormwater, and minor short-term and long-term contributions to

13 air quality within the area surrounding Fort Huachuca, an increase in vehicles on local roads,

14 solid waste disposal and hazardous material use and storage. These impacts would combine

15 with impacts associated with ongoing growth and development in the vicinity of Fort Huachuca.

16 Given the minor intensity and localized nature of these impacts, the Proposed Action is not

17 anticipated to result in a significant adverse cumulative impact, even when taken in conjunction

18 with the other growth in the area.

19 Beneficial cumulative impacts are expected to result from the implementation of the Proposed

20 Action. Habitat restoration and enhancement, removal of non-native species and the

21 establishment of buffers and cooperative agreements will have a long-term beneficial impact on

22 the biological resources on Fort Huachuca. Erosion control and management on the Installation

23 would have a beneficial cumulative impact to soils and water quality on the Fort and on

24 surrounding areas within the Sierra Vista subwatershed. Implementing the Proposed Action

25 would also create a beneficial cumulative impact on the local economy.

26 Based on the analysis contained herein, it is the conclusion of this EA that none of the

27 alternatives, the Proposed Action, Alternative 2 or the No Action Alternative, would constitute a

28 major federal action with significant impact on human health or the environment, and that a

29 FNSI for the implementation of the Proposed Action at Fort Huachuca should be issued to

30 complete the NEPA documentation process.

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

	Level of Impact		of t			
Resource Area	Significant	Less than Significant	No Impact	Summary of Potential Impacts and Measures to Minimize Impacts		
Land use		Х		Long-term, beneficial, direct and indirect impacts would be anticipated as a result of upgrades made to existing ranges and training facilities. No impact on adjacent land uses.		
Topography, Geology, and Soils		X		Minor short-term impacts anticipated for soil resources during construction activities. Long-term beneficial impacts on soils would occur, due to improved erosion and stormwater control. No impacts to topography, geology or prime and unique farmlands.		
Hydrology and Water Resources		X		Minor short-term indirect impacts are expected due to potential increases in stormwater runoff during construction and certain activities, such as prescribed burns. Long-term beneficial impacts to groundwater and surface water would occur due to improvements proposed in the updated INRMP and RPMP. As required by the 2007 BO, the Fort must offset any increases in water demand associated with population fluctuations.		
Biological Resources and Wetlands		Х		Short-term and long-term beneficial impacts to wildlife and vegetation are expected.		
Cultural Resources		X		No adverse impacts are expected; however, further evaluation of potential impacts to cultural resources would be undertaken in areas where improvements would occur. The need for consultation with SHPO or surveys would be determined on a project-by-project basis. Long-term beneficial impacts would result from proposed preservation projects.		
Air Quality		X		Short-term and long-term direct impacts to air quality would occur. Minor short-term impacts would be associated with construction activities. Construction equipment would generate ozone precursors as well as PM_{10} . Wet suppression would be used to minimize PM_{10} emissions. Minor long-term impacts would result from operating new facilities. However, new facilities would be constructed to meet LEED Silver standards.		
Visual Resources		X		Minor short-term impacts are expected during construction activities. However, these impacts would be temporary in nature, only occurring during construction. Long-term beneficial impacts would result from improvements and projects proposed in the INRMP and RPMP.		
Noise		Х		Minor short-term direct impacts are anticipated. Short-term noise would result from construction activities.		
Socioeconomics and Environmental Justice		X		No adverse impacts are expected. Short- and long-term beneficial impacts to the local economy would be expected. Short-term impacts would result from construction activities. Long-term impacts would result from improvements that would allow for an increase in the number of individuals training at the installation and contributing to local sales volumes.		
Transportation and Circulation		X		Short-term minor impacts during construction and minor intermittent, long- term impacts to transportation and circulation in the area surrounding Fort Huachuca are expected. Improvements to roadways and gates would result in beneficial impacts to the transportation and circulation on the Installation.		

	Level of Impact		of t			
Resource Area	Significant	Less than Significant	No Impact	Summary of Potential Impacts and Measures to Minimize Impacts		
Utilities		x		Minor long-term indirect impacts would result from the additional amount of solid waste produced during construction activities. However, these impacts would not significantly affect local landfills. Long-term beneficial impacts are expected due to the upgrades to the utility infrastructure.		
Hazardous and Toxic Substances		Х		Minor short-term impacts are anticipated. Short-term impacts that would result from construction activities include the handling or disposing of hazardous materials. Complying with Fort Huachuca hazardous waste plans and programs and local, state and federal laws and regulations would minimize the potential for adverse impacts.		
Human Health and Safety		X		No significant adverse impacts to human health and safety are expected. Proposed improvements would result in a long-term indirect beneficial impact to human health and safety due to improved wildfire management and prevention activities.		

5 ACRONYMS AND ABBREVIATIONS

2	ADWR	Arizona Department of Water	33	DMM	Discarded Military Munitions
3			34	DoD	Department of Defense
4 5	ADEQ	Environmental Quality	35 36	DRMO	Department of Reutilization and Marketing Office
6	AF	Acre-Feet	37	EA	Environmental Assessment
7	AFA	Acre-Feet Annually	38	EIS	Environmental Impact Statement
8 9	AGFD	Arizona Game and Fish Department	39	EPA	Environmental Protection Agency
10	amsl	above mean sea level	40	ESA	Endangered Species Act
11	AR	Army Regulation	41 42	FEMA	Federal Emergency Management Agency
12	AT/FP	Anti-terrorism Force Protection	43	FNSI	Finding of No Significant Impact
13	BBS	Breeding Bird Survey	44	FPPA	Farmland Protection Policy Act
14 15	BGEPA	Bald and Golden Eagle Protection Act	45	GIS	Geographic Information System
16	BLM	Bureau of Land Management	46	GPCD	gallons per capita per day
17	BMP	Best Management Practice	47 48	ICRMP	Integrated Cultural Resources Management Plan
18	BO	Biological Opinion	49	IEWTD	Intelligence Electronic Warfare
19 20	CECOM	Communications Electronic	50		Test Directorate
20 21	CEQ	Council on Environmental Quality	51 52	INRMP	Integrated Natural Resources Management Plan
22	CERCLA	Comprehensive Environmental	53	IRP	Installation Restoration Program
23 24		Response, Compensation and Liability Act	54 55	IWFMP	Integrated Wildland Fire Management Plan
25	CFR	Code of Federal Regulations	56	JITC	Joint Interoperability Test
26	СО	carbon monoxide	57		Command
27	CWA	Clean Water Act	58	JLUS	Joint Land Use Study
28	DA	Department of the Army	59	LAAF	Libby Army Airfield
29	dB	Decibel	60	Ldn	Day-Night Decibel
30	dBA	A-weighted Decibel	61 62	LEED	Leadership in Energy and
31 32	DEH	Directorate of Engineering and Housing	63	MC	Munitions Constituents

1 2	MEC	Munitions and Explosives of Concern
3 4	MMRP	Military Munitions Response Program
5	MRS	Munitions Response Site
6	MTBE	Methyl Tertiary Butyl Ether
7 8	NAAQS	National Ambient Air Quality Standards
9	NEPA	National Environmental Policy Act
10 11	NETCOM	Network Enterprise Technology Command
12	NHL	National Historic Landmark
13	NHPA	National Historic Preservation Act
14	NOA	Notice of Availability
15	NOI	Notice of Intent
16	NO _x	nitrogen oxides
17 18	NPDES	National Pollutant Discharge Elimination System
19 20	NRCS	Natural Resource Conservation Service
21 22	NRHP	National Register of Historic Places
23	PAC	Protected Activity Center
24	PIF	Partners in Flight
25	POL	Petroleum, Oil and Lubricants
26	PX	Post Exchange
27	RPMP	Real Property Master Plan
28	SAIA	Sikes Act Improvement Act
29	SHPO	State Historic Preservation Office
30 31	SPRNCA	San Pedro Riparian National Conservation Area
32	SVE	Soil Vapor Extraction

33 34	SWPPP	Storm Water Pollution Prevention Plan
35	ТМ	Technical Manual
36	TNC	The Nature Conservancy
37	ТРН	Total Petroleum Hydrocarbons
38	TRADOC	Training and Doctrine Command
39	UAS	Unmanned Aerial System
40	UAV	Unmanned Aerial Vehicle
41 42	USAEPG	U.S. Army Electronic Proving Ground
43 44	USAIC	U.S. Army Intelligence Center and School
45	U.S.C.	United States Code
46	USFS	U.S. Forest Service
47	USFWS	U.S. Fish and Wildlife Service
48	USGS	U.S. Geological Survey
49	USPB	Upper San Pedro River Basin
50	UST	Underground Storage Tank
51	UXO	Unexploded Ordnance
52	WWTP	wastewater treatment plant

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1	APPENDIX 1
2	INRMP PROPOSED PROJECT LIST
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Project Number	Project Description	BA/BO Reference	Regulatory Requirement
RECURRING	PROJECTS		
FEN64302	Critical habitat fuels management for T&E Species as required by the BO and IFMP in cooperation with the USFS and USDA	BO pg 29-30	ESA
FEN64303	Crew fire protection and fuels management of critical habitat for T&E species required by the BO and IFMP	BO pg 29-30, 61	ESA
FEN64304	EPG meteorological data collection for critical habitat fire protection and fuels management required by the BO	BO pg 33	ESA
FEN64305	NEPA review of on-post actions for updated INRMP		Sikes Act, NEPA; 35CFR651; AR200-1
FEN64306	Information storage management support for management of critical habitat and T&E species recovery		ESA
FEN64308	Monitor stream flow and groundwater recharge for critical habitat and aquifer protection by USGS required by BO	BO pg 54	ESA
FEN64502	Inadvertent discovery of cultural resources		AR200-1; NAGPRA; 43CFR10.4
FEN64501	Consultation with 11 Native American tribes		NAGPRA, AIRFA, AR200-1
FEN64501	Fort Huachuca Fire Department support for critical habitat fuels management required by BO and IFMP	BO pg 29-30	ESA
FEN64310	Bat cave surveillance system maintenance required by consultation with USFWS	BO pg 66	ESA
FEN643119	Threatened Mexican spotted owl annual monitoring required by BO	BO pg 71	ESA
FEN64312	Update INRMP Appendices every 5 years, not updated since 2001, needed to conform with the 2007 BO	BO pg 29	AR 200-1; Sikes Act
FEN64313	Endangered lesser long-nosed bat survey required by BO	BO pg 66	ESA
FEN64314	Endangered southwestern willow flycatcher survey required by BO	BO pg 69-70	ESA
FEN64316	Vegetation mastication fuels management for fire protection, erosion control, and species conservation as required by the INRMP and in support of the East Range Watershed Rehabilitation Plan (ERWRP)	BO pg 58	Sikes Act
FEN64317	East Range native grass seeding for species conservation and erosion control in selected areas of mastication units as required by INRMP and in support of the ERWRP	BO pg 58	Sikes Act
FEN643189	Endangered Huachuca water umbel inventory on the Fort and in the SPRNCA on	BO pg 65	ESA

Project Number	Project Description	BA/BO Reference	Regulatory Requirement
	critical habitat required by BO		
FEN64319	Water conservation support provided by University of Arizona Waterwise Program required under the BO	BO pg 43, 54	ESA
FEN64320	Water conservation support to Upper San Pedro Partnership required by BO	BO 51-56	ESA
FEN64321	New Candidate Arizona treefrog survey		ESA
NA	Candidate Lemmon fleabane monitoring		ESA
FEN64309	Rehabilitation of firebreaks A, B, C, and D for wildfire and erosion control to protect critical habitat required by the BO and IFMP	BO pg 32-33	ESA
FEN64315	USFS Rehabilitation and maintenance of seven helipads needed for wildfire control to protect critical habitat required by the BO and IFMP		ESA
NA	Riparian and spring protection for endangered Huachuca water umbel populations and designated critical habitat and for candidate Huachuca springsnail populations required by the BO	BO pg 65, 74	ESA
NA	Development of Conservation Easement to support off-post recovery of endangered Huachuca water umbel required by the BO	BO pg 66	ESA
Non-Recurring	g Projects		
FEN64002	Z6181 Groundwater modeling in support of 2006 BA	BO pg 54	ESA
FEN64003	Z6182 Enhancing stormwater capture and use, turf irrigation, and data management to achieve additional water conservation and mitigation	BO pgs 53-57	ESA
FEN64004	Z6483 Environmental Analysis of aerial application of herbicide targeting brush species followed by native grasses to reduce erosion on the East Range of Fort Huachuca		NEPA; 35CFR651
FEN64005	Z6184 Programmatic Environmental Analysis of energy project for Fort Huachuca		NEPA; 35CFR651
FEN64006	Z6185 Development of an Environmental Awareness Program for Fort Huachuca	BO pg 63	AR200-1; DODD 5000.1; DODI4715.3
FEN64007	Z6186 Development of an Outdoor Recreation Plan for Fort Huachuca		DODD4700
Other Projects			
NA	Develop mitigation/monitoring plan in coordination with the USFWS for prescribed fire, managed natural fire, or fuels management treatment that may adversely affect listed species	BO pg 62	ESA

Project Number	Project Description	BA/BO Reference	Regulatory Requirement
NA	Coordination with the USFWS, AGFD, and BLM as necessary for activities that have the potential to impact listed, proposed, or candidate species		ESA; AR200-1
NA	Coordination with the USFWS, AGFD, and BLM as necessary to update or develop endangered species management plans for federally listed or proposed species and their habitats that occur on lands used by Fort Huachuca (not to include migrant species)		ESA; AR200-1
NA	Annual surveys for federally listed species which may be identified in the future, and coordinate activities with USFWS and/or AGFD in a proactive manner		ESA; AR200-1
NA	Planning Level Surveys (PLS) to document the locations of all special-status species on Fort Huachuca and the SPRNCA using global positioning systems (GPS) and integrate into the geographic information system (GIS) database		AR200-1
NA	Update the INRMP and include management and protection measures that would benefit species previously unreported, this includes federally listed or proposed species on Fort Huachuca or the SPRNCA	BO pg 63	Sikes Act, ESA
NA	Coordination with the USFWS as necessary, to make Fort Huachuca available for the study of federally listed, proposed, or candidate species and their habitats that might occur on its land		ESA
NA	Monitoring of past and current research on special status species and their habitats that occur or could occur on or near Fort Huachuca, the SPRNCA, or leased lands and use this information to improve the management of special status species where applicable		ESA
NA	Monthly monitoring of the USFWS web sites for changes and additions in species listing and critical habitat proposed designations		ESA
NA	Maintain stabilized trails that inhibit the spread of fire around the northwestern boundary of the installation to protect the habitat of the Canelo Hills ladies' tresses	BO pg 70	ESA
NA	Continue water conservation efforts including effluent recharge, purchase of conservation easements, stormwater recharge efforts, and other creative conservation efforts	BO pgs 41-51	ESA
NA	Maintenance of rock barriers and any other appropriate protection around Huachuca water umbel populations	BO pg 62-63	ESA
NA	Maintenance of vehicle barrier at Gate No. 7	BO pg 63	ESA
NA	Fund habitat management or restoration for the Huachuca water umbel where	BO pgs 65-66	ESA, AR200-1

Project Number	Project Description	BA/BO Reference	Regulatory Requirement
	habitat has been degraded or lost both on- and off-post		
NA	Monitor and document disturbance to Huachuca water umbel and report such incidents to the USFWS as required by the BO	BO pg 66	ESA
NA	Huachuca Water Umbel Endangered Species Management Plan implementation	BO pg 65	ESA, AR200-1
NA	Garden Canyon existing roadbed and catch basins maintenance to protect Huachuca water umbel habitat and to ensure that no vegetation is removed outside the existing roadbed and the area is kept free of invasive species	BO pg 66	ESA
NA	Relocate the Upper Garden Canyon picnic site to protect areas supporting Huachuca water umbel	BO pg 66	ESA
NA	Monitor Palmer's agave population on the West and South ranges every five years to determine trends in bat forage resources as required in the BO	BO pg 68	ESA
NA	Pre-construction surveys for Palmer's agave as required by the BO	BO pg 67	ESA
NA	Candidate Huachuca springsnail monitoring	BO pg 74	ESA
NA	Erosion control conservation measures for the protection of special-status species habitat as described in the BO	BO pg 58	ESA
NA	Maintain habitat protection measures (boulder placement, signs, etc.)	BO pg 62-63	ESA
NA	Monitor around wind turbines and conduct formal consultation with USFWS if bald eagles or lesser long-nosed bats are found dead	BO pgs 68, 74	ESA
NA	Record all bald eagle sightings within ENRD	BO pg 74	
NA	Implement the endangered species management plan for the Mexican spotted owl that conforms to and complements the Mexican spotted owl Recovery Plan	BO pg 71	ESA; AR200-1
NA	Habitat assessment for the southwestern willow flycatcher at ASA points along the San Pedro River	BO pg 69	ESA
NA	Southwestern willow flycatcher habitat monitoring and mapping in the SPRNCA, acquired areas, easements, or areas where permission to enter has been obtained	BO pg 70	ESA
NA	Provide funding or technical assistance for flycatcher habitat management or restoration to BLM or land owners/managers	BO pg 70	ESA
NA	Endangered southwestern willow flycatcher monitoring reports for the USFWS	BO pg 75	ESA
NA	Endangered Sonora tiger salamander annual monitoring as required by the BO	BO pg 68	ESA
NA	Implement the Endangered Species Management Plan for the Sonora tiger salamander	BO pg 69	ESA, AR200-1

Project Number	Project Description	BA/BO Reference	Regulatory Requirement
NA	Monitor Sonora tiger salamander take or habitat destruction	BO pg 69	ESA
NA	Annual USFWS reporting	BO pg 75	ESA; AR200-1
NA	Annual work plan meeting with the USFWS	BO pg 76	ESA; AR200-1
NA	Recreational closures to protect special-status species and their habitat	BO pg 62-63	ESA
NA	Assess specific water devices and locations on the Fort to determine benefits versus potential risks such as predation		
NA	Fence improvements to enhance wildlife access to grassland habitats		
NA	Update game species annual harvest and management plans in cooperation with AGFD		AR200-1
NA	Carnivore ecology evaluation and research to better characterize habitat use, disease transmission and potential to affect prey species populations on Fort Huachuca		
NA	Monitor hunter-harvested big game		
NA	Maintain and update baseline inventory of bird species occurrence and habitat affinities		AR200-1
NA	Support research on bird species that occur on the Fort		
NA	Arizona Partners in Flight Bird Conservation Plan implementation		Sikes Act
NA	Migratory bird habitat management for habitat occurring on the Fort		Sikes Act; MBTA; EO13186
NA	Annual lion track count support		AR200-1
NA	Monitoring of non-federally listed mammal research		
NA	Update and maintain inventory of small mammals observed on the Fort		
NA	Habitat-specific small- and medium-sized mammal inventories		
NA	Automation of the hunter check-in/out data collection system		
NA	Support research on the effectiveness of management actions on mammals that occur on the Fort		
NA	Implementation the Fort's amphibian management plan		AR200-1
NA	Amphibian and reptile baseline inventory update and maintenance		AR200-1
NA	Western box turtle research on the Fort		
NA	Update and maintain butterfly inventory from outside sources through the use of		AR200-1

Project Number	Project Description	BA/BO Reference	Regulatory Requirement
	written lists compiled by collectors as a condition of collection permit renewal.		
NA	Invertebrate species inventory development using other field project data		AR200-1
NA	Formal invertebrate monitoring program focused on species that may indicate plant diversity or ecological function		AR200-1
NA	Formal invertebrate collecting permit tracking system development		
NA	Independent research database development		
NA	Increasing awareness that written authorization is required to collect material on the Fort		DODI 4715.3
NA	Development and implementation of management and conservation programs for non-game species, particularly for species considered likely to be proposed for listing in the near future		AR200-1
NA	Evaluation of the effect of military and recreational activities on terrestrial wildlife habitat		AR200-1
NA	Invasive Species Control Plan implementation by 2011		EO11312
NA	Develop standard requirements for independent research and in-house projects conducted on the Fort by 2011		DODI 4715.3
NA	GIS database development (similar to LCTA database) by FY 2013		AR200-1
NA	Increased law enforcement presence in areas where recreation or OHV use may disturb nesting or breeding of migratory birds		MBTA; AR200-1
NA	Wildlife strike database development by 2010		
NA	Implementation of quarterly stakeholder meetings between natural resource specialists and military air operations for the identification of wildlife hazards and attractants on LAAF		
NA	Environmental review early in the planning process for all proposed projects to protect wetlands and riparian areas		EO11990; NEPA; AR200-1; DODI 4715.3
NA	Certified jurisdictional wetland delineations and permit application if necessary for any project that is planned in or near a suspected wetland		EO11990; AR200-1; DODI 4715.3
NA	Reestablish riparian vegetation using cottonwood and willow cuttings		DODD 4700.4
NA	Wildlife travel corridor identification and protection between riparian and upland habitats		
NA	Non-structural stream bank enhancement	BO pg 58	AR200-1; DODD4700.4

Project Number	Project Description	BA/BO Reference	Regulatory Requirement
NA	Increase stormwater runoff control and purification in developed areas	BO pg 47	ESA
NA	Incorporate flora species as part of the natural resources baseline data		AR200-1
NA	Lehmann lovegrass (<i>Eragrostis lehmanniana</i>) distribution and abundance monitoring near small arms firing ranges as required by Section 7 informal consultation	BO pg 159	ESA; EO 13112
NA	Digitized geomorphic surface map development of the installation		
NA	Urban Forest Management Plan implementation and update as necessary by 2011		AR200-1
NA	Sale of wood or plant permits to reduce fuel loads and manage forest resources	BO pg 33	AR200-1
NA	Dead and down wood and snag removal management to preserve wildlife habitat requirements		
NA	Flannel mullein control through hand pulling or other treatment of individual plants	BO pg 77	EO 13112
NA	Environmental awareness program development to educate residents about native species that live in the immediate area to reduce management issues by FY2012		AR200-1
NA	Nuisance/pest wildlife response program to include response and documentation of time spent responding		AR200-1
NA	Nuisance wildlife trapping program assessment to determine goals and justification and develop control policy that minimizes relocation with minimized euthanasia by FY2011		
NA	Develop and distribute guidelines and policy for wildlife feeding on the installation and broader education and environmental awareness programs annually		DA Memo
NA	Development and implementation of techniques to prevent wildlife from sheltering in historic structures to reduce damage to these structures by 2012		
NA	Development of management options regarding control of problem species (e.g. vaccinate and release protocols) to prevent risk to humans, wildlife, and ecosystems by 2012	BO pg 77	AR200-1; DODI 4150.7
NA	Management of recreational activities such as horseback riding and birding to maintain the natural environment		ESA
NA	Evaluation of recreational permit sales and adjust as needed based on site use and management requirements		AR200-1
NA	Caving management program that includes Military Police sign-out control system and access dates		
NA	Coordinate with agencies (USFWS and USFS) and regional caving clubs regarding		DODD4700

Project Number	Project Description	BA/BO Reference	Regulatory Requirement
	cave management, mapping, clean-up, rescue and education components of the cave management program		
NA	Existing hiking trail maintenance on the Fort in cooperation with groups such as Scouts, hiking clubs and other volunteer organizations		
NA	Mountain bike use monitoring and regulation on the installation		AR200-1; EO11644
NA	Off Road Vehicle policy update and implementation on the Fort to include mapping, road closures, restrictions and guidelines, and recommended routes		AR200-1; EO11644
NA	Conduct State Hunter Education courses instructed by AGFD certified volunteers annually on the Fort		
NA	Personnel training and participation in annual workshops, training sessions, and conferences		AR200-1
NA	Partnering with groups and agencies to provide external specialized skills and resources to support the management of natural resources on the Fort		
NA	Personnel and manpower enhancement though IPA, ORISE, cooperative agreements with universities, Student Conservation Association, contractors, and volunteers for labor, technical expertise, and research capabilities		

1 NA – Not yet assigned

1	APPENDIX 2
2	RPMP PLANNING GOALS AND OBJECTIVES
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Goal 1: Continue to support key tenants and missions of USAIC, NETCOM/9th ASC, CECOM, JITC, IEWTD, USEPG, UAV Training Center, and others.

- Ensure the adequacy of facilities to support the current and future mission population level through correction of existing deficiencies.
- Control encroachment on training grounds and EMR environment.

Goal 2: Achieve maximum operational efficiency and cost effectiveness.

- Improve inadequate and inefficient facility utilization and traffic circulation.
- Continue to seek the highest and best locational use relationship for land use and facility needs that maximize daily mission efficiency.
- Avoid off-post leasing.

Goal 3: Manage real property sustainably.

- Optimally utilize existing permanent facilities (TRADOC goal is minimum utilization rate of 80 percent).
- Maintain existing real property inventory and ensure accuracy in the integrated facilities system (IFS) and RPLANS databases.
- Replace temporary buildings with permanent structures.
- Upgrade or dispose of inefficient buildings.
- Divest unneeded facilities and real property.
- Rehabilitate and reuse existing permanent structures when appropriate.
- Construct sustainable, efficient permanent structures when necessary.

Goal 4: Promote environmental stewardship.

- Protect and improve the quality of the environment by coordinating installation operations and functions with the master plan and component plans.
- Expand and implement programs that enhance water and energy conservation.
- Preserve and enhance the unique environmental qualities of the installation, including minimizing disturbance of sensitive sites.
- Ensure that significant archeological and historic sites are preserved.
- Enhance and expand unique wildlife habitat areas within the installation and as part of a regional management plan.
- Continue and expand programs to minimize pollution and waste.

Goal 5: Maintain and create the best quality living and working environments.

- Build communities according to Army Communities of Excellence (ACOE) standards.
- Replace old, dilapidated troop housing with new structures designed according to the new "1 plus 1" Department of Defense standards, and upgrade "2 plus 2" to "1 plus 1" standard.
- Retain and improve existing community facilities while developing additional commerciallyoriented community facilities (e.g., food establishments, exchange and entertainment facilities) adjacent to principal traffic collectors.
- Identify health and safety hazards (transportation, environmental, crime, etc.) and propose mitigation measures.

Goal 6: Develop a compatible relationship with neighborhood communities.

- Be a good neighbor.
- Be aware of off-post environmental impacts created by on-post activities.
- Establish a strong relationship with land use planners in the surrounding jurisdictions and at the regional and state levels.
- Work to ensure land use compatibility between the installation and adjoining or adjacent parcels of land.
- Educate local communities of the operational needs at Fort Huachuca and of the impacts of off-post development to operational efficiency.

Goal 7: Provide a clearly defined and updated framework for the development, improvement and sustainability of Fort Huachuca.

- Update the RPMP and associated data regularly according to Army regulation.
- Ensure that the RPMP and associated data are accessible via the web.
- Educate people on the purpose and use of the RPMP and associated data and the planning and programming process.

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