

FINAL

ENVIRONMENTAL ASSESSMENT
FOR
CONSTRUCTION OF SECURITY FORCES TRAINING FACILITIES
AND
FORCE PROTECTION UPGRADES
AT
SCHRIEVER AIR FORCE BASE, COLORADO



Prepared For:

UNITED STATES AIR FORCE
50TH SPACE WING
SCHRIEVER AIR FORCE BASE, COLORADO

Under Contract Number

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Prepared by:



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Background

Schriever Air Force Base (SAFB) is located in El Paso County, Colorado, approximately 10 miles (17 kilometers) east of Colorado Springs. SAFB is home to the 50th Space Wing, the Space Warfare Center, the Ballistic Missile Defense Organization's Joint National Integration Center, the 310th Space Group, and several tenant organizations.

Due to increasing mission demands and personnel increases at SAFB and the need for increased security precautions following the September 11, 2001 terrorist attacks on the United States, the USAF is proposing a number of facility construction and enhancement projects at SAFB. The purpose of the Proposed Action is to provide sufficient facilities to adequately accommodate personnel and mission demands at SAFB and assist in the base's Security Forces mission. The need for the Proposed Action is the inadequacy of security forces training and force protection facilities at SAFB.

The proposed Security Forces Squadron Regional Facility (SFSRF) – Training Center is necessary in order for personnel to efficiently train. The current lack of these facilities requires training to be conducted off-site, resulting in additional time and budget expenditures.

Due to increases in staff and administrative needs, the existing base Security Forces Operations Center is inadequate to fulfill current and future security forces needs; therefore, base security forces personnel are currently operating out of various locations throughout the base. The proposed Security Forces Squadron Operations Facility (SFSOF) would provide sufficient space to consolidate security forces functions and personnel in one location.

Due to non-mission-related growth outside of the secure area, the existing Main Entrance Gate and Visitor Control Center need to be relocated and redesigned to provide better access and traffic control. The West Gate Security Forces Facility is needed to ensure security.

No Action Alternative

The No Action Alternative would involve no new construction at SAFB. If the No Action Alternative is selected, the base will continue to operate under existing conditions. Specifically:

- Current facilities would remain inadequate in both size and location for the organization's mission.
- Security limitations and foreseeable security gaps that would have been addressed by the proposed improvements would remain indefinitely.

- Insufficient floor space for several base functions would persist.
- Corresponding expenditures associated with the projects described above would continue while new construction expenditures would not occur.

Proposed Action

The Proposed Action is composed of the following primary construction projects:

1. SFSRF –Training Center: Combat Arms Training and Maintenance (CATM) Facility, Indoor Firing Range, Obstacle Course, All-Terrain Vehicle (ATV) Training Course (Project # GLEN 95-3001).
2. SFSOF – 28,500 square foot building for office space; secured space for munitions, small arms, tear gas and similar items; canine housing; and training facilities (Project # GLEN 01-3001).
3. Upgrade Force Protection: Vehicle Control/Visitor Center (VC/VC), Main Gate and West Gate Improvements - (Project # GLEN 04-3002).

Alternative sites for the SFSRF and SFSOF were also analyzed for potential impacts. Only one site alternative (Site 1 or Site 2) for either the SFSRF or SFSOF would be selected. In general, impacts associated with Site 1 or Site 2 for the SFSRF and SFSOF would be quite similar (i.e., facilities footprints would be the same size); therefore, except where specified, impact findings for each resource would apply to either site alternative location.

Impacts from the No Action Alternative

In general, no environmental impacts would occur under the No Action Alternative, although increased fuel consumption and associated air emissions would occur compared to the Proposed Action due to the need for Schriever AFB personnel to travel out of state to meet training requirements.

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No impacts associated with development under any of the site alternatives were found to be significant. Except where specifically stated, the following impact discussions apply to impacts associated with implementation of the proposed SFSOF and or SFSRF at either of the site alternatives for either of these facilities.

Land Use The Proposed Action would replace approximately 42 acres of vacant grasslands with facilities, parking areas, and roadways, if Site 1 for the SFSOF is selected, while approximately 34 acres would be lost if Site 2 is selected for the SFSOF. Approximately 12 acres of land leased for grazing would be developed under Site 1 for the SFSRF, while 42 acres leased for grazing would be developed under Site 2 for the SFSRF. Proposed development would not create compatibility issues within the existing base or with respect to adjacent land uses. Less than significant impacts associated with increased traffic, noise, and exterior lighting would occur.

Socioeconomics Personnel increases and facilities construction would result in direct and indirect positive impacts associated with jobs and revenue. Less than significant impacts associated with demands for housing, urban services, and utilities would occur.

Environmental Justice No impacts to minority or low-income populations would occur.

Air Quality Disturbance of approximately 42 acres for facilities development would require a dust control permit from the Colorado Department of Public Health and Environment (CDPHE) Colorado Air Quality Control Commission (CAQCC). Impacts associated with construction and operations would be less than significant and are not expected to require modification to the current CDHPE permit status.

Noise Construction noise would result in temporary and intermittent increases in noise levels. It is not anticipated that noise levels would exceed State standards for construction noise and no sensitive receptors would be significantly impacted. Operational noise associated with the indoor rifle range and outdoor ATV course would result in less than significant increases in noise levels.

Water Resources Approximately 42 acres of new impervious surfaces would be created, resulting in increases in runoff and a decrease in local groundwater recharge. Construction activities would require a permit from the CDPHE to address stormwater. A NPDES permit would be required to address stormwater from new facilities, and these facilities would need to be incorporated into the Storm Water Pollution Prevention Plan (SWPPP). These impacts would be less than significant.

Earth Resources The Proposed Action would result in the alteration of approximately 42 acres of surface soils. No soils with moderate to severe constraints are known to occur within any of the facility footprints. A dust control permit from CDPHE would be required and standard construction measures to minimize soils erosion should be implemented. Impacts would be less than significant.

Biological Resources The Proposed Action would result in the loss of 42 acres of shortgrass prairie and associated habitat for wildlife if Site 1 is selected for the SFSOF. Approximately 34 acres of shortgrass prairie would be lost if shortgrass prairie habitat would be lost if Site 2 for the SFSOF is selected. Indirect impacts would also occur as a result of edge effect (e.g., spread of noxious weeds) and fragmentation. The Proposed Action presents the potential to directly and indirectly impact two species that are considered sensitive, black-tailed prairie dog and the western burrowing owl, and indirectly impact bald eagle, ferruginous hawk, mountain plover, and swift fox. Implementation of proposed mitigation measures are proposed to reduce impacts below significance.

Cultural Resources No known cultural resources exist onsite. Implementation of formally adopted Cultural Resources Management Plan (CRMP) procedures would prevent significant impacts if cultural resources were discovered during construction.

Solid and Hazardous Waste The Proposed Action would contribute incrementally towards impacts associated with regional landfill capacity. The ATV training course and rifle range associated with the SFSRF would increase the amount of hazardous waste generated on base. These impacts would be less than significant.

Health and Public Safety Construction and training activities associated with the Proposed Action have the potential to create health and public safety risks that could be avoided, minimized, or mitigated by compliance with applicable regulations, standard practices, and requirements for activity supervision, as well as OSHA compliance. If relocation of prairie dogs occurs as a mitigation measure, this action would present a higher risk of infection associated with plague due to direct contact with prairie dogs. The SAFB Prairie Dog Management Plan should include proper procedures for the handling of prairie dogs to minimize the potential for human exposure to plague. These health and public safety impacts would be less than significant.

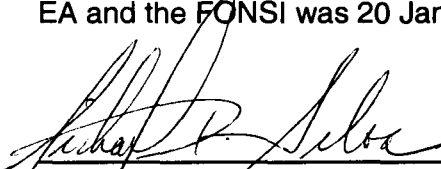
Secondary and Cumulative Effects:

The following secondary and cumulative effects are identified in the EA:

- Further demand for support facilities and infrastructure at the base and off-site.
- Incremental losses of ranchland, open space, and habitat associated with converting undeveloped land to urban uses.
- Incremental contributions to local traffic and the potential for accidents.
- Incremental impacts associated with light pollution.
- Contributions to regional and local air pollutant emissions.
- Incremental increases in urban stormwater runoff quantities and contaminant loads.
- Continuing incremental loss of plant and wildlife habitat, including the loss of 34 to 42 acres of shortgrass prairie.
- Use of hazardous materials and production and disposal of solid and hazardous wastes.

Finding

Finding of No Significant Impact (FONSI): Pursuant to NEPA, the Council on Environmental Quality, and CFR Part 989, I conclude that the environmental effects of the Proposed Action are not significant and, therefore, an environmental impact statement will not be prepared. The Draft EA was circulated for a 30-day comment period beginning 16 December 2002. A hard copy of the EA was placed in the East Library Information Center, and the Penrose Public Library Local History Desk in Colorado Springs. *The Draft FONSI was circulated for a 12-day comment period beginning 8 January 2003 and ending 20 January 2003. A hard copy of the FONSI was placed in the East Library and Information Center, and the Penrose Public Library Local History Desk in Colorado Springs.* The end of the public comment period for both the EA and the FONSI was 20 Jan 2003.



MICHAEL D. SELVA
Colonel, USAF
Vice Commander, 50th Space Wing

3 February 2003

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TABLE OF CONTENTS

FINDING OF NO SIGNIFICANT IMPACT

LIST OF ACRONYMS	v
S. SUMMARY.....	S-1
S.1 INTRODUCTION.....	S-1
S.1.1 Purpose and Need	S-1
S.1.2 Project Site, Proposed Action, and Alternatives	S-1
S.1.3 Organization and Content of the Environmental Assessment	S-2
S.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION AND ALTERNATIVES.....	S-2
S.2.1 Description and Comparison of Environmental Consequences	S-2
S.2.2 Comparison of Proposed Action to the No Action Alternative	S-5
S.2.3 Comparison of Sites 1 and 2 for the SFSRF – Training Center	S-5
S.2.4 Comparison of Sites 1 and 2 for the SFSOF	S-5
1. INTRODUCTION.....	1-1
1.1 PROJECT LOCATION AND BACKGROUND.....	1-1
1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION	1-4
1.3 SCHRIEVER AIR FORCE BASE: ENVIRONMENTAL MANAGEMENT COMMENTS	1-4
2. ALTERNATIVES INCLUDING THE PROPOSED ACTION.....	2-1
2.1 PROPOSED ACTION	2-1
2.1.1 Security Forces Squadron Regional Facility	2-1
2.1.2 Security Forces Squadron Operations Facility	2-4
2.1.3 Upgrade Force Protection (UFP): Visitor Control/Visitor Center (VC/VC), Visitor Center, Main Gate and West Gate Improvements	2-4
2.2 NO ACTION ALTERNATIVE	2-9
3. AFFECTED ENVIRONMENT.....	3-1
3.1 LAND USE, SOCIOECONOMICS, AND ENVIRONMENTAL JUSTICE	3-1
3.1.1 Existing Land Uses.....	3-1
3.1.2 Socioeconomics	3-3
3.1.3 Environmental Justice	3-3
3.2 AIR QUALITY	3-3
3.2.1 Climate	3-3
3.2.2 Air Quality Regulations and Authorities	3-3
3.2.3 Regional Air Quality.....	3-4
3.2.4 Permit Status and Emissions Sources at Schriever AFB	3-4
3.3 NOISE	3-5
3.4 WATER RESOURCES	3-5
3.4.1 Surface Water	3-5
3.4.2 Stormwater	3-7
3.4.3 Groundwater.....	3-7

3.5	EARTH RESOURCES	3-7
3.5.1	Geology	3-7
3.5.2	Mineral Resources	3-8
3.5.3	Soils	3-8
3.6	BIOLOGICAL RESOURCES	3-8
3.6.1	Vegetation	3-8
3.6.2	Wildlife	3-9
3.6.3	Federal and State Threatened, Endangered, Proposed, and Candidate Species and Species of Concern	3-9
3.6.4	Wetlands	3-12
3.7	CULTURAL RESOURCES	3-13
3.8	SOLID AND HAZARDOUS WASTE	3-13
3.8.1	Solid Waste	3-13
3.8.2	Hazardous Materials	3-13
3.8.3	Hazardous Waste	3-14
3.8.4	Pollution Prevention	3-14
3.8.5	Installation Restoration Program	3-15
3.9	HEALTH AND PUBLIC SAFETY	3-15
4.	ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES	4-1
4.1	LAND USE, SOCIOECONOMICS, AND ENVIRONMENTAL JUSTICE	4-1
4.1.1	Land Use Impacts	4-1
4.1.2	Socioeconomic Impacts	4-3
4.1.3	Environmental Justice Impacts	4-3
4.1.4	Impacts of the No Action Alternative	4-3
4.2	AIR QUALITY	4-4
4.2.1	Construction Impacts	4-4
4.2.2	Impacts from New Equipment and Operations	4-4
4.2.3	Impacts of the No Action Alternative	4-5
4.3	NOISE	4-5
4.3.1	Impacts from Construction Noise	4-5
4.3.2	Impacts from Operational Noise	4-6
4.3.3	Impacts of the No Action Alternative	4-6
4.4	WATER RESOURCES	4-6
4.4.1	Surface Water and Stormwater Impacts	4-6
4.4.2	Groundwater Impacts	4-7
4.4.3	Impacts of the No Action Alternative	4-7
4.5	EARTH RESOURCES	4-8
4.5.1	Impacts on Geology, Mineral Resources, and Soils	4-8
4.5.2	Impacts of the No Action Alternative	4-8
4.6	BIOLOGICAL RESOURCES	4-9
4.6.1	Impacts to Vegetation	4-9
4.6.2	Impacts to Wildlife	4-9
4.6.3	Impacts to Sensitive Species	4-9
4.6.4	Impacts to Wetlands	4-11
4.6.5	Impacts of the No Action Alternative	4-11

4.7	CULTURAL RESOURCES	4-12
4.7.1	Impacts on Known and Previously Unknown Cultural Resources	4-12
4.7.2	Impacts of the No Action Alternative	4-12
4.8	SOLID AND HAZARDOUS WASTE	4-12
4.8.1	Solid Waste Generation and Disposal	4-13
4.8.2	Hazardous Materials and Waste	4-13
4.8.3	Impacts of the No Action Alternative	4-13
4.9	HEALTH AND PUBLIC SAFETY	4-13
4.9.1	Impacts of the Proposed Action	4-13
4.9.2	Impacts of the No Action Alternative	4-14
4.10	SECONDARY AND CUMULATIVE EFFECTS	4-14
4.11	IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES	4-16
4.12	THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE HUMAN ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY	4-16
4.13	UNAVOIDABLE ADVERSE IMPACTS	4-16
5.	LIST OF PREPARERS	5-1
6.	BIBLIOGRAPHY AND REFERENCES	6-1
6.1	DOCUMENTS AND INTERNET SITES	6-1
6.2	AGENCIES AND PERSONS CONSULTED	6-3
7.	COMMENTS ON THE DRAFT EA	7-1
7.1	ORIGINAL COMMENTS	7-1
7.2	SUMMARIZED COMMENTS AND RESPONSES	7-1

LIST OF FIGURES

Figure 1-1	Regional Location Map for Schriever Air Force Base	1-2
Figure 1-2	Schriever Air Force Base Baseline/Existing Conditions Map	1-3
Figure 1-3	Photographs of Key Locations at Schriever Air Force Base	1-5
Figure 2-1	Proposed Action and Alternative Sites for Proposed Improvements Map	2-2
Figure 2-2	Conceptual Site Plan for the Security Forces Squadron Regional Facility (Site 1)	2-3
Figure 2-3	Conceptual Plan for the Security Forces Squadron Operations Facility (Site 1)	2-5
Figure 2-4	Conceptual Facilities Plan for the Visitor Center	2-6
Figure 2-5	Conceptual Main Gate Roadway Plan (Proposed VC/VC)	2-7
Figure 2-6	Conceptual West Gate Roadway Plan	2-8
Figure 3-1	Natural Resources Constraints Map	3-6
Figure 4-1	Natural Resources Constraints and Proposed Action and Site Alternatives Overlay Map	4-2

LIST OF TABLES

Table S.1	Summary of the Impacts Associated with the Proposed Action, Alternative Facilities Sites, and the No Action Alternative	S-6
Table 3.1	Existing Land Use at Schriever AFB	3-2
Table 3.2	2000 Basewide Stationary Source Emissions Summary for Criteria Pollutants	3-4
Table 3.3	Federal and State Threatened, Endangered, Proposed, and Candidate Species and Species of Concern Potentially Occurring at Schriever AFB, El Paso County, Colorado	3-10
Table 4.1	Heavy Equipment Noise Levels at 50 Feet	4-5
Table 4.2	Reasonably Foreseeable Future On-Site Improvements	4-15

LIST OF ACRONYMS

USAF	U.S. Air Force
ATO	Anti Terrorist Officer
ATV	All-Terrain Vehicle
BA	Biological Assessment
BMPs	Best Management Practices
CAQCC	Colorado Air Quality Control Commission
CAQCD	Colorado Air Quality Control Division
CATM	Combat Arms Training and Maintenance
CDOT	Colorado Department of Transportation
CDOW	Colorado Department of Wildlife
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation and Liability Act
CESQG	Conditionally Exempt Small Quantity Generator
CFR	Code of Federal Regulations
COE	U.S. Army Corps of Engineers
dB	Decibel
dBA	Decibels, Ambient Level
DoD	Department of Defense
EIAP	Environmental Impact Analysis Process
EO	Executive Order
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right to Know Act
ESA	Environmental Species Act
EA	Environmental Assessment
FY	Fiscal Year
HAP	Hazardous Air Pollutant
HEPA	High Efficiency Particle Arresting
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
OAHP	Office of Archeology and Historic Preservation
OSHA	Occupational Safety and Health Administration
PFC	Physical Fitness Center
SHPO	State Historic Preservation Officer
SFSRF	Security Forces Squadron Regional Facility
SFSOF	Security Forces Squadron Operations Facility
USACE	United States Army Corps of Engineers
USC	United States Code
USFWS	U.S. Fish and Wildlife Service
VC/VC	Vehicle Control/Vehicle Center

S. SUMMARY

S.1 INTRODUCTION

The U.S. Air Force (USAF) has prepared this Environmental Assessment (EA) in accordance with the National Environmental Policy Act (NEPA) of 1969, 42 United States Code (USC) §§ 4321-4370d, as implemented by the Council on Environmental Quality (CEQ) Regulations, Title 40 CFR Parts 1500-1508; and 32 CFR 989, which implements the USAF's Environmental Impact Analysis Process (EIAP) and provides the procedural requirements used to ensure USAF compliance with NEPA.

S.1.1 Purpose and Need

Due to increasing mission demands and personnel increases at Schriever Air Force Base (Base) and the need for increased security precautions following the September 11, 2001 terrorist attacks on the United States (U.S.), the USAF is proposing a number of facility construction and enhancement projects at the Base. The purpose of the Proposed Action is to provide sufficient facilities to adequately accommodate personnel and mission demands at the Base and assist in the Base's Security Forces mission. The need for the Proposed Action is the inadequacy of security forces training and force protection facilities at the Base.

The proposed Security Forces Squadron Regional Facility (SFSRF) – Training Center is necessary in order for Base personnel to efficiently train. The current lack of these facilities at the Base requires training to be conducted off-site, resulting in additional time and budget expenditures.

Due to increases in staff and administrative needs, the existing Base Security Forces Operations Center is inadequate to fulfill current and future security forces needs; therefore, Base security forces personnel are currently operating out of various locations throughout the Base. The proposed Security Forces Squadron Operations Facility (SFSOF) would provide sufficient space to consolidate security forces functions and personnel in one location.

Due to non-mission-related growth outside of the Base secure area, the existing Main Entrance Gate and Visitor Control Center need to be relocated and redesigned to provide better access and traffic control. The West Gate Security Forces Facility is needed to ensure Base security.

S.1.2 Project Site, Proposed Action, and Alternatives

The Base is located in El Paso County, Colorado, approximately 10 miles (17 kilometers) east of Colorado Springs. The Base is home to the 50th Space Wing, the Space Warfare Center, the Ballistic Missile Defense Organization's Joint National Integration Center, the 310th Space Group, and several tenant organizations.

The Proposed Action is composed of the following primary construction projects:

1. SFSRF –Training Center: Combat Arms Training and Maintenance (CATM) Facility, Indoor Firing Range, Obstacle Course, All-Terrain Vehicle (ATV) Training Course (Project # GLEN 95-3001).

2. SFSOF – 28,500 square foot building for office space; secured space for munitions, small arms, tear gas and similar items; canine housing; and training facilities (Project # GLEN 01-3001).
3. Upgrade Force Protection: Vehicle Control/Visitor Center (VC/VC), Main Gate and West Gate Improvements - (Project # GLEN 04-3002).

S.1.3 Organization and Content of the Environmental Assessment

This EA is organized in a manner consistent with NEPA and the USAF's NEPA implementing regulations. The EA consists of a summary and six chapters:

- Chapter 1. Introduction
- Chapter 2. Alternatives Including the Proposed Action
- Chapter 3. Affected Environment
- Chapter 4. Environmental Consequences and Mitigation Measures
- Chapter 5. List of Preparers
- Chapter 6. Bibliography and References

S.2 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED ACTION AND ALTERNATIVES

The Proposed Action, including alternative sites for construction of two of the three primary facilities and the No Action Alternative, are the only alternatives addressed in the EA. The No Action Alternative would leave the site in its current condition, add no new facilities or infrastructure, and maintain current levels of activity. Table S.1 presents a summary comparison of the impacts associated with the Proposed Action, alternative sites for proposed facilities, and the No Action Alternative.

S.2.1 Description and Comparison of Environmental Consequences

The following discussion summarizes findings of this EA and compares the impacts of the Proposed Action with those of the No Action Alternative.

Implementation of the Proposed Action would not result in significant impacts to the environment because future improvements and activities included in the Proposed Action would not substantially deviate from existing conditions and activities, the selected sites present limited or no substantial environmental constraints, and the Base has an extensive set of existing programs, policies and practices intended to avoid, minimize and mitigate potential impacts during and after construction. The Base's environmental management commitments are summarized in Chapter 1 and described, where applicable, in Chapters 3 and 4.

The direct, indirect, induced, secondary, and cumulative impacts of the Proposed Action are discussed throughout Chapter 4 of this EA. The impacts of the Proposed Action are either insignificant or can be avoided or mitigated to below a level of significance. The primary impacts identified in this EA are summarized below with corresponding avoidance and/or mitigation measures.

The primary impacts and associated mitigation measures recommended in this EA include the following:

- Construction activities and ATV operations at the SFSRF training track would generate noise that could be objectionable during late night and early morning hours.
 - Construction involving heavy equipment and ATV operations should be limited to the time period between 0800 and 1700 hours.
- Construction and outdoor training activities would increase the potential for soil erosion and stormwater contaminant loads.
 - In association with standard practices and permit requirements, the following measures are recommended to address soil erosion and minimize surface water degradation associated with the SFSRF outdoor training site and associated activities:
 - A perimeter fence designed to contain activity within the areas to be developed with training facilities should be installed to prevent disturbance of natural areas.
 - Measures to define activities areas and limit site disruption within and around the obstacle course should be made part of the final design process for the outdoor training area.
 - Where practicable, incorporate features such as pervious surfaces for parking lots and sidewalks, and grass swales to manage and minimize stormwater runoff, particularly within the outdoor training area and ATV training course.
 - During extremely high-wind periods, earth-moving activities should be stopped or limited.
 - During construction, water should be applied to disturbed surface areas and soil stockpiles to minimize fugitive dust.
- The Proposed Action and site alternatives present the potential to directly and indirectly impact two species that are considered sensitive, black-tailed prairie dog and the western burrowing owl, and indirectly impact bald eagle, ferruginous hawk, mountain plover, and swift fox.

Based on initial informal consultation and coordination with the USFWS and the CDOW, respectively, the following measures are recommended to avoid or minimize potential impacts to shortgrass prairie habitat, and to black-tailed prairie dogs, western burrowing owls, bald eagles, ferruginous hawks, Swainson's hawks, and mountain plovers from implementation of the proposed West Gate improvements and losses of shortgrass prairie. Further consultation and coordination with USFWS and CDOW is required to finalize these measures:

- The final design process for the West Gate improvements should include a thorough evaluation of design alternatives that would avoid impacts to black-tailed prairie dogs and western burrowing owls. Complete avoidance of direct and indirect impacts to these

species would include a plan that would:

- Maintain a 150-foot (46-meter) buffer between a burrowing owl/prairie dog habitat perimeter established during a formal field survey.
- Involve a construction period when burrowing owls are not present (1 November through 28 February).
- Involve relocation of prairie dogs in the adjacent colony

If avoidance through redesign is not feasible, the following measures would be required to minimize and mitigate the potential impacts of the West Gate conceptual design:

- The Base shall continue informal consultation and coordination with the USFWS and CDOW.
- The Base shall perform a field survey for prairie dogs, burrowing owls, and mountain plovers near the West Gate of the Base during the 2003 field season.
- The Base shall complete the ongoing Black-Tailed Prairie Dog Management Plan that includes best management practices (BMPs) to avoid, minimize and mitigate impacts to the existing prairie dog colony.
- The Base shall perform the construction of the West Gate improvements when burrowing owls are not present (1 November through 28 February), or stage construction to maintain a 150-foot (46-meter) buffer between the habitat boundary and the construction area. No construction activities, material, or equipment storage areas, or parking or other human activities shall be allowed within this buffer area.
- The incremental loss of 34 to 42 acres of shortgrass prairie associated with the Proposed Action would be considered a direct and cumulative impact because this cover type is in decline along the Front Range and it is associated with protected species and species such as mountain plovers that are being considered for federal protection.
 - Revegetation of shortgrass prairie areas temporarily disturbed by construction that are not lost to new improvements should be revegetated with a shortgrass prairie seed mix suitable for this site and monitored and maintained to avoid establishment of noxious weeds.
 - As part of the ongoing long-range planning for the Base and in accordance with the Base Integrated Natural Resources Management Plan, consideration should be given to shortgrass prairie preservation. Shortgrass prairie preservation should include contiguous areas of good quality on-Base land cover and coordination with adjacent landowners (e.g., State of Colorado) to create contiguous blocks of shortgrass prairie.
- The Proposed Action and potential mitigation presents potential health issues associated with prairie dogs:

- The Base prairie dog management plan should include proper procedures for the handling of prairie dogs to minimize the potential for human exposure to plague.

S.2.2 Comparison of Proposed Action to the No Action Alternative

The impacts created by the Proposed Action would be avoided if the No Action Alternative were selected as the preferred alternative. However, none of the impacts of the Proposed Action are considered significant. The No Action Alternative would eliminate the beneficial impacts that could be expected from implementation of the proposed construction projects. Additionally, because the No Action Alternative would not result in construction of the proposed SFSRF, Schriever AFB personnel would continue to have to travel out of state to meet training requirements, resulting in increased fuel consumption and associated air emissions, as well as increased costs.

S.2.3 Comparison of Sites 1 and 2 for the SFSRF – Training Center

The impacts on Site 1 and Site 2 for the SFSRF would essentially be the same as both would displace about 30 acres of shortgrass prairie, although the facilities associated with Site 1 would be contained within a 100-acre area, while under Site 2 the associated area would be 54 acres. The only other consideration is that Site 2 is currently leased for grazing while Site 1 is not. Other factors such as overall Base planning considerations and site development cost should be considered in the final site selection for the SFSRF.

S.2.4 Comparison of Sites 1 and 2 for the SFSOF

The impacts on Site 1 and Site 2 for the SFSOF would be quite similar. The impacts that would be different are summarized as follows:

- The use of Site 2 for the SFSOF would elevate exterior and interior noise levels at the medical/dental building, but the resulting levels would not be expected to exceed applicable standards or disrupt normal operations.
- The use of Site 1 for the SFSOF would limit loss of shortgrass prairie.
- The use of Site 2 for the SFSOF would involve slightly more solid waste generation than Site 1 because Site 2 involves demolition of the existing ball field and associated pavilion.

Based on these differences, the EA findings would allow for selection of either site, but would slightly favor Site 1. Other factors such as overall Base planning considerations and site development cost should be considered in the final site selection for the SFSOF.

**Table S.1. Summary of the Impacts Associated with the Proposed
Action, Alternative Facilities Sites, and the No Action Alternative.**

Impacts				
Resource	Proposed Action Assuming Site 1 for SFSRF and Site 1 for the SFSOF, and Main Gate and West Gate Improvements	Proposed Action Assuming Site 2 for SFSRF, Site 1 for SFSOF, and Main Gate and West Gate Improvements	Proposed Action Assuming Site 1 for SFSRF, Site 2 for SFSOF, and Main Gate and West Gate Improvements	No Action Alternative
Land Use	The proposed action would replace approximately 42 acres of vacant grasslands with facilities, parking areas, and roadways. Approximately 12 acres of land leased for grazing would be developed. Proposed development would not create compatibility issues with existing Base or adjacent land uses. Less than significant impacts associated with increased traffic, noise, and exterior lighting would occur.	Impacts associated with Site 2 for the SFSRF would be the same as those described under the Proposed Action, except that approximately 42 acres leased for livestock grazing would be developed.	Site 2 for the SFSOF would replace an existing ballfield rather than vacant grassland. This would reduce the amount of grassland lost by 8 acres compared to the proposed action. All other impacts would be similar to those described under the Proposed Action.	No impacts
Socioeconomics	Personnel increases and facilities construction would result in direct and indirect positive impacts associated with jobs and revenue. Less than significant impacts associated with demands for housing, urban services, and utilities would occur.	Impacts associated with Site 2 for the SFSRF would be the same as those described under the Proposed Action.	Impacts associated with Site 2 for the SFSOF would be the same as those described under the Proposed Action.	No impacts
Environmental Justice	No impacts to minor or low-income populations would occur.	No impacts to minor or low-income populations would occur.	No impacts to minor or low-income populations would occur.	No impacts

Impacts				
Resource	Proposed Action Assuming Site 1 for SFSRF and Site 1 for the SFSOF, and Main Gate and West Gate Improvements	Proposed Action Assuming Site 2 for SFSRF, Site 1 for SFSOF, and Main Gate and West Gate Improvements	Proposed Action Assuming Site 1 for SFSRF, Site 2 for SFSOF, and Main Gate and West Gate Improvements	No Action Alternative
Air Quality	Disturbance of approximately 32 acres for facilities development would require a dust control permit from CDPHE CAQCC. Impacts associated with construction and operations would be less than significant and are not expected to require modification to the Base's current CDHPE permit status.	Impacts associated with Site 2 for the SFSRF would be the same as those described under the Proposed Action.	Impacts associated with Site 2 for the SFSOF would be the same as those described under the Proposed Action.	No impacts. However, because the No Action Alternative would not result in construction of the proposed SFSRF, Schriever AFB personnel would continue to have to travel out of state to meet training requirements, resulting in increased fuel consumption and associated air emissions.
Noise	Construction noise would result in temporary and intermittent increases in noise levels. It is not anticipated that noise levels would exceed State standards for construction noise and no sensitive receptors would be significantly impacted. Operational noise associated with the indoor rifle range and outdoor ATV course would result in less than significant increases in noise levels.	Impacts associated with Site 2 for the SFSRF would be the same as those described under the Proposed Action.	Impacts associated with Site 2 for the SFSOF would be the same as those described under the Proposed Action.	No impacts

Impacts				
Resource	Proposed Action Assuming Site 1 for SFSRF and Site 1 for the SFSOF, and Main Gate and West Gate Improvements	Proposed Action Assuming Site 2 for SFSRF, Site 1 for SFSOF, and Main Gate and West Gate Improvements	Proposed Action Assuming Site 1 for SFSRF, Site 2 for SFSOF, and Main Gate and West Gate Improvements	No Action Alternative
Water Resources	Approximately 42 acres of new impervious surfaces would be created, resulting in increases in runoff and a decrease in local groundwater recharge. Construction activities would require a permit from the CDPHE to address stormwater. A NPDES permit would be required to address stormwater from new facilities, and these facilities would need to be incorporated into the Base SWPPP. These impacts would be less than significant.	Impacts associated with Site 2 for the SFSRF would be the same as those described under the Proposed Action.	Impacts associated with Site 2 for the SFSOF would be the same as those described under the Proposed Action.	No impacts
Earth Resources	The proposed action would result in the alteration of approximately 42 acres of surface soils. No soils with moderate to severe constraints are known to occur within any of the facility footprints. A dust control permit from CDPHE would be required and standard construction measures to minimize soils erosion should be implemented. Impacts would be less than significant.	Impacts associated with Site 2 for the SFSRF would be the same as those described under the Proposed Action.	Impacts associated with Site 2 for the SFSOF would be the same as those described under the Proposed Action.	No impacts

Impacts				
Resource	Proposed Action Assuming Site 1 for SFSRF and Site 1 for the SFSOF, and Main Gate and West Gate Improvements	Proposed Action Assuming Site 2 for SFSRF, Site 1 for SFSOF, and Main Gate and West Gate Improvements	Proposed Action Assuming Site 1 for SFSRF, Site 2 for SFSOF, and Main Gate and West Gate Improvements	No Action Alternative
Biological Resources	The proposed action would result in the loss of 42 acres of shortgrass prairie and associated habitat for wildlife. Indirect impacts would also occur as a result of edge effect (e.g., spread of noxious weeds) and fragmentation. The Proposed Action presents the potential to directly and indirectly impact two species that are considered sensitive, black-tailed prairie dog and the western burrowing owl, and indirectly impact bald eagle, ferruginous hawk, mountain plover, and swift fox. Implementation of proposed mitigation measures would be required to reduce impacts below significance.	Impacts associated with Site 2 for the SFSRF would be the same as those described under the Proposed Action.	Selection of Site 2 for the SFSOF would result in the loss of 8 fewer acres of shortgrass prairie habitat compared to the Proposed Action.	No impacts
Cultural Resources	No known cultural resources exist onsite. Implementation of formally adopted CRMP procedures would prevent significant impacts if cultural resources are discovered during construction.	Impacts associated with Site 2 for the SFSRF would be the same as those described under the Proposed Action.	Impacts associated with Site 2 for the SFSOF would be the same as those described under the Proposed Action.	No impacts

Impacts				
Resource	Proposed Action Assuming Site 1 for SFSRF and Site 1 for the SFSOF, and Main Gate and West Gate Improvements	Proposed Action Assuming Site 2 for SFSRF, Site 1 for SFSOF, and Main Gate and West Gate Improvements	Proposed Action Assuming Site 1 for SFSRF, Site 2 for SFSOF, and Main Gate and West Gate Improvements	No Action Alternative
Solid and Hazardous Waste	The proposed action would contribute incrementally towards impacts associated with regional landfill capacity. The ATV training course and rifle range would increase the amount of hazardous waste generate on Base. These impacts would be less than significant.	Impacts associated with Site 2 for the SFSRF would be the same as those described under the Proposed Action.	Selection of Site 2 for the SFSOF would result in slightly more solid waste generation due to demolition of the existing ball field and pavilion. Hazardous waste generation would be the same as under the Proposed Action. Impacts would be less than significant.	No impacts
Health and Public Safety	Construction and training activities associated with the proposed action have the potential to create health and public safety risks that could be avoided, minimized, or mitigated by compliance with applicable regulations, standard practices, and requirements for activity supervision, as well as OSHA compliance. Relocation of prairie dogs would present a higher risk of infection associated with plague due to direct contact with prairie dogs. The Base Prairie Dog Management Plan should include proper procedures for the handling of prairie dogs to minimize the potential for human exposure to plague. These impacts would be less than significant.	Impacts associated with Site 2 for the SFSRF would be the same as those described under the Proposed Action.	Impacts associated with Site 2 for the SFSOF would be the same as those described under the Proposed Action.	No impacts

Impacts				
Resource	Proposed Action Assuming Site 1 for SFSRF and Site 1 for the SFSOF, and Main Gate and West Gate Improvements	Proposed Action Assuming Site 2 for SFSRF, Site 1 for SFSOF, and Main Gate and West Gate Improvements	Proposed Action Assuming Site 1 for SFSRF, Site 2 for SFSOF, and Main Gate and West Gate Improvements	No Action Alternative
Secondary and Cumulative Effects	• Further demand for support facilities and infrastructure at the Base and off-site. • Incremental losses of ranchland, open space, and habitat associated with converting undeveloped land to urban uses. • Incremental contributions to local traffic and the potential for accidents. • Incremental impacts associated with light pollution. • Contributions to regional and local air pollutant emissions. • Incremental increases in urban stormwater runoff quantities and contaminant loads. • Continuing incremental loss of plant and wildlife habitat, including the loss of 42 acres of shortgrass prairie. • Use of hazardous materials and production and disposal of solid and hazardous wastes.	Secondary and cumulative effects associated with Site 2 for the SFSRF would be the same as those described under the Proposed Action.	Secondary and cumulative effects associated with Site 2 for the SFOF would be the same as those described under the Proposed Action, except that only 34 acres of shortgrass prairie would be lost if this site is selected.	No Impacts

1. INTRODUCTION

Due to increasing mission demands and personnel increases at the Base and the need for increased security precautions following the September 11, 2001 terrorist attacks on the United States, the USAF is proposing a number of facility construction and enhancement projects at the Base. Specifically, these facility projects include:

1. SFSRF – Training Center: CATM Facility, Indoor Firing Range, Obstacle Course, ATV Training Course (Project # GLEN 95-3001).
2. SFSOF – 28,500 square foot (2,650 square meter) building for office space; secured space for munitions, small arms, tear gas and similar items; canine housing; and training facilities (Project # GLEN 01-3001).
3. Upgrade Force Protection: VC/VC, Main Gate and West Gate Improvements - (Project # GLEN 04-3002)

These facilities are described in detail in Chapter 2 “Alternatives Including the Proposed Action.”

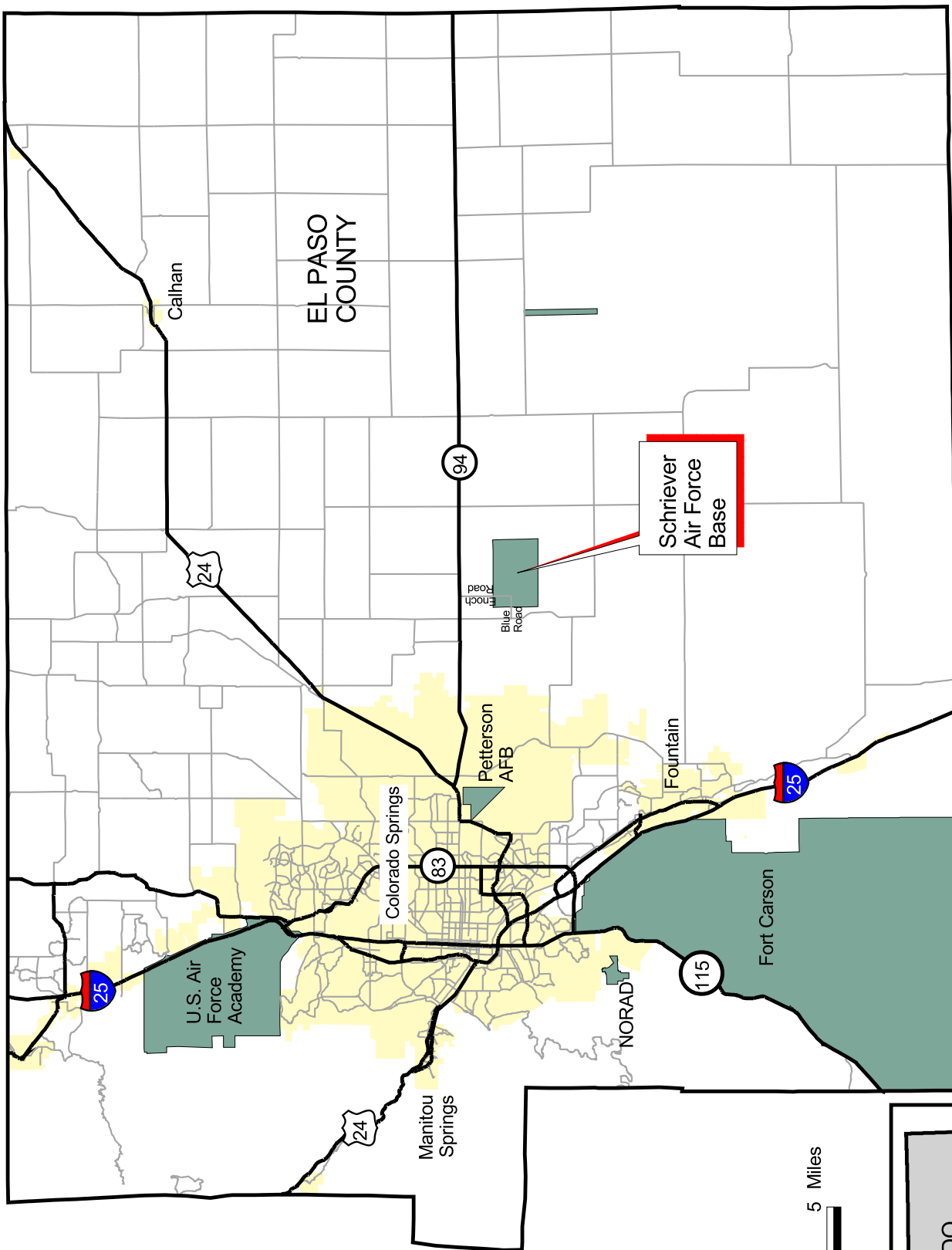
The USAF has prepared this EA in accordance with the NEPA of 1969, 42 USC §§ 4321-4370d, as implemented by the CEQ Regulations, Title 40 CFR Parts 1500-1508; and 32 CFR 989, which implements the USAF’s EIAP and provides the procedural requirements used to ensure USAF compliance with NEPA.

1.1 PROJECT LOCATION AND BACKGROUND

The Base encompasses six square miles in eastern El Paso County, Colorado. The Base is located approximately 10 miles (17 kilometers) east of Colorado Springs. Figure 1-1 presents the regional location of the Base. Figure 1-2 presents the existing conditions at the Base. Interstate 25 provides north and south regional access to the Base, and U.S. Highway 24 and State Highway 94 provide regional access from the east and west. The Main Entrance Gate to the Base is located on Enoch Road, and the West Entrance Gate is located on Irwin Road.

There are three property owners with lands contiguous to the Base. Approximately 75 percent of the land surrounding the Base within 0.5 miles (0.8 kilometers) is under State of Colorado ownership. The remainder of the land within this distance is part of either the Edwards Ranch or Ververs Ranch. These properties each exceed 10,000 acres.

The Base is home to the 50th Space Wing, the Space Warfare Center, the Ballistic Missile Defense Organization’s Joint National Integration Center, the 310th Space Group, as well as several tenant organizations. The 50th Space Wing’s mission is to provide command and control for satellites and operate a worldwide network to control USAF and other U.S. and allied satellites. Schriever Air Force Base is unique because it has no runways, flight line, or aircraft-flying mission. Approximately 4,800 personnel are assigned to the Base.



Base Map Source: Colorado Department of Transportation

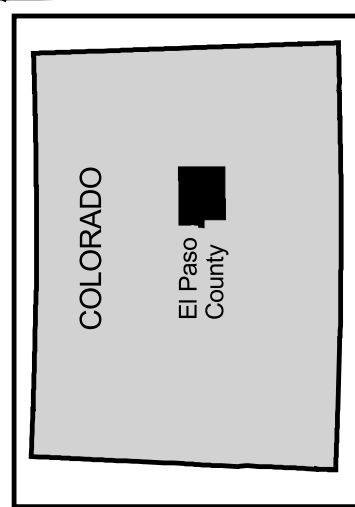
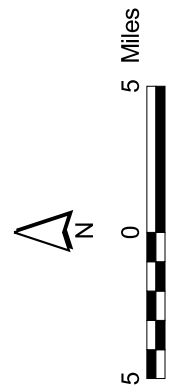


Figure 1-1

Regional Location Map for
Schriever Air Force Base

Environmental Assessment for
Schriever Air Force Base, Colorado

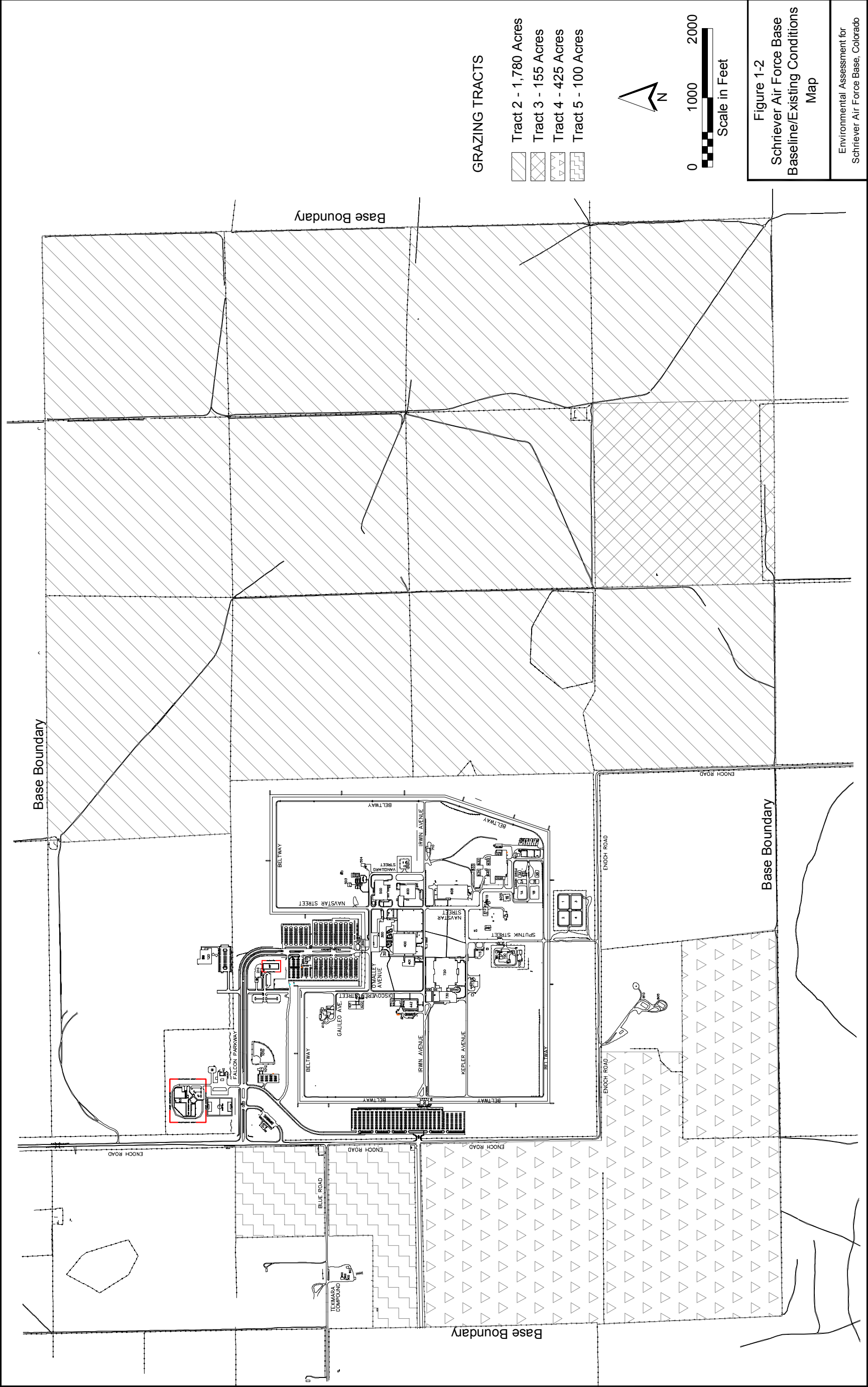


Figure 1-2
Schriever Air Force Base
Baseline/Existing Conditions
Map

Environmental Assessment for
Schriever Air Force Base, Colorado

1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION

The purpose of the proposed construction projects described in Chapter 2 is to provide sufficient facilities to adequately accommodate personnel and mission demands at the Base and assist in the Base's Security Forces mission. The need for the Proposed Action is that the security forces training and force protection facilities at the Base are inadequate.

The proposed SFSRF – Training Center is necessary in order for Base personnel to efficiently train. The current lack of these training facilities at the Base requires that the 574 Base Security Forces personnel must travel to Camp Guernsey, Wyoming for training, resulting in additional time and budget expenditures.

Due to increases in staff, administrative needs, and the need to collocate the 50th Security Forces Squadron and 310th Reserve Unit, the existing Base Security Forces Operations Center is inadequate to fulfill current and future security forces needs. Base security forces personnel are operating out of various locations throughout the Base. The proposed SFSOF would provide sufficient space to consolidate security forces functions and personnel in one location.

As a result of non-mission-related growth outside of the Base secure area, the existing Main Entrance Gate and Visitor Control Center need to be relocated and redesigned to provide better access and traffic control. The West Gate Security Forces Facility is needed to improve access and increase Base security. The proposed conceptual designs for these facilities provide circuitous routes for vehicles entering the Base and space for parking and access control procedures. The routes are intended to reduce vehicle speeds and the potential for forced/unauthorized access to the Base.

Photographs of key locations on the Base are presented in Figure 1-3.

1.3 SCHRIEVER AIR FORCE BASE: ENVIRONMENTAL MANAGEMENT COMMITMENTS

The "Environmental Flight" organization at the Base is responsible for managing programs designed to protect, enhance, and restore environmental quality at the Base. The environmental program is divided into three major components:

1. *Conservation.* Conservation focuses on the development of sound planning practices that incorporate environmental considerations into all aspects of base operations and the overall mission.
2. *Restoration.* Restoration involves the remediation of all sites that pose a threat to public health, welfare, or the environment.
3. *Environmental Quality.* Environmental Quality programs address compliance with current environmental requirements and providing national and community leadership in pollution presentation and recycling.

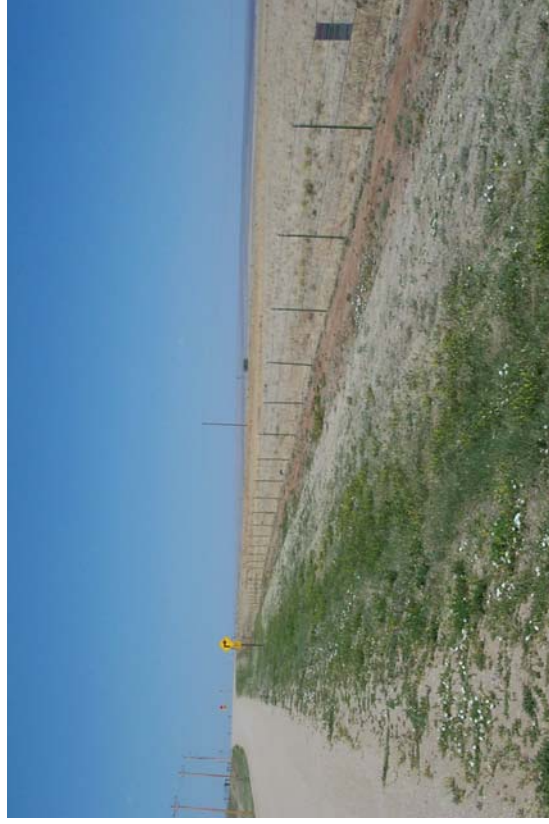
The mission of the Environmental Flight is to contribute to the federal objective to "Protect the Environment." This objective starts at the highest levels of leadership and includes all Base personnel. The USAF and Schriever AFB support and implement various initiatives including:



1



2



3

- 1) View of existing Base facilities within the Secure Area and a drainage course looking North.
- 2) View of Base facilities within the Secure Area and a drainage course looking East.
- 3) View of the proposed Security Forces Squadron Regional Facility Sites looking East along Enoch Road.

Figure 1-3. Photographs of Key Locations at Schriever Air Force Base.



4



5



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- 4) View of Site 1 for the proposed Security Forces Squadron Operations Facility looking Northwest.
- 5) View of the proposed Visitor Center site from Enoch Road looking West.
- 6) View of land near the West Gate looking South from Irwin Road at the Base's West Boundary line.

Figure 1-3. Photographs of Key Locations at Schriever Air Force Base (continued).

“Buy Green,” environmental clean up, compliance, pollution prevention, and reduction of solid waste streams. These initiatives have the highest priority from the Secretary of Defense throughout all military services.

The USAF has established itself in the role of environmental leader within the Department of Defense (DoD) and the Federal Government. Former Chief of Staff General Merrill A. McPeak defined the USAF goals for environmental leadership in a policy letter:

1. Complete cleanup of the past. Restore our contaminated sites.
2. Ensure our present operations comply with all federal, state, and local environmental standards. No notices of violation are the measure of merit.
3. Prevent future pollution by reducing generation of hazardous wastes to as near zero as feasible.
4. Use the EAIP (plan before you act) to support Air Force decision-making and to protect the environment.
5. Protect and enhance our natural resources including: wetlands, historic sites, and endangered species through sound stewardship and management.

The Environmental Flight is responsible for the development and implementation of a wide range of policies, practices and procedures to avoid, minimize and mitigate environmental impacts from Base activities and construction programs. Two examples include: the Base's Integrated Natural Resource Management Plan and Cultural Resources Management Plan. These documents and others are considered in the evaluation of potential impacts from the Proposed Action.

2. ALTERNATIVES INCLUDING THE PROPOSED ACTION

The Proposed Action, relative to 40 CFR 1502.14, consists of construction of new facilities within the existing boundaries and outside of the secure area of the Base. The following discussion describes the proposed facilities, the alternative sites under consideration, and the No Action Alternative.

2.1 PROPOSED ACTION

The Proposed Action comprises three primary facility construction projects:

1. SFSRF – Training Center: CATM Facility, Indoor Firing Range, Obstacle Course, ATV Training Course (Project # GLEN 95-3001).
2. SFSOF – 28,500 square foot building for office space; secured space for munitions, small arms, tear gas and similar items; canine housing; and training facilities (Project # GLEN 01-3001).
3. Upgrade Force Protection: VC/VC, Main Gate and West Gate Improvements (Project # GLEN 04-3002).

The primary facility construction projects are described in the following discussions. Two potential sites for the SFSRF and two potential sites for the SFSOF are under consideration and evaluated in this EA. The Proposed Action would include either Site 1 or Site 2 for the SFSRF, either Site 1 or Site 2 for the SFSOF, and the Main Gate and West Gate Improvements (Upgrade Force Protection). The alternative sites are presented in Figure 2-1.

2.1.1 Security Forces Squadron Regional Facility

The proposed SFSRF would be composed of the CATM facility, indoor firing range, obstacle course, ATV training course, and a parking lot for approximately 60 vehicles. Figure 2-1 presents the two proposed locations for the SFSRF. Figure 2-2 presents a conceptual site plan for the SFSRF. The area for Site 1 of the SFSRF would be approximately 100 acres, while the area for Site 2 the footprint would be 56 acres. The proposed facilities are expected to effectively occupy approximately 30 acres of either one of these sites. Final site planning details have not yet been defined.

The CATM facility would provide for small arms training and include space and facilities for Anti Terrorist Officer (ATO), desert warfare, and combat training. Currently Schriever AFB Security Forces personnel must travel to Camp Guernsey, Wyoming for required training that would be provided by the SFSRF. The 5,500 square foot (511 square meters) CATM facility would provide office space, training rooms (classrooms), storage facilities, and a weapons storage vault. The CATM would be served by on-site utilities (gas, electricity, water, and sewer).

The 8,800 square foot (818 square meter) indoor firing range building would provide 21 firing positions and related facilities designed to accommodate a range of weapons including M-16s, M-9s, and M-60s. The facility would store pyrotechnics and explosive ammunition. The firing range would require special ventilation including a High Efficiency Particle Arresting (HEPA) filter. The filter would capture emissions from the firing range, and used filters would be disposed of in a manner consistent with applicable regulations for disposal of hazardous waste.

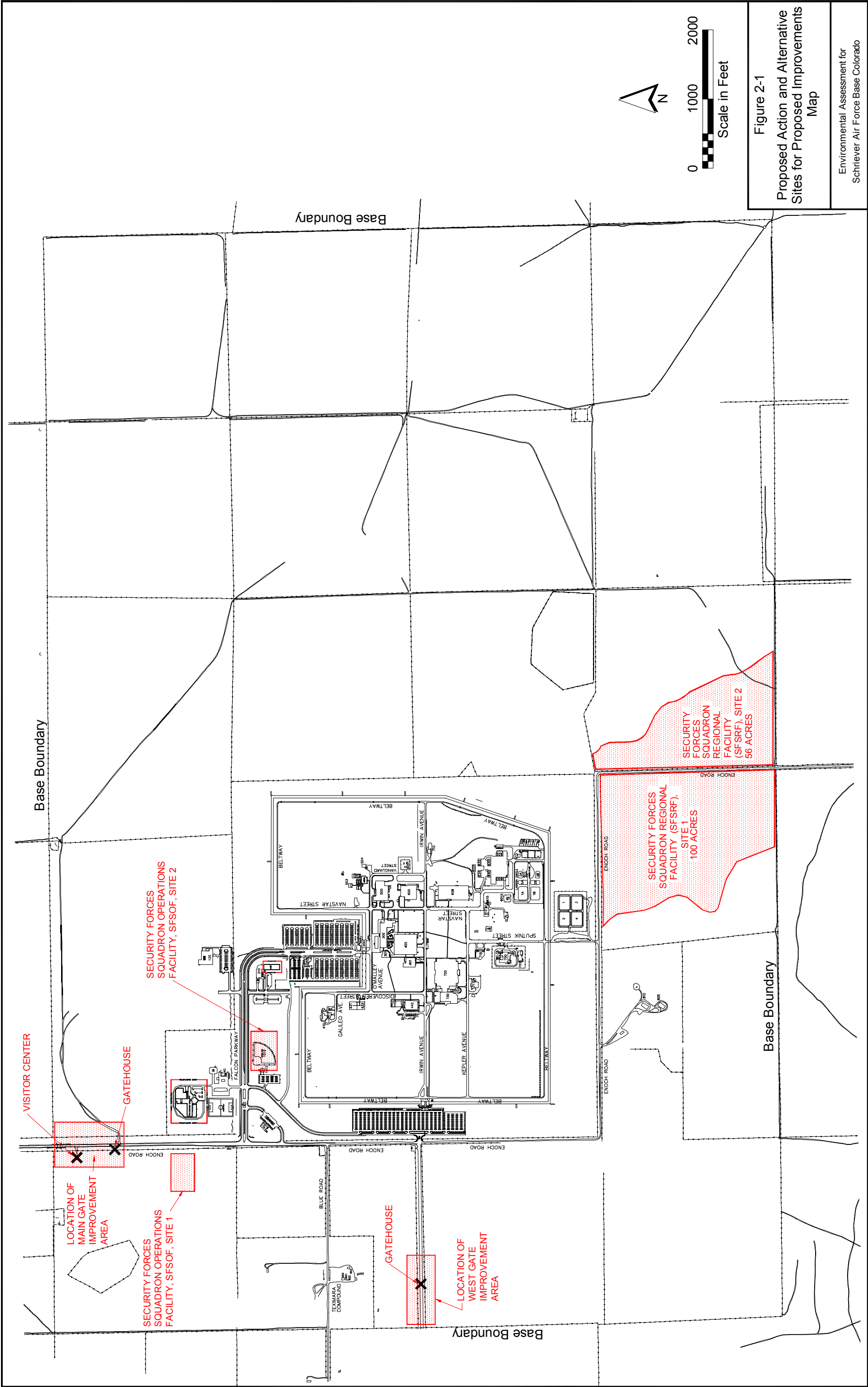
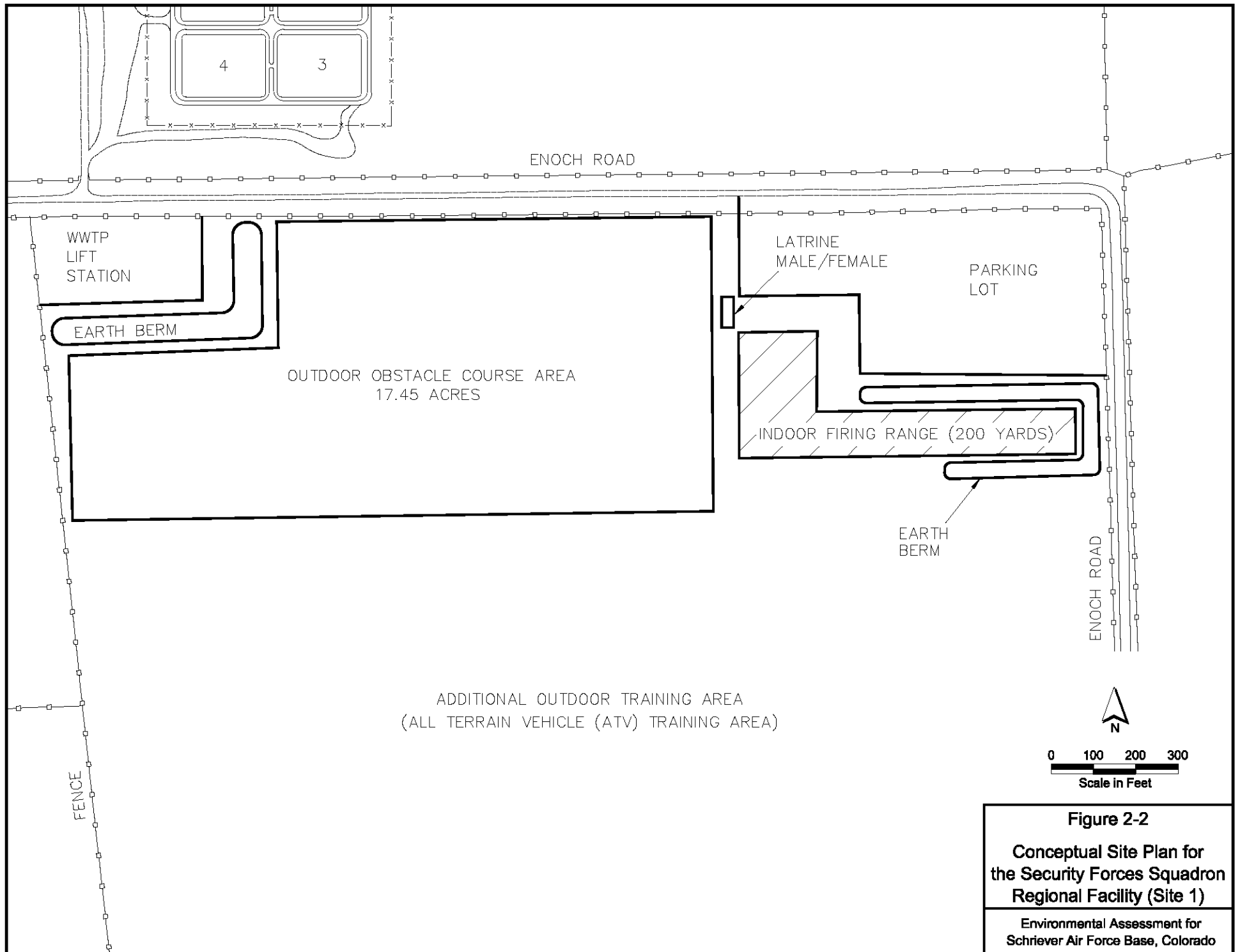


Figure 2-1
Proposed Action and Alternative
Sites for Proposed Improvements
Map

Environmental Assessment for
Schriever Air Force Base Colorado



The proposed obstacle course is composed of a 1-mile (1.6 kilometer) running track leading into a 1-mile sequence of obstacles featuring a variety of specially designed components. The ATV facilities would include a confined route/course for training and a maintenance area with wash bays and maintenance bays. The ATV track would be an asphalt-paved surface with dimensions of 250 feet by 300 feet (80 meters by 100 meters). Off-track ATV operation would not be part of the training program. The ATV training program would involve as many as four ATVs operating at any one time, which would include idling and traveling on the training course.

An oil/water separator is proposed to control hydrocarbon contaminants in stormwater and facility wash water. A parking lot for 20 vehicles would also be provided. Site plans are not currently available for these proposed facilities.

The SFSRF would serve as a training facility for personnel at the Base approximately 300 days per year. Approximately 20 to 60 people would be involved in the training on a weekly basis, with approximately 48 training sessions per year. There would be a permanent staff of approximately 20 persons assigned to the CATM.

Construction of the obstacle course facility is scheduled to begin during Fiscal Year 2003 (FY03). The schedule for the other improvements would occur simultaneously or after completion of the obstacle course.

2.1.2 Security Forces Squadron Operations Facility

A detailed description of the proposed "Security Forces Operations Center" (SFOC or SFSOF) facility is set forth in the *SFOC Requirements Document, Final (100%) Submittal, 7 February 2001* (USAF, 2001c). The following discussion summarizes this document and reflects current proposals associated with the building. The two proposed locations for this facility are shown in Figure 2-1. The location west of the Medical/Dental Center would require demolition of the existing ball field and associated pavilion. The existing parking lot would remain after construction of the SFSOF.

The SFSOF would serve the 310th Reserve Unit and 50th Security Forces Squadron by providing 28,500 square feet (2,650 square meters) of secured space for munitions, small arms, tear gas, and other similar items and materials, plus office space for up to 150 personnel, parking for at least 100 vehicles, and space for canine housing and canine training facilities. The total area that would be occupied by the SFSOF would be approximately 8 acres. Figure 2-3 presents a conceptual space plan for the facility.

Construction of the SFSOF is scheduled to begin in the first quarter of FY05.

2.1.3 Upgrade Force Protection (UFP): Vehicle Control/Visitor Center (VC/VC), Visitor Center, Main Gate and West Gate Improvements

The UFP improvements are composed of replacement of the existing VC/VC and improvements to the Main Gate and West Gate facilities and associated roadways. A detailed description of the proposed Visitor Center, Main Gate, and West Gate facilities is set forth in the *Main Gate, West Gate and Visitor's Control Center Requirements Document, 7 August 2001* (USAF, 2001b). Figure 2-1 clarifies the locations of the proposed UFP components on the Base. Figures 2-4, 2-5, and 2-6 present the most current facility plans for the proposed Visitor Center,

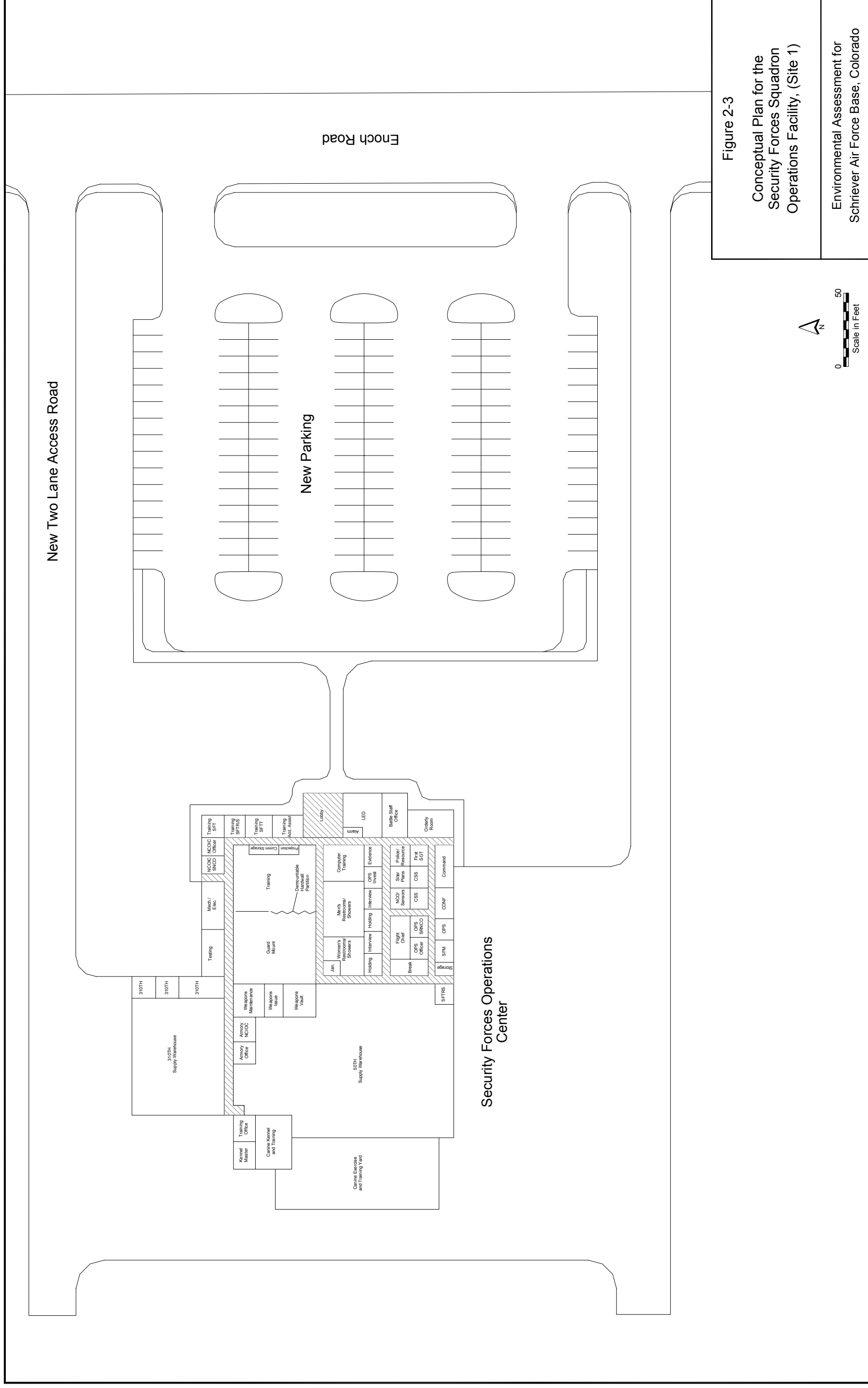
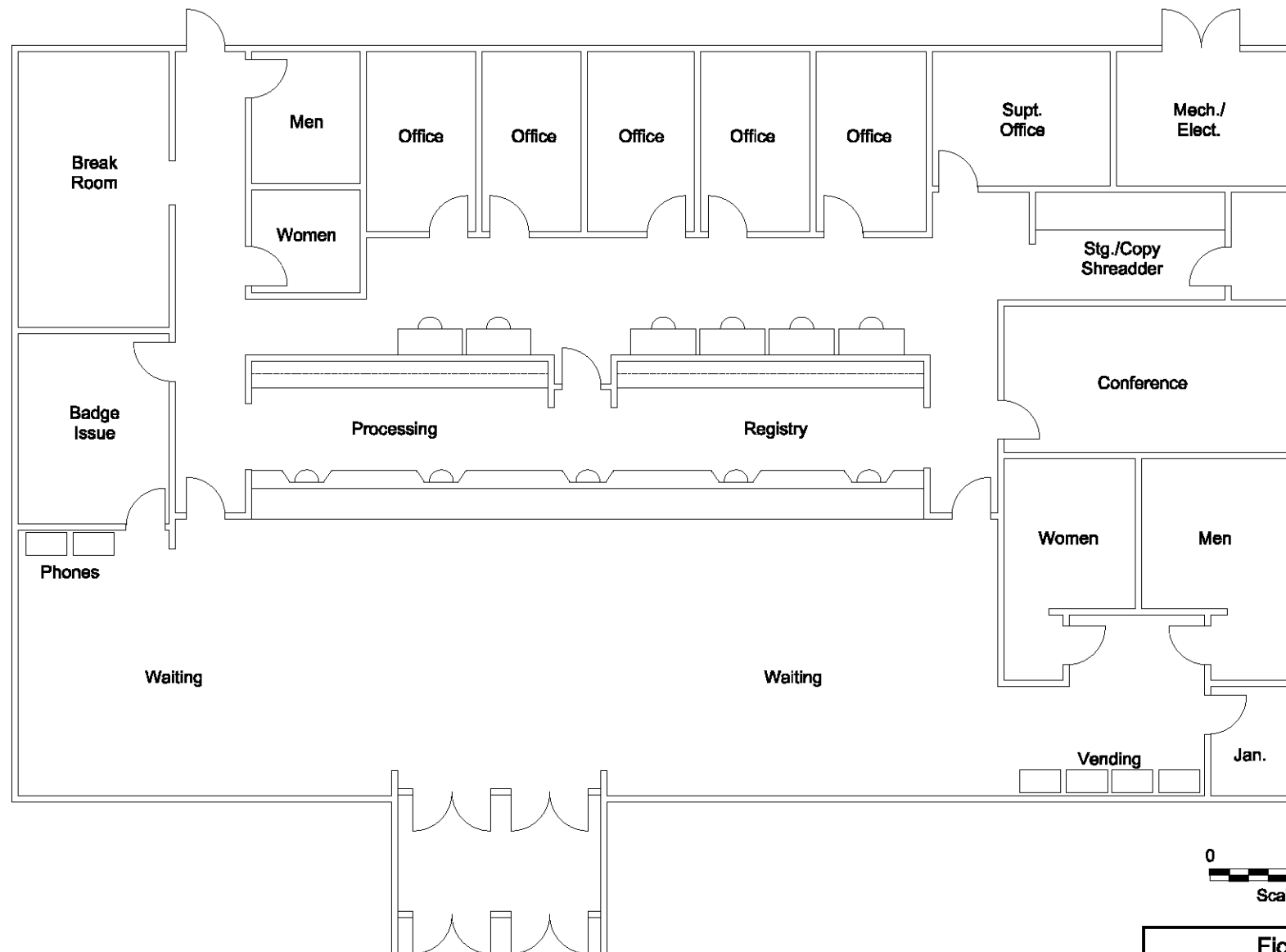


Figure 2-3

Conceptual Plan for the Security Forces Squadron Operations Facility, (Site 1)

Environmental Assessment for
Schriever Air Force Base, Colorado

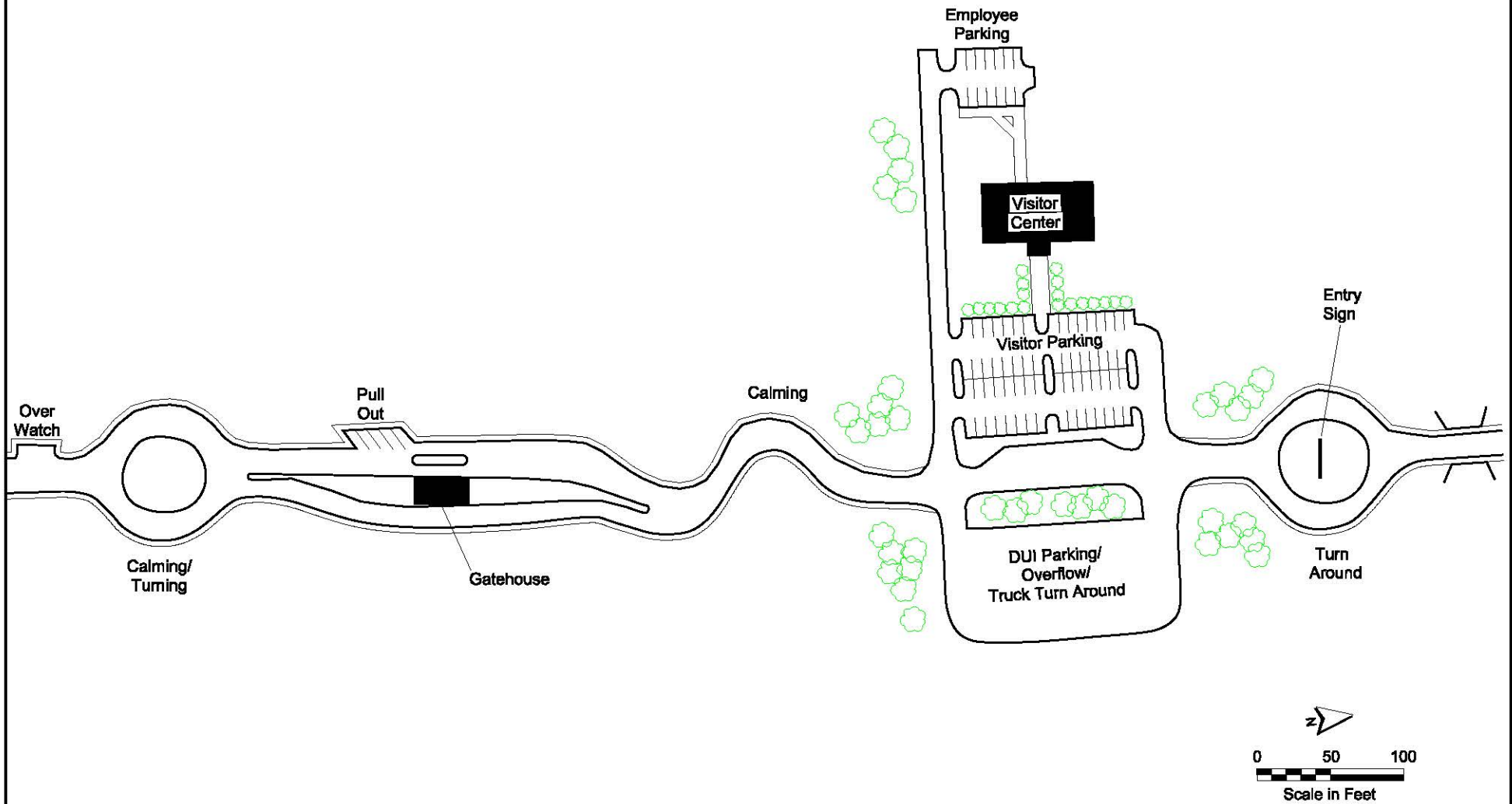


0 5 10
Scale in Feet

VISITOR CENTER

Figure 2-4
Conceptual Facilities
Plan for the
Visitor Center

Environmental Assessment for
Schriever Air Force Base, Colorado



0 50 100
Scale in Feet

Figure 2-5
Conceptual Main Gate
Roadway Plan
(Proposed VC/VC)
Environmental Assessment for
Schriever Air Force Base, Colorado

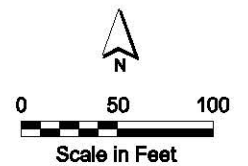
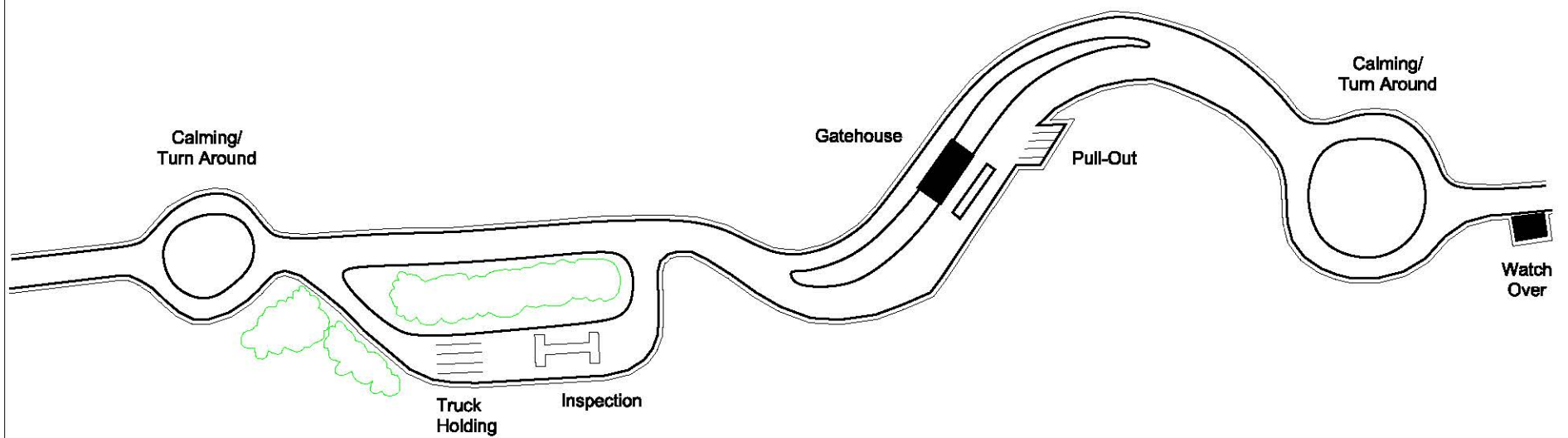


Figure 2-6
Conceptual West Gate
Roadway Plan

Main Gate roadway plan and West Gate roadway plan, respectively. The Main Gate and West Gate plans (Figures 2-5 and 2-6) are conceptual and subject to design refinement prior to obtaining bids for the associated construction. The following discussion summarizes this document and reflects current proposals associated with the improvements.

The proposed Main Entrance Gate and Visitor Center would be located adjacent to each other on Enoch Road and would replace the existing Main Entrance Gate and Visitor Center. Additionally, a 400-foot (122-meter) long stretch of Enoch Road would be widened from 30 feet to 50 feet (10 meters to 17 meters) to enhance access to the Base. The new facilities would provide the same functions as the existing facilities. Enoch Road would be closed to public through traffic, but would continue as the main entrance road to the base. The new Visitor Center would provide office space and serve as an area for processing and providing badges to visitors seeking access to areas of the Base. The Visitor Center and associated parking lot would displace approximately 0.9 acre of vacant grassland, while the associated road improvements would displace approximately 1.7 acres of grassland and occupy a total area of approximately 2.7 acres.

One location is under consideration for this proposed 6,336 square foot (589 square meter) building (see Figure 2-1). The new facility would be served by on-site utilities (gas, electricity, water, and sewer). No fuel or other hazardous materials would be stored at this facility. Construction of the new Main Entrance Gate and VC/VC is scheduled to begin during the second quarter of FY03.

The proposed West Gate Security Forces Facility involves a 436 square feet (41 square meter) facility to be located on Irwin Road/Defense Access Road (DAR), on the west side of the Base about 500 feet (152 meters) east of the western Base boundary and related road and gate improvements. The conceptual design for this improvement is shown in Figure 2-6. The road improvements involve widening the western 1,000 feet (305 meters) of Irwin Road within the Base boundary. This improvement would widen the existing 40-foot (12 meter) road to a width of 65 feet (20 meters) to accommodate two lanes of traffic in each direction. It also involves features that would reduce traffic speed and facilitate entry procedures. The improvements associated with the West Gate would displace approximately one acre of grassland, while an additional one acre of existing roadway would be used for the new road.

The approximate location of the proposed improvements is shown in Figure 2-1. The final design process for this facility will refine the location and features of the proposed West Gate Security Forces Facility. Construction of the West Gate Security Forces Facility is scheduled to begin during the second quarter of FY03 concurrently with the Visitor Center/Main Gate project.

2.2 NO ACTION ALTERNATIVE

The No Action Alternative would involve no new construction at the Base. If the No Action Alternative is selected, the Base will continue to operate under its existing conditions. Specifically:

- Current facilities would remain inadequate in both size and location for the organization's mission.
- Security limitations and foreseeable security gaps that would have been addressed by the proposed improvements would remain indefinitely.

- Insufficient floor space for several Base functions would persist.
- Corresponding expenditures associated with the projects described above would continue while new construction expenditures would not occur.

3. AFFECTED ENVIRONMENT

Chapter 3 describes the existing conditions at the Base that could be affected by the Proposed Action and alternatives. For purposes of this analysis, the affected environment for most environmental resources includes areas within and adjacent to the footprints of the proposed construction projects, all of which are located within the boundaries of the Base. However, because the potential effects on some resources may extend beyond Base boundaries (e.g., socioeconomics, air quality, noise), the affected environment for these resources is described on an area-wide scale.

Information on the potentially affected environmental resources is based on site observations, agency consultation, consultation with Base personnel, and information provided in existing EAs and management plans (see Chapter 6 Bibliography and References). This EA summarizes these documents and provides updates, as required, to document the affected environment and evaluate environmental effects. For other information about Schriever AFB, refer to the referenced documents, which are on file in the Environmental Flight library, 50 CES/CEV, Building 500, Schriever AFB.

3.1 LAND USE, SOCIOECONOMICS, AND ENVIRONMENTAL JUSTICE

3.1.1 Existing Land Uses

The Base occupies 3,840 acres in a primarily rural area of central El Paso County, Colorado. Several communities are located near the Base. Colorado Springs, located west of the Base, is the largest neighboring community, with a population of approximately 385,400 in 2001. Other neighboring communities within a 10-mile (16-kilometer) radius are relatively small and include Ellicott, Falcon, and Security-Widefield. The Base's location and existing conditions are shown in Figures 1-1 and 1-2.

In 1987, the USAF took action to extend Schriever AFB boundaries one-half mile (0.8 kilometers) to the north, one-half mile (0.8 kilometers) west, one-half mile (0.8 kilometers) south, and one and one-half mile (2.5 kilometers) east. The purpose of the purchase was to create a buffer zone around the Base to control incompatible construction that would interfere with the transmission/reception of satellite communications, provide additional security for sensitive areas, and provide for future mission growth. Structure height restrictions imposed by the Base and adopted by the El Paso County Land Use Department extend outside of the Base boundaries approximately one-half mile (0.8 kilometers), and range from 45 to 630 feet (18 to 192 meters) above the ground surface (INEL, 1992). Height restrictions are necessary to provide unobstructed views (look angles) for the satellite antennas.

Existing land use at the Base falls under eight categories as shown in Table 3.1.

Table 3.1. Existing Land Use at Schriever AFB

Land Use	Acreage
Mission Operations	221
Industrial	343
Administration	83
Community Commercial	7
Community Services	24
Medical	1
Outdoor Recreation	16
Open Space	3,145
TOTAL	3,840

Source: United States Air Force 1999 c.

Long-range planning for the Base has occurred in the past, but recent developments that have changed the mission and vision for the Base make past plans obsolete and outdated, such as the "Vision 2020" plan, which included a 20-year phased development program. At this time, long-range planning is ongoing, but there is no formally adopted long-range plan for the Base.

The following projects are tentatively defined as reasonably foreseeable:

- Secure Area Logistics Building
- Multi-Purpose Chapel/Community Facility
- Outdoor Recreation
- GM-3 (Communication Building)
- Two ball fields North of Falcon Parkway (NE/SE Fields Only)
- Physical Fitness Center (PFC) – Gymnasium Expansion

Final designs and sites for these projects are not available.

Most of the area surrounding the Base is sparsely populated, predominantly supporting ranching, agricultural, and low-density residential land uses (Gorney, 2002). There are three property owners with lands contiguous to the Base. Approximately 75 percent of the surrounding land within one-half mile (0.8 kilometers) is under State of Colorado ownership. The remainder of the land within this distance is part of the Edwards Ranch or Ververs Ranch. These properties each exceed 10,000 acres. The land surrounding the Base is divided into numerous parcels created in the 1980's, but the vast majority of these parcels are now part of the Edwards Ranch or the Ververs Ranch. One residence is located within one mile (1.7 kilometers) from the site. The closest residence is a single-family farmhouse located approximately one-half mile (0.8 kilometers) from the Base boundary. This farmhouse is currently unoccupied. Within a two-mile radius there are six single-family farmhouses. Some of these houses are occupied (Gorney, 2002).

The El Paso County zoning designation for the land surrounding the Base is Rural Residential (RR-3). This zoning district allows for single-family dwellings on minimum 5-acre lots, or farms and ranches on minimum lot sizes of 35 acres (Gorney, 2002).

Trends for El Paso County reflect continued growth within the Colorado Springs urban area. Growth around the perimeter of the Base has been relatively slow, and the associated development remains agricultural and rural housing. If commercial development occurs, the

likely location is along Highway 94 north of the Base. An ongoing planning process for El Paso County is addressing long-term development patterns. The Base has been an active participant in the planning process. Base traffic generation, traffic accidents on State Highway 94, and cumulative impacts from exterior light fixtures at the Base were noted as planning issues (Gorney, 2002).

3.1.2 Socioeconomics

The work force at the Base consists of about 4,800 military, DoD civilian personnel, and contractor personnel. The population has increased by about 42 percent since 1992 and is composed of active-duty military, civil service, and contract employees. There is no housing on the Base so all personnel commute. Most personnel commute from Colorado Springs or Peterson AFB. The potential for continued work-force expansion of the Base is considered high because the Base's mission is considered strategically important to DoD during peacetime, as well as times of armed conflict throughout the world (USAF, 2002).

3.1.3 Environmental Justice

Executive Order (EO) 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued on February 11, 1994. The EO requires federal agencies to identify disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority and low-income populations, as appropriate.

No concentrations of low income or minority populations are located adjacent to or near the Base.

3.2 AIR QUALITY

3.2.1 Climate

El Paso County's climate is semi-arid and strongly influenced by the high elevations of the Front Range of the Rocky Mountains to the west, which results in a moderate climate characterized by cool, sunny summers and dry winters. The average summer temperature is 68 degrees Fahrenheit (°F), while the average winter temperature is 31°F. Prevailing winds are from the north-northeast, with an average wind speed of 10.4 miles per hour (17 kilometers per hour). Average annual precipitation is 15.5 inches (40 centimeters) of which about 85 percent occurs during the growing season between April and September (USAF, 2002e).

The ambient air quality of El Paso County varies with local meteorological conditions. During the winter months when temperature inversions and limited dispersion occur, El Paso County air quality can be poor because of the high carbon monoxide (CO) concentration associated with roadway traffic in the Colorado Springs area. Particulates are also usually higher during winter due to lower soil moisture and ground cover and higher wind speeds that result in wind blown dust (USAF, 2002e).

3.2.2 Air Quality Regulations and Authorities

The Clean Air Act (CAA) requires air pollutant emission sources to keep detailed records of emissions to aid the state in complying with National Ambient Air Quality Standards (NAAQS).

Criteria pollutants are those for which NAAQS have been developed by the U.S. Environmental Protection Agency (EPA). Criteria pollutants of interest in this EA include CO, volatile organic compounds (VOCs), sulfur oxides (SO_x), nitrogen oxides (NO_x), and particulate matter less than or equal to 10 microns in diameter (PM₁₀) (USAF, 2002e).

A dust control permit from either El Paso County or the State of Colorado is required for construction activities. Construction projects that disturb between 1 and 25 acres require a permit from El Paso County, while projects disturbing over 25 acres require a State permit.

3.2.3 Regional Air Quality

Colorado Springs, including the Base, is located within Colorado Air Quality Control Region 4, which includes El Paso, Park, and Teller Counties. Colorado Springs has been designated by the EPA as an “attainment” area for the NAAQS.

3.2.4 Permit Status and Emissions Sources at Schriever AFB

Activities at the Base with the potential to impact air quality within the region include utilities or power generation (e.g., steam, hot water, natural gas, emergency electrical power), fuel handling, hazardous chemical usage, vehicle emissions, and fugitive dust from ground disturbances associated with construction. Table 3.2 provides data from the 2000 Basewide Emissions Summary. As indicated by the data in this table, emissions at the Base are well below the limits established for these sources (USAF, 2002e).

Mobile source emissions associated with the Base include government-owned and personal vehicles, as well as construction and landscaping equipment. All government-owned and personal vehicles are required to comply with El Paso County annual emission testing. No aircraft or any other types of mobile emissions sources are located at the Base. Currently, 574 Schriever AFB Security Forces personnel must travel by van to Camp Guernsey, Wyoming, for training activities that would be provided by the proposed SFSRF.

The Colorado Department of Public Health and Environment (CDPHE) has determined that the Base is not a major source of hazardous air or criteria pollutants, and that the Base qualifies as a synthetic minor source exempt from Titles III and V of the Federal CAA Amendments of 1990. The emissions sources covered under the synthetic-source permit, all of which are considered stationary sources, include natural gas and diesel fuel emissions from onsite boilers, diesel fuel from emergency generators, diesel gas refueling emissions, and diesel fuel storage tanks (USAF, 2002e).

Table 3.2. 2000 Basewide Stationary Source Emissions Summary for Criteria Pollutants

Emissions Source	<i>Emissions</i>¹				
	CO	VOCs	SO_x	NO_x	PM₁₀
Stationary Sources	9.82 (30)	10.52 (20)	0.44 (30)	16.41 (90)	0.93 (5.5)

¹Emissions data are provided in tons per year.

CO – carbon monoxide; VOCs – volatile organic compounds; SO_x – sulfur oxides; NO_x – nitrogen oxides; PM₁₀ – particulate matter less than or equal to 10 microns in diameter

Note: Values in parentheses are the Basewide stationary-source emissions limits established in the draft air emissions permit.

Source: USAF 2002 e.

3.3 NOISE

Noise is most often defined as unwanted sound. Under certain conditions, noise may cause hearing loss, interfere with human activities, affect human health and well-being in various ways, and disturb wildlife. The relative magnitude of sound is typically measured and quantified in terms of a logarithmic scale in units of decibels (dB).

Human hearing is not equally sensitive to sound at all frequencies. Therefore, a frequency-dependent adjustment called “A-weighting” has been developed so that sound can be measured in a manner similar to the way human hearing responds. The unit of the A-weighted sound level is abbreviated “dBA.” An increase in the noise level by 10 dBA is judged by most people to be approximately twice as loud as the former level. Most people are unable to detect a change in level of three dBA or less. A level of 70 dBA is equivalent to a gas lawnmower at 100 feet (30 meters), and a level of 80 dBA is equivalent to a diesel truck at 50 feet (15 meters). Levels above 105 dBA are considered extremely loud. Noise from typical construction equipment varies from a 76 to 102 dBA at 25 feet (8.3 meters) (USAF, 2001c).

The State of Colorado has established maximum permissible noise levels for construction activities (USAF, 2001c). These levels are:

- Not more than 90 dBA 25 feet (8.3 meters) from the property boundary for more than 15 minutes in any one-hour period.
- Not more than 80 dBA 25 feet (8.3 meters) from the property boundary for the 12-hour period between 0700 and 1900 hours.

The Base is located in a rural, sparsely populated area with few nearby sensitive noise receptors. The nearest sensitive receptor is an unoccupied farmhouse located approximately on-half mile (0.8 kilometers) from the Base. The nearest occupied residence is located approximately 1.5 miles (2.5 kilometers) from the Base.

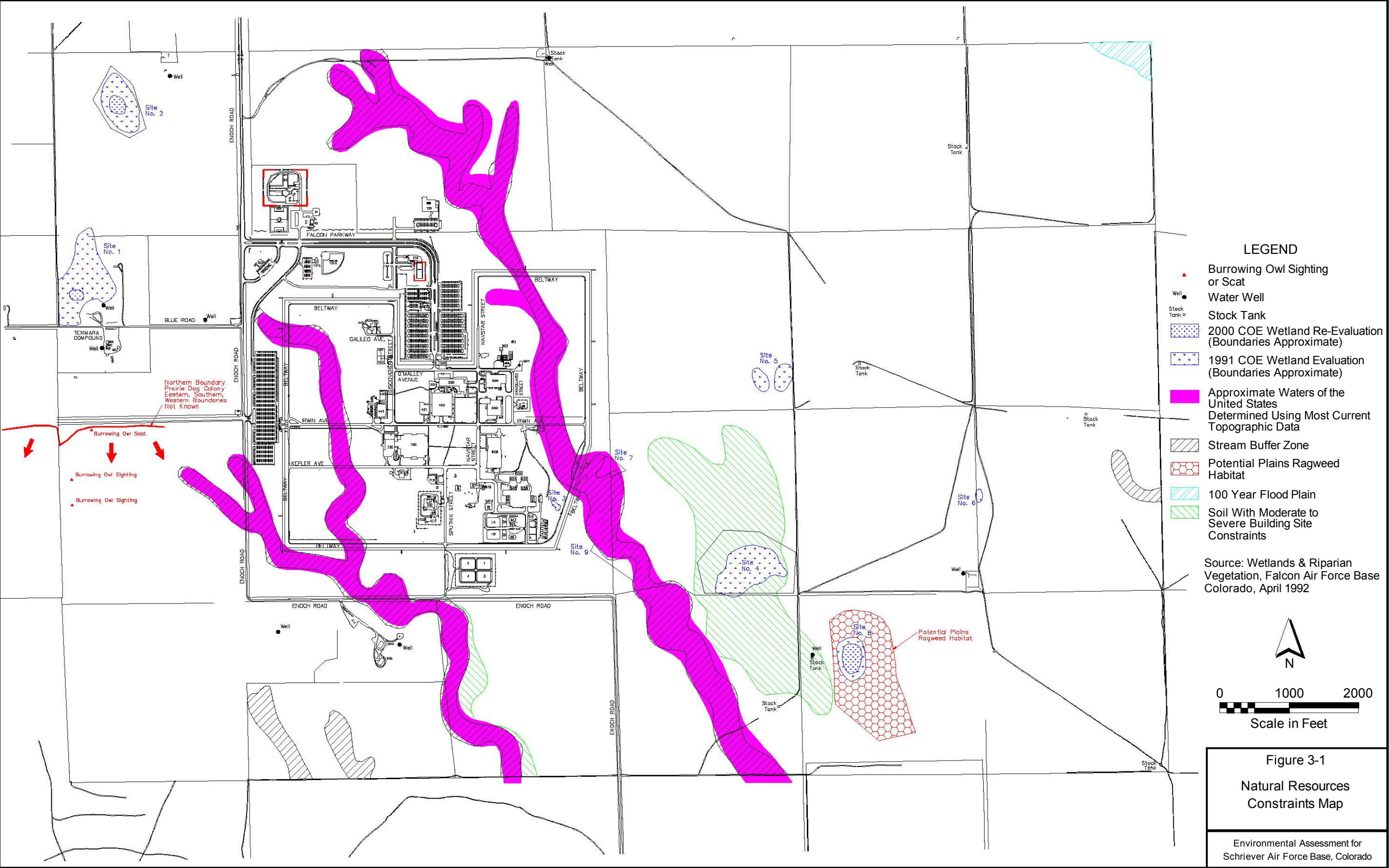
Sources of existing noise at the Base include vehicle traffic, landscape maintenance, activities in the maintenance shops, and the central power plant. No aircraft operations or associated facilities are present on the Base. All vehicle repair and maintenance associated with Base vehicles is conducted at Peterson AFB. The estimated ambient noise level at the Base is 40 dBA (USAF, 2001c).

3.4 WATER RESOURCES

Water resources include surface water, stormwater, and groundwater. Schriever AFB is located in a semi-arid climate with little surface water; therefore, water resources are critical with respect to the characteristics of the local environment and to future development of the Base.

3.4.1 Surface Water

Surface waters on the base eventually drain into Black Squirrel Creek, which connects to Chico Creek and is part of the Arkansas River Watershed. The Base contains only ephemeral drainages and there are no permanent surface water bodies present. One ephemeral drainage that crosses the northeastern corner of the Base is considered to be within the 100-year floodplain of Black Squirrel Creek (Figure 3-1). Two ephemeral drainages (East Channel



and West Channel) that pass through the Base have been classified as Waters of the U.S. (Figure 3-1). These ephemeral drainages have sandy bottoms, support little vegetation, and are subject to flooding during summer thunderstorms. They are highly susceptible to water erosion and are incised in various locations (USAF, 2002e).

Some of the stream channels in the eastern undeveloped portion of the Base were dammed, diked, or excavated prior to USAF occupancy to create watering ponds for livestock. Wetlands that have formed in these areas are discussed in Section 3.6.4. In addition, a few natural playas or depressions occur across the Base. The depressions that retain standing water on a temporary basis and contain hydrophytic vegetation are discussed further in Section 3.6.4 (USAF, 2002e).

3.4.2 Stormwater

In the developed portion of the Base, stormwater runoff from roads, buildings, and other impermeable areas is collected by an underground system of pipes that drains into retention basins. At the edge of the developed area, these basins drain into two intermittent drainages through culverts. These culverts have been constructed with concrete aprons and riprap around their openings to protect them and the stream banks from erosion. To reduce high water-flow velocity, the Base installed five erosion control dams north of the developed area of the Base. The Base is not required to obtain a stormwater permit under Phase I regulations (USAF, 2002e).

3.4.3 Groundwater

The Upper Black Squirrel aquifer, a shallow aquifer at a depth of 25 to 100 feet below ground surface (bgs) (8.3 to 30 meters) located about six miles east of the Base, provides groundwater to the Base. Twelve wells owned by the Cherokee Metropolitan Water District supply water to the Base, which is currently using about 43 percent of its contracted annual amount (about 537 acre-feet per year). As a result, the Cherokee Metropolitan Water District has an adequate water supply to support moderate growth on the Base (USAF, 2000).

The Dawson aquifer is located below the Base at a depth of 100 to 150 feet (30 to 45 meters) bgs. The aquifer's water is suitable for most uses and has not been extensively developed. Past and present small-scale use of the aquifer consists of domestic water supply and stock watering. A number of additional wells on the Base draw from the Dawson aquifer, but their use to date has been limited (USAF, 2000).

3.5 EARTH RESOURCES

3.5.1 Geology

The Base is located on the western edge of the Denver Basin geologic formation at an elevation of approximately 6,200 feet (2,067 meters) above sea level. The Base is composed of relatively flat grasslands and is in the high plains section of the Colorado Piedmont of the Great Plains Physiographic Province. The underlying sediments consist of unconsolidated deposits eroded from the Rocky Mountains. The surrounding region is characterized by rolling grasslands that terminate at the eastern edge of the southern Rocky Mountains (USAF, 2002e).

Geologic hazards, such as potentially active faults or potential landslides, have not been recorded in the vicinity of the Base. There is a nonexistent to low risk of major damage from seismic activity or mass ground movement. Slopes greater than 10 percent pose a constraint to facility development since they are subject to severe soil erosion. Only small areas along a few streams on the Base have natural slopes steeper than 10 percent (USAF, 2002e).

3.5.2 Mineral Resources

Mineral resources are not known to exist on the Base and would not likely be encountered during further development (USAF, 2001a).

3.5.3 Soils

The Base contains nine soil types consisting primarily of loamy sand, sandy loam, and silt loam textures. Soils are located on level to moderately steep slopes that have formed in material weathered from arkosic sedimentary rock. The predominant soil type is Ascalon sandy loam, which covers most of the southwestern two-thirds of the Base. The second most abundant type is Bresser sandy loam, which covers the majority of the northeastern one-third of the Base. The physical characteristics of all of the soils types are discussed in the Integrated Natural Resources Management Plan (INRMP) (USAF, 2001a).

Two soil types pose moderate to severe constraints for building construction. The Ellicott loamy coarse sand, located in the East Channel, is subject to inundation. This soil type poses a moderate to severe constraint to building construction. The Keith silt loam, located southeast of the secure area, poses a moderate to severe constraint for building construction due to frost action. In general, the soils are well suited for grass production, but should be managed to prevent overgrazing. All of the soil types on the Base have an effective rooting depth of 60 inches or more. The soil will support windbreaks and other plantings but may require additional watering to enable plants to establish themselves since they possess low water-holding capacity (USAF, 2001a).

3.6 BIOLOGICAL RESOURCES

Biological resources include vegetation, wildlife, fish, sensitive species, and wetlands. There are no fish on the Base because permanent bodies of water are absent. The flora and fauna of the undeveloped areas of the Base are typical of the shortgrass prairie ecosystem. The land outside the developed area of the Base is leased for domestic livestock grazing. Three-strand barbed-wire fencing divides these grazing parcels.

3.6.1 Vegetation

Two naturally occurring land cover types are found at the Base: shortgrass prairie (which has been grazed intensively during the past century) and wetlands. Shortgrass prairie is common in eastern El Paso County (i.e., plains) and elsewhere, but substantial areas with this cover type have been lost or degraded by urban development and agriculture. At this time, shortgrass prairie has no direct formal state or federal protections (see Section 3.6.3). Additionally, two man-made land cover types, landscaped areas and the urban forest (native trees either planted or remnants within developed areas of the Base), are located on Base (USAF, 2001a).

Naturally occurring shortgrass prairie vegetation on the Base is dominated by buffalo grass (*Bochloe dactyloides*), blue grama (*Bouteloua gracilis*), three-awned grass (*Aristida purpuria*), needle-and-thread grass (*Stipa comata*), and dropseed (*Sporobolus cryptandrus*) (CNHP, 2000). The shortgrass prairie species composition shows evidence of past heavy grazing, but is considered to be in good condition. Exotic species are not common in these areas (CNHP, 2000). Playas, or natural depressions, occur sporadically across the Base and contain spikerushes (*Eleocharis palustris* and *E. aciculais*), saltgrass (*Distichlis spicata*), and a native sedge (*Carex sp.*) (CNHP, 2000). Trees on the undeveloped portions of the Base are rare, but some isolated stands are present on former farmsteads and near windmills. These trees include mature cottonwoods (*Populus sargentii*), box elder (*Acer negundo*), and hawthorne (*Crataegus sp.*) (USAF, 2001a).

Non-native plant species are present on the Base but are primarily limited to the developed areas or areas of past disturbance such as former ranches (CNHP, 2000). Isolated populations of the noxious weeds Canada thistle (*Cirsium arvense*) and musk thistle (*Carduus nutans*) are present, primarily in disturbed areas (USAF 2001 a). The developed areas of the Base contain landscaped areas that support irrigated turf grasses, native grasses, and native and ornamental trees and shrubs (USAF, 2001a).

3.6.2 Wildlife

Wildlife species present on the Base consist primarily of species that inhabit shortgrass prairie ecosystems. Common mammals include pronghorn (*Antilocapra americana*), coyote (*Canis latrans*), thirteen-lined ground squirrel (*Spermophilus tridecemlineatus*), and desert cottontail (*Sylvilagus audubonii*). Common bird species include lark bunting (*Calamospiza melanocorys*), horned lark (*Eremophila alpestris*), western meadowlark (*Sturnella neglecta*), and American kestrel (*Falco sparverius*). (USAF, 2001e)

In addition, the trees at the former homestead and the developed area provide habitat for species not normally found in prairies such as American robin (*Turdus migratorius*), house sparrow (*Passer domesticus*), and great-horned owl (*Bubo virginianus*) (USAF, 2001a). The Colorado Natural Heritage Program (CNHP) conducted field surveys on the Base from 30 May to 2 June 2000. A complete list of the species documented by CNHP can be found in the Integrated Natural Resource Management Plan (INRMP) for Schriever AFB (USAF, 2001a).

3.6.3 Federal and State Threatened, Endangered, Proposed, and Candidate Species and Species of Concern

Certain species are formally protected under the Endangered Species Act and similar state regulations. The following discussion and the corresponding discussion in Section 4.6 are based on these protections and USAF policy set forth in Chapter 7, Section 7.1.1 of Air Force Instruction (AFI) 32-7064 – Integrated Natural Resource Management (1 August 1997) which states: “When practical, give the same protection to candidate species that you do for species that are already listed. Although the Endangered Species Act doesn’t require it, give the same protection to state-listed threatened and endangered or rare species when practical.”

Listed and candidate federal and state endangered, threatened, and state species of special concern potentially occurring on Schriever AFB are listed in Table 3.3. This table was developed from previous studies and consultations with the CNHP and U.S. Fish and Wildlife

Service (USFWS). Only species that are present, likely occur, or possibly occur on the Base are discussed in this section.

Detailed CNHP surveys conducted from 30 May to 2 June 2000 did not detect any federally or state listed or candidate threatened or endangered species at the Base.

Table 3.3. Federal and State Threatened, Endangered, Proposed, and Candidate Species and Species of Concern Potentially Occurring at Schriever AFB, El Paso County, Colorado

Common Name	Scientific Name	Status	Potential Occurrence
Amphibians			
Northern leopard frog	<i>Rana pipiens</i>	SC	Unlikely, no permanent standing water on Base ¹
Birds			
Bald Eagle	<i>Haliaeetus leucocephalus</i>	FT, ST	Possible, especially in winter
Ferruginous Hawk	<i>Buteo regalis</i>	SC	Possible
Mexican Spotted Owl	<i>Strix occidentalis lucida</i>	FT, ST	Unlikely, suitable habitat not present on Base ²
Mountain Plover	<i>Charadrius montana</i>	PT, SC	Possible
Western Burrowing Owl	<i>Athene cunicularia</i>	ST	Present
Long-billed Curlew	<i>Numenius americanus</i>	SC	Unlikely migrant ²
Swainson's Hawk	<i>Buteo swainsoni</i>	SC	Possible
Mammals			
Black-footed ferret	<i>Mustela nigripes</i>	FE	Unlikely, no recent records of wild ferrets in Colorado ³
Black-tailed Prairie Dog	<i>Cynomys ludovicianus</i>	FC, SC	Present
Preble's Meadow Jumping Mouse	<i>Zapus hudsonius preblei</i>	FT, ST	Unlikely, suitable habitat not present on Base ⁴
Swift Fox	<i>Vulpes velox</i>	SC	Possible
Plants			
Colorado Butterfly Plant	<i>Gaura neomexicana</i> spp. <i>Coloradoensis</i>	FT	Unlikely, suitable habitat not present on Base ⁴
Slender Moonwort	<i>Botrychium lineare</i>	FC	Unlikely, suitable habitat not present on Base ⁵
Ute ladies'-tresses Orchid	<i>Spiranthes diluvialis</i>	FT	Unlikely, suitable habitat not present on Base ⁴

Sources for species list: USFWS 2001, CNHP 2000, CDOW 2001

Status Codes: FC = Federal Candidate; FE = Federally Endangered; FT = Federally Threatened; PT = Proposed Threatened; SE = State Endangered; ST = State Threatened; SC = State Special Concern.

Occurrence Sources:

¹ Hammerson 1999.

² Kingery 1998.

³ Fitzgerald et al. 1994.

⁴ CNHP 2000.

⁵ Spackman et al. 1997.

The survey did detect the presence of one globally rare plant species, the plains ragweed (*Ambrosia linearis*), which is ranked by the CNHP as “G2” and “S2” and is a forest sensitive species for Region 2 of the USDA Forest Service. A G2 rank indicates that the species is imperiled globally because of rarity (6 to 20 locations), or because of other factors demonstrably making it very vulnerable to extinction throughout its range. An S2 rank indicates that the species is imperiled in the state because of rarity (6 to 20 locations), or because of other factors demonstrably making it very vulnerable to extinction throughout its range.

Plains ragweed occurs in playas in prairie ecosystems but may also grow in artificial habitats similar to playas. The CNHP identified approximately 1,000 individuals on a man-made berm on the side of a natural depression in the southeast portion of the Base. The CNHP delineated an area of potential habitat for this species surrounding this depression (see Figure 3-1) (USAF, 2001a).

Until recently there were no records of any federally or state listed or candidate threatened or endangered species occurring on the Base (USAF, 2001a). However, black-tailed prairie dogs, a candidate for federal listing and a state species of special concern, have recently moved onto the Base near the West Gate from adjacent state land to the west, and burrowing owls, a state threatened species also protected under the Migratory Bird Treaty Act, have been observed using the associated black-tailed prairie dog burrows (see Figure 1-3, Photograph 6 and Figure 3-1).

Black-tailed prairie dogs form prairie dog colonies (or towns) in shortgrass or mixed-grass ecosystems, which provide or enhance habitat for a variety of species including black-footed ferrets, mountain plovers, and burrowing owls (Fitzgerald et al., 1994). Black-tailed prairie dogs also regulate and maintain prairie biodiversity through vegetation and soil manipulation (Sharps and Ursek, 1990). They are an important food source for many species including ferruginous hawks, wintering bald eagles, swift foxes, and black-footed ferrets (Sharps and Ursek, 1990). During a visit to the Base on 11 June 2002, a biologist from SAIC counted approximately 50 prairie dog mounds that were about 50 percent active near the west boundary of the Base along the south side of Irwin Road (see Figure 3-1). This colony is adjacent to a larger colony on the state land to the west.

In eastern Colorado, burrowing owls favor prairie dog colonies for nesting. These colonies provide the owls with burrows, mounds for perching, and short vegetation, which enables the owls to detect approaching terrestrial predators (Kingery, 1998). Burrowing owls are migratory birds that winter in Texas and south to Central America. During the summer of 2002, burrowing owls were observed by Base personnel in the black-tailed prairie dog colony along Irwin Road (Trenchik, 2002). Locations of these sitings are provided on Figure 3-1. A field survey to formally establish the area being used by the burrowing owls and their population and activity was not performed because the owls using the site left the area by the middle of August.

Informal consultation with the USFWS and CDOW was initiated during September 2002 to ensure that these agencies are aware of potential impacts to black-tailed prairie dogs and burrowing owls, and to obtain their recommendations to avoid, minimize and mitigate potential impacts.

Bald eagles nest across Colorado in large cottonwoods and pine trees close to water (Kingery, 1998). In 1995, 21 nesting pairs and 1,000 wintering birds were recorded in Colorado (USFS, 1999). Wintering birds concentrate along large rivers in the western valleys and next to reservoirs

along the Front Range (Kingery, 1998). Bald eagles are considered opportunistic feeders, feeding on waterfowl, small mammals (prairie dogs), and carrion, especially during winter (USFS, 1999). Although bald eagles have not been documented to nest or roost on the Base they may hunt over the Base, particularly around the prairie dog colony during winter or migration. No critical habitat for this federally threatened species is found on the Base.

The ferruginous hawk is a migratory bird commonly found in grasslands and shrublands and is much more numerous on the eastern plains of Colorado during the winter (Andrews and Righter, 1992). It feeds almost exclusively on small- to medium-sized mammals and in the winter tends to concentrate around prairie dog colonies (Kingery, 1998). This species nests in isolated trees, on structures such as power poles and windmills, on rock outcrops, or on the ground (Andrews and Righter, 1992). The Base provides suitable breeding habitat for ferruginous hawks. Additionally, the Swainson's hawk, also a migratory bird, is known to nest near the Base. Although both of these birds have been observed at the Base, no nests have been reported; however, due to the recent presence of the prairie dog colony, it is possible that these birds could nest there in the future (USAF, 2001a). A related species, the red-tailed hawk (not considered a sensitive species), nests in the large cottonwood trees on the Base.

In 1999 the mountain plover was proposed for federal listing as a threatened species (USFWS, 1999 a). This migratory bird breeds in shortgrass prairie that supports prairie dog colonies or is heavily grazed by cattle. Habitat cues for this species at both breeding and wintering areas include short vegetation, level topography (less than five percent slope), and bare ground (30 percent) (USFWS, 1999 a). Because the undeveloped shortgrass prairie on the Base is grazed and has a black-tailed prairie dog colony, it is a potential breeding habitat for the mountain plover. However, no mountain plovers have been documented on the site and no critical habitat for this federally proposed threatened species is found on the Base.

The swift fox can be found in shortgrass and midgrass prairies in eastern Colorado. Their dens are located on flat areas or along slopes or ridges. This species' diet includes jackrabbits, prairie dogs, ground squirrels, and many species of ground nesting birds (Fitzgerald, et al., 1994). Some portions of the Base may provide potential breeding habitat for the swift fox, but no swift fox have been documented on the site and no critical habitat for this species is found on the Base.

3.6.4 Wetlands

In June and August 2000, the COE performed a re-examination of wetlands and other related features on the Base. This re-examination was based on an original examination of the Base conducted by the COE in 1991. The original examination resulted in the identification of four jurisdictional wetlands out of nine on-Base sites examined. Based on the re-examination of these nine sites during 2000, only two of the original four jurisdictional wetlands (referred to as Site 1 and Site 2) and one non-jurisdictional wetland (referred to as Site 8) were identified by the COE (see Figure 3-1); the remainder of the original nine sites consisting of two jurisdictional wetlands and four areas determined not to be wetlands examined in 1991 were not evident during the 2000 re-examination. The two remaining jurisdictional wetlands are natural playa lakes or playa lake wetlands. The remaining non-jurisdictional wetland is man made and was created by damming an intermittent drainage, probably for watering livestock before the creation of the Base (COE, 2001).

3.7 CULTURAL RESOURCES

Centennial Archaeology completed a cultural resources inventory and site-wide surface survey of the Base in 1992. No significant archaeological or historic properties were identified. Significant cultural resources are those properties determined eligible for or listed on the National Register of Historic Places (National Register).

In 1997, a Cultural Resources Management Plan (CRMP) was prepared for the Base in accordance with AFI 32-7065 to comply with the National Historic Preservation Act. The CRMP is a five-year plan that provides an inventory and evaluation of cultural resources on the site. The CRMP is reviewed annually to address newly discovered or identified cultural resources (USAF, 1997). At this time, there are no known cultural resources on the site that are eligible for or listed on the National Register.

Since subsurface testing at the Base has not been performed or deemed necessary, the CRMP includes a comprehensive set of regulations, requirements, policies and procedures to protect resources that may be found on the Base in the future. In summary, if cultural resources such as artifacts or human remains are found on the Base during construction or otherwise, all construction in the vicinity should stop immediately and the Base Historic Preservation Officer (BHPO)/Cultural Resources Manager should be notified immediately to assess the significance of the resources (USAF, 1997).

3.8 SOLID AND HAZARDOUS WASTE

3.8.1 Solid Waste

The Base has developed and implemented a solid waste reduction and recycling program. The program consists of efforts to recycle or reuse materials whenever possible, reducing overall waste. The current Base waste removal contractor hauls solid waste from the Base to Colorado Springs Landfill (USAF, 2001).

3.8.2 Hazardous Materials

The USAF defines hazardous material (HAZMAT) as all hazardous substances, petroleum, natural gas, synthetic gas, acutely toxic chemicals, and other toxic chemicals including hazardous waste (AFI 32-4002, Attachment 1, Section C). In general, HAZMAT includes substance that, because of their quantity, concentration, physical, chemical, or infectious characteristics, may present substantial danger to public health and/or welfare or to the environment when released or otherwise improperly managed (USAF, 2002e).

HAZMAT management at USAF installations is accomplished in accordance with DoD Directive 4210.15, *Hazardous Materials Pollution Prevention*, AFI 32-7086, *Hazardous Materials Management*, and AFI 32-7080, *Pollution Prevention Program*, which incorporates the requirements of all federal regulations, AFIs, and DoD Directives for the reduction of hazardous material use and purchases. The primary hazardous materials addressed by AFI 32-7080 are the 17 chemicals listed under the USEPA Industrial Toxics Program (EPA 17 Industrial Toxics). EO 12088, *Federal Compliance with Pollution Control Standards*, under the authority of the USEPA, ensures that necessary actions are taken for the prevention, management, and abatement of environmental pollution from hazardous materials due to federal facility activities (EO, 1994) (USAF, 2002e).

HAZMATs at the Base are managed through the HAZMAT “pharmacy” system (HAZMART), which controls the ordering and distribution of HAZMAT. The operation of the HAZMART is a key component to the Base having an effective pollution prevention program. Contractors must report HAZMAT usage on the Base to the HAZMART (AFI 32-7086) (USAF, 2002e).

The Base HAZMAT emergency planning and response plan establishes procedures and guidance for Base personnel to handle hazardous materials and petroleum products in the event of an accidental discharge, spill, or leak. The plan provides HAZMAT emergency response information, as well as spill prevention, control and countermeasures information (USAF, 2002e).

There is no asbestos or lead based paint known to be present at the Base (USAF, 2002e).

3.8.3 Hazardous Waste

Hazardous wastes are defined by the Solid Waste Disposal Act, as amended by the RCRA, which was further amended by the Hazardous and Solid Waste Amendments. Unless otherwise exempted by CERCLA regulations, RCRA Subtitle C (40 CFR parts 260 through 270) regulations are administered by the USEPA and are applicable to the management of hazardous waste. Regulatory authority is subsequently delegated to the State of Colorado. These regulations require that hazardous waste be handled, stored, transported, disposed, or recycled in compliance with applicable regulations (USAF, 2002e).

The Base is designated a small quantity generator of hazardous waste (USAF, 2001e). All toxic and hazardous wastes are stored at the Base Central Hazardous Waste Accumulation Facility for 270 days or less. Wastes are transported off-Base to a licensed treatment, storage, and disposal facility.

3.8.4 Pollution Prevention

The USAF has taken a proactive stance in developing a Pollution Prevention Program (PPP) to implement the regulatory mandates in the Pollution Prevention Act of 1990; EO 13148, *Greening the Government through Leadership in Environmental Management*; EO 12873, *Federal Acquisition, Recycling, and Waste Prevention*; and EO 12902, *Energy Efficiency and Water Conservation at Federal Facilities*. The USAF PPP incorporates the following principles (in priority order):

- Generation of hazardous substances, pollutants, or contaminants would be reduced or eliminated at the source whenever feasible (source reduction).
- Pollution that cannot be prevented would be recycled in an environmentally safe manner.
- Treatment of wastes and emissions control to reduce environmental impacts prior to disposal would be accomplished when source reduction is not feasible.

- Disposal, or other releases to the environment, would be employed only as a last resort, and would be conducted in an environmentally safe manner according to regulatory guidance.

AFI 32-7080, dated 12 May 1994, provides the directive requirements for the USAF PPP. AFI 32-7080 incorporates by reference applicable federal, DoD, and USAF level regulations and directives for pollution prevention. Each installation shall incorporate the requirements of AFI 32-7080 into a Pollution Prevention Management Plan (PPMP) and a Pollution Prevention Management Action Plan (P2MAP). The P2MAP is a single reference used to manage the actions needed to develop and execute an installation's PPP. Installation of P2MAPs address the process required to operate the Base's PPMP, the program required to fund PPPs, the road map to achieve Air Force's PPP goals, and the actions required to execute the PPMP. P2MAPs are based on recurring opportunity assessments designed to periodically assess an installation's success in achieving pollution prevention at the highest level in the hierarchy of action. Each installation is required to incorporate appropriate management, measurement, and reporting goals within the P2MAP to comply with all program elements of the Air Force PPP (USAF, 2002e).

3.8.5 Installation Restoration Program

The Installation Restoration Program (IRP) is established for the USAF in AFI 32-7020, *The Environmental Restoration Program*. As part of the Defense Environmental Restoration Program, the IRP is designed to identify, investigate, and clean up contamination associated with past USAF activities at USAF installations, government-owned contractor-operated facilities, off-site locations of contaminant migration, third-party sites, and sites that the USAF formerly owned or operated. Major commands must conduct IRP activities according to the National Contingency Plan and RCRA Corrective Action Processes. In general, the primary steps in investigating comprise assessment/site inspection, remedial investigation/feasibility study, remedial design/remedial action, and site closeout.

There are no IRP sites present at Schriever AFB (USAF, 2002e).

3.9 HEALTH AND PUBLIC SAFETY

Health and public safety issues at the Base are addressed through compliance with a wide range of federal, state and local regulations, policies, procedures and protocols, which are enforced by Base Security personnel and other personnel throughout the chain of command at the Base. The requirements of the Occupational Safety and Health Administration (OSHA) address safe construction practices and other potential health issues on the Base.

Prairie dogs present a small risk of transmitting plague to humans. Humans typically contract plague from coming into contact with an infected rodent, such as a prairie dog, or their fleas. Plague can also be contracted from contact with a pet, such as a cat, that has contracted the disease from a rodent or, to a lesser extent, from another human, through direct contact (e.g., coughing, sneezing, etc.). The U.S. Centers for Disease Control and Prevention recorded 393 cases of plague in humans in Colorado between 1959 and 1998, an average of approximately 95 cases per year. A source of infection was identified for 240 of these cases (61 percent), of which 31 (13 percent) were attributed to contact with prairie dogs or their fleas. During the five year period from 1994 through 1998, a total of 40 cases of plague in humans were recorded in

Colorado, an average of eight per year. Nine of the 17 cases for which a source of infection was identified were attributed to prairie dogs. In addition to antibiotics, the incidence of plague in humans is being reduced through improved sanitation practices including rodent control in human-occupied areas, flea removal for pets, and avoidance of dead animals (USFWS, 1999b).

Off-site risks to the public are extremely limited because the Base does not serve or support aircraft operations and the limited amount of community development in the vicinity of the Base (see Section 3.1 Land Use, Socioeconomics and Environmental Justice).

Health and public safety issues associated with air quality, noise, and hazardous materials/wastes are addressed in Sections 3.2 and 4.2, 3.3 and 4.3, and 3.8 and 4.8, respectively.

4. ENVIRONMENTAL CONSEQUENCES AND MITIGATION MEASURES

Chapter 4 addresses direct, indirect, induced, secondary, and cumulative impacts of the Proposed Action and No Action Alternatives. Beneficial and adverse, on-site and off-site, construction, operation, and maintenance impacts are also described, as appropriate.

The following analyses focus on site development impacts resulting from the three proposed construction projects:

- 1) Security Forces Squadron Regional Facility (SFSRF),
- 2) Security Forces Squadron Operations Facility (SFSOF), and
- 3) Upgrade Force Protection (Main Gate and West Gate Improvements).

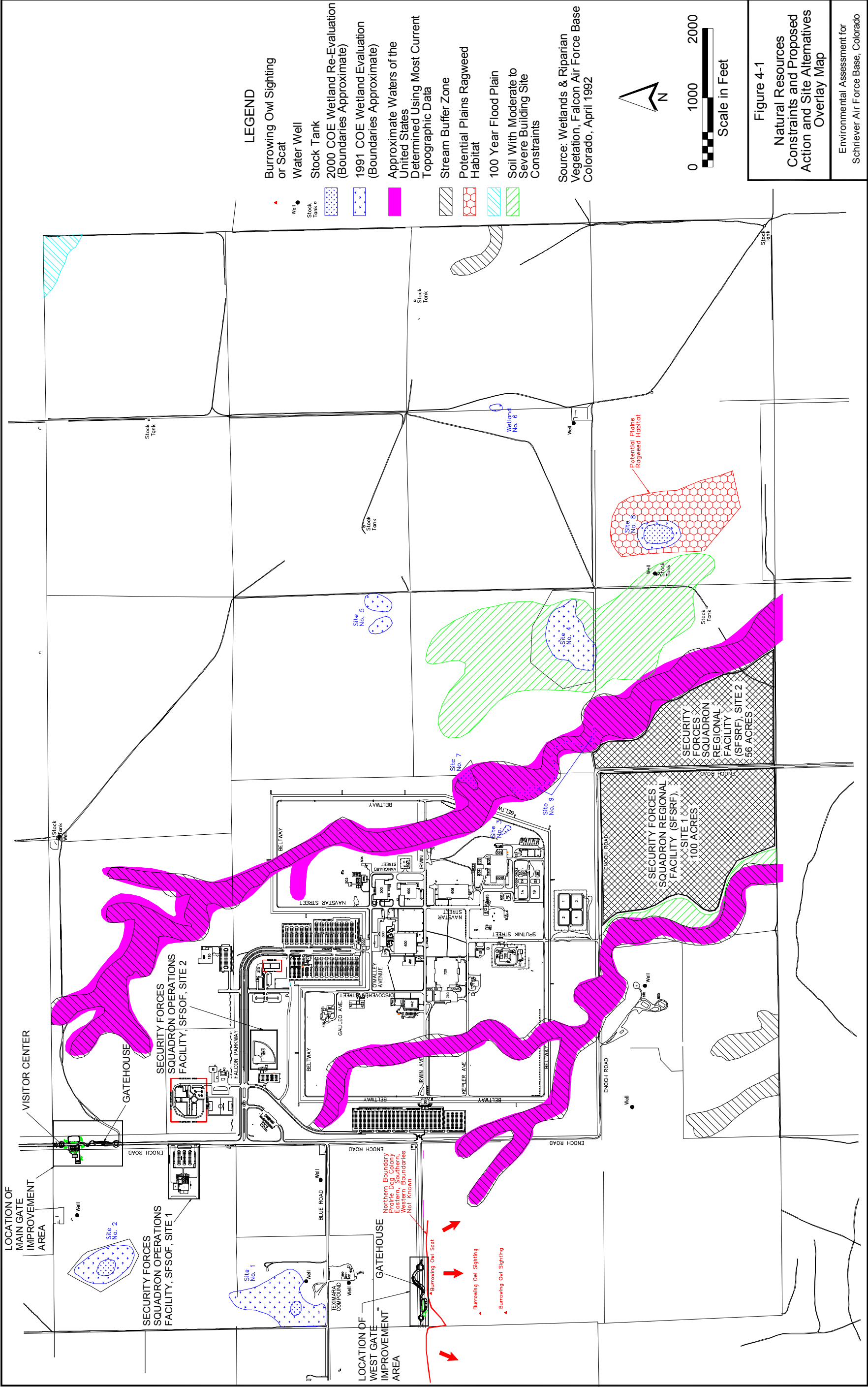
Alternative sites for the SRSRF and SFSOF were also analyzed for potential impacts. Only one site alternative (Site 1 or Site 2) for either the SFSRF or SFSOF would be selected. Specific impacts from individual improvements are provided, where appropriate, to clarify a unique environmental situation or consequence of a specific construction project. The Proposed Action comprises Site 1 or Site 2 for the SFSRF and Site 1 or Site 2 for the SFSOF, as well as the Main Gate and West Gate improvements. In general, impacts associated with Site 1 or Site 2 for the SFSRF and SFSOF would be quite similar (i.e., facilities footprints would be the same size); therefore, except where specified, impact discussions for each resource would apply to either site alternative location. The impact analyses presented in this chapter consider the Base's environmental management commitments and proposed mitigation as described in Section 2.3, and refer to specific commitments and required permits, as appropriate, to characterize potential impacts and substantiate related impact findings. Figure 4-1 presents features of the Proposed Action and the Base's environmental constraints.

4.1 LAND USE, SOCIOECONOMICS, AND ENVIRONMENTAL JUSTICE

4.1.1 Land Use Impacts

Use of Site 1 for the SFSRF Training Center improvements would replace approximately 30 acres of native grassland (not currently leased for livestock grazing) within the Base boundaries with new buildings and training facilities, as shown in Figures 2-1 and 2-2 and as described in Section 2.1.1. Use of Site 2 would displace approximately 30 acres of native grassland (currently leased for livestock grazing). The loss of grazing land associated with Site 2 would not be significant, but would contribute to the region-wide and nationwide cumulative loss of agricultural land. Impacts associated with the loss of grasslands and related compatibility issues are described in Section 4.6 Biological Resources.

The SFSOF would occupy approximately 8 acres of land within the Base boundaries with new buildings and parking facilities, as shown in Figures 2-1 and 2-3 and as described in Section 2.1.2. Use of Site 1 would displace a vacant grassland site in a location where development has been contemplated in previous long-range plans for the Base. Impacts associated with the loss of grasslands are described in Section 4.6 Biological Resources. Use of Site 2 would require demolition of the existing ball field and its associated pavilion. The existing parking lot west of the site would remain after construction of the SFSOF. Use of either site would be compatible with surrounding uses.



The replacement of the existing VC/VC and improvements to the Main Gate and West Gate facilities and associated roadways are shown in Figures 2-1, 2-4, 2-5, and 2-6 and are described in Section 2.1.3. The Visitor Center building and parking area would displace approximately 0.9 acres of vacant grassland. The proposed road improvements associated with the Main Gate would displace approximately 1.7 acres of grassland and occupy a total area of approximately 2.7 acres. The improvements associated with the West Gate would displace approximately 1.0 acre of grassland. Approximately 1.0 acre of existing roadway would be used for the new road. This area of the Base is leased for grazing. These improvements would be consistent with long-term planning and security objectives for the Base, and would not create compatibility issues with existing land uses or Base activities.

Impacts on the surrounding areas and neighbors would be limited with the exception of increased traffic associated with a more active Base, limited noise impacts from construction and SRSRF outdoor training activities, and incremental impacts from increased exterior lighting at the new gates and buildings. Noise impacts are discussed in Section 4.3. Traffic impacts will be minimized through the use of buses for personnel transport to and from the SRSRF training facility. Fixtures that focus light downward toward key areas in need of illumination would minimize cumulative impacts associated with light “pollution.”

4.1.2 Socioeconomic Impacts

The proposed improvements would increase the number of personnel able to use the Base by providing new and improved facilities. The SFSRF would serve as a training facility for personnel at the Base approximately 300 days per year. Approximately 20 to 60 people would be involved on a weekly basis. In addition, there would be a permanent staff of approximately 20 persons assigned to the building. The SFSOF would serve the 310th Reserve unit and 50th Security Forces Squadron by providing office space for up to 150 personnel. The new entrance gates and facilities for visitors would also increase personnel accommodations and requirements by providing a building for staff and visitor processing. Overall, personnel increases and facility construction would result in direct and indirect positive economic benefits in terms of jobs and revenue, and incrementally increase housing demand and the demand for urban services and utilities. These benefits and impacts would contribute to cumulative impacts, but they would be distributed regionally and over time. No significant adverse impacts on infrastructure systems or resources would be anticipated because Base development would be implemented in association with local government entities, utility providers and associated infrastructure availability, and related approvals.

4.1.3 Environmental Justice Impacts

Minority and low-income populations are not located near the Base, so they would not be subject to disproportionate impacts.

4.1.4 Impacts of the No Action Alternative

The No Action Alternative would maintain existing land use conditions, have no beneficial economic impacts, and add no incremental demand increases to infrastructure systems or resources.

Mitigation Measures

There are no significant impacts; therefore, no mitigation measures are required under NEPA.

4.2 AIR QUALITY

4.2.1 Construction Impacts

Construction activities associated with the Proposed Action would result in the disturbance of over 34 to 42 acres during facilities development, which presents the potential for particulate (dust) generation. A dust control permit from the Colorado Department of Public Health and the Environment (CDPHE) Colorado Air Quality Control Commission (CAQCC) would be required. Compliance with the requirements of this permit would minimize short-term impacts associated with particulate matter and ensure that significant impacts would not result.

Air pollutant emissions from equipment and certain tools would also be expected during the various construction periods associated with the Proposed Action. These emissions would not be considered significant because the quantities would not be expected to generate violations of air quality standards, contribute in any meaningful way toward overall measures of pollution for urban area attainment goals, and because they would be temporary and could be addressed with standard equipment emission controls.

Sites 1 and 2 for the SFSRF and SFSOF, respectively, would not present different construction related air quality impacts.

4.2.2 Impacts from New Equipment and Operations

Based on the descriptions of the components of the Proposed Action, the new and improved facilities would not be expected to add new pollutants or change the Base's CDHPE permit status based on a higher emission inventory. New emissions sources (e.g., boilers, emergency generators) and the firing range at the SFSRF would be added to the Base's existing permit.

The proposed SFSRF would involve handling and use of weapons and ammunition with the potential to emit hazardous air pollutant emissions in the event of an accident and during normal use. However, this potential would be minimized by required procedures for handling ammunition and use of weapons on the site. The proposed HEPA filter would minimize air pollutant emissions beyond the site and would maintain appropriate air quality conditions within the SFSRF firing range area.

With regard to mobile sources, the Proposed Action would generate new vehicle trips and vehicle miles traveled both on-site and off-site, and would change emissions from travel associated with Camp Guernsey, Wyoming by providing local training opportunities for Schriever AFB personnel and others. This change and the emissions from the proposed ATV track would not be considered significant because new trips and vehicle miles traveled by single occupant vehicles would be minimized through the use of buses and a net reduction might be realized depending on training and travel circumstances.

Sites 1 and 2 for the SFSRF and SFSOF, respectively, would not present different impacts from new equipment or operations.

4.2.3 Impacts of the No Action Alternative

Under the No Action alternative, air quality would remain as described in Section 3.2 and no further impacts would occur. However, because the No Action Alternative would not result in construction of the proposed SFSRF, Schriever AFB personnel would continue to have to travel out of state to meet training requirements, resulting in increased fuel consumption and associated air emissions.

Mitigation Measures

There are no significant impacts; therefore, no mitigation measures are required under NEPA.

4.3 NOISE

4.3.1 Impacts from Construction Noise

The primary noise sources during construction would involve equipment and vehicle operation during site and foundation preparation, structure assembly, and finishing work. It is anticipated that most construction activities would occur between 0730 and 1630 hours Monday through Friday for the duration of individual construction projects. This noise would be short-term and intermittent, and would typically range from 75 to 89 dB outdoors for one piece of heavy equipment at a distance of 50 feet (15 meters) from the source (Table 4-1) (USAF, 2002e). It is possible that up to five pieces of heavy equipment would be in operation at one time, raising the noise level by approximately 6 dB above the levels described in Table 4-1 in some areas. Exterior noise levels would be elevated temporarily, but would not be considered significant because on-site receptors are not considered sensitive, and the noise levels at site boundaries and the nearest off-site sensitive receptors would not be substantial.

Table 4.1. Heavy Equipment Noise Levels at 50 Feet

Equipment Type	Number Used ¹	Generated Noise Levels (from one piece of equipment), Lp (dB) ²
Bulldozer	2	88
Backhoe (rubber tire)	2	80
Front Loader (rubber tire)	1	80
Concrete Truck	Up to 5	75
Crane	1	75
Asphalt Spreader	1	80
Roller	2	80
Flat Bed Truck (18 wheel)	2	75
Scraper	2	89
Trenching Machine	1	85

¹Estimated number in use at any time.

²Source: U.S. Army Construction Engineering Research Laboratory 1978.

Interior noise levels within Base buildings, such as the Medical/Dental Center adjacent to Site 2 for the SFSOF, would also be elevated, but the resulting levels would not be expected to exceed applicable standards (refer to Section 3.3) or disrupt normal operations.

4.3.2 Impacts from Operational Noise

The SFSOF and the gate and roadway improvements would not add substantial long-term noise-generating activities at the Base. The SFSRF would add an indoor rifle range and outdoor training center designed to allow ATV activity. The noise from the rifle range would be addressed by compliance with state and federal standards implemented to protect participants and the architecture of the facility itself. Outdoor noise from the rifle range is not anticipated to be significant.

Noise from the ATV activity will depend on the amount and timing of the training activities, the number of ATVs in use at one time, and the characteristics of the ATV equipment to be used. Noise levels generated from a properly maintained ATV at 50 feet could reach approximately 80 dB for sustained periods. However, this level would not be considered significant because on-site land uses would not be considered sensitive receptors and the noise levels at the nearest off-site sensitive receptor (unoccupied farmhouse) would be approximately 50 dB. Noise levels at the nearest occupied residence would be approximately 40 dB. Noise from late night and early morning ATV activities would not be expected to exceed standards at distant receptors, but it may be noticeable due to low ambient noise levels in the area. Some residents may find ATV noise during these timeframes objectionable.

No substantive operational noise impact differences would be expected for Sites 1 and 2 for the SFSRF and SFSOF, respectively.

4.3.3 Impacts of the No Action Alternative

The No Action alternative would not involve construction and would not add any new noise sources to the Base.

Mitigation Measures

The following mitigation measure is recommended, but not required, to address potential noise impacts:

- Construction involving heavy equipment and ATV operations should be limited to the time period between 0800 and 1700 hours.

4.4 WATER RESOURCES

4.4.1 Surface Water and Stormwater Impacts

The Proposed Action would incrementally increase stormwater drainage quantities by increasing impervious surface on the site. New development would not occur within floodplains and would not be expected to substantially impact on-site or downstream floodplain boundaries or flooding. No dredging or filling of waters of the U.S. as defined by Section 404 of the Clean Water Act would be expected. (See Section 4.6 for discussion of wetlands regulated under Section 404.)

Any new construction at the Base is required to be incorporated into the Base Stormwater Pollution Prevention Plan to ensure that stormwater runoff is properly managed. No

degradation of surface water quality would be anticipated to occur such that: a designated use could not be achieved; an existing use would be impaired; new violations of water quality standards would occur; or a shortage in the Base's or surrounding landowners' water supply under existing water rights would result. Wind and water erosion would be expected within the outdoor training areas associated with Sites 1 and 2 for the SFSRF. A National Pollutant Discharge Elimination System (NPDES) permit would be required to address the potential for contaminants in stormwater from new development and the outdoor training areas. Special measures may be included in the permit to address runoff from the paved ATV training course. A stream buffer zone between Sites 1 and 2 and nearby drainage courses has been implemented to reduce downstream impacts (see Figure 4-1). A permit to address stormwater must be obtained from CDPHE, Water Quality Division, prior to the start of construction activities. Standard BMPs for construction activities would be set forth in the NPDES and CDPHE permits.

No substantive surface water and stormwater impact differences would be expected for Sites 1 and 2 for the SFSRF and SFSOF, respectively.

4.4.2 Groundwater Impacts

The Proposed Action would not create changes in existing groundwater uses or conditions on the Base, although the increase in impervious surface would incrementally reduce surface area for local groundwater recharge. However, new activities would increase the demand for groundwater for domestic uses. The Base's current groundwater use is approximately half the amount legally authorized by the Base and groundwater supplies in the aquifer are adequate to support moderate growth. Therefore, there would be no significant impacts to groundwater resources.

No substantive groundwater impact differences would be expected for Sites 1 and 2 for the SFSRF and SFSOF, respectively.

4.4.3 Impacts of the No Action Alternative

This alternative would not create changes in existing groundwater or surface water uses or conditions on the Base. Currently, stormwater runoff from the developed area causes some erosion in two dry washes. This erosion would continue under the No Action Alternative.

Mitigation Measures

In association with standard practices and permit requirements, the following measures are recommended to address soil erosion and minimize surface water degradation associated with the SFSRF outdoor training site and associated activities:

- A perimeter fence designed to contain activity within the areas to be developed with training facilities should be installed to prevent disturbance of natural areas.
- Measures to define activities areas and limit site disruption within and around the obstacle course should be made part of the final design process for the outdoor training area.

- Where practicable, incorporate features such as pervious surfaces for parking lots and sidewalks, and grass swales to manage and minimize stormwater runoff, particularly within the outdoor training area and ATV training course.

4.5 EARTH RESOURCES

4.5.1 Impacts on Geology, Mineral Resources, and Soils

The Proposed Action would result in shallow soil alterations at construction sites. No substantive impact differences would be expected for Sites 1 and 2 for the SFSRF or SFSOF, respectively.

None of the proposed projects is located within an area that proposes moderate or severe building limitations. However, it is possible that small pockets of unstable soils are present at some construction sites. If such soils are encountered during construction, the affected soil can be removed or treated to provide adequate stability for related construction.

Standard construction practices and State Dust-Control Permits require implementation of short-term mitigation measures, such as restricting earth-moving activities during high-wind periods, application of water to disturbed surface areas, restricting vehicle speed limits in disturbed areas, and various other measures to control runoff and minimize wind erosion during construction. Implementation of these practices would ensure that soil erosion caused by the Proposed Alternative is minimized.

Mineral resources would not be affected since they are not known to exist on the Base. No significant impacts to earth resources are expected.

4.5.2 Impacts of the No Action Alternative

The No Action alternative would not change existing soil conditions, mineral resources, or topography.

Mitigation Measures

In association with standard practices and permit requirements, standard wind and water erosion control techniques should be implemented during construction, including:

- During extremely high-wind periods, earth-moving activities should be stopped or limited.
- During construction, water should be applied to disturbed surface areas and soil stockpiles to minimize fugitive dust.

4.6 BIOLOGICAL RESOURCES

4.6.1 Impacts to Vegetation

Construction associated with the Proposed Action would result in the direct conversion of approximately 34 to 42 acres of shortgrass prairie (i.e., native grassland) to impervious surfaces (i.e., buildings and pavement) and landscaped areas, depending on which site is selected for

the SFSOF. Site 1 for the SFSOF would displace eight acres of shortgrass prairie while Site 2 would displace a ball field and associated pavilion and therefore would not result in the loss of shortgrass prairie.

Facilities construction would also result in indirect impacts on shortgrass prairie. Disruption of native site vegetation would be expected to increase the spread of noxious weeds on the site, which would further degrade the quality of the shortgrass prairie ecosystem. However, standard revegetation practices, including monitoring and maintenance, with native plants following construction should be implemented to minimize this impact.

The incremental loss of 34 to 42 acres of shortgrass prairie associated with the Proposed Action would be considered a direct and cumulative impact because this cover type is in decline along the Front Range and it is associated with protected species and species such as mountain plovers that are being considered for federal protection. However, this impact is considered less than significant given the following factors:

- The dispersed nature of the areas of shortgrass prairie that would be lost and its location within existing Base boundaries.
- The lack of direct and formal protection for this cover type (e.g., shortgrass prairie has not been designated as critical habitat for any protected species).
- Evidence of past and/or present heavy grazing by livestock of the areas that would be lost.

4.6.2 Impacts to Wildlife

The Proposed Action would result in the direct loss of approximately 34 to 42 acres of shortgrass prairie habitat for wildlife species. Additional shortgrass prairie habitat for wildlife would also be lost due to fragmentation and edge effects such as the spread of noxious weeds, thereby reducing wildlife habitat quality for species dependent on or adapted to shortgrass prairie. Additionally, noise and disruption from construction activities and operation of the ATV training course would result in temporary displacement of some wildlife species. However, given the reasons described in Section 4.6.1 and because species using the Base for hunting and foraging would likely find adequate habitat elsewhere either on Base or in adjacent areas, direct loss of wildlife from construction and operations is not anticipated to be significant (see Section 4.6.3 for a description of potential impacts to sensitive wildlife species).

4.6.3 Impacts to Sensitive Species

The Proposed Action and site alternatives present the potential to directly and indirectly impact two species that are considered sensitive, black-tailed prairie dog and the western burrowing owl, and indirectly impact bald eagle, ferruginous hawk, mountain plover, and swift fox. The prairie dog colony near the West Gate provides habitat for burrowing owls and potential habitat for mountain plover, ferruginous hawk, bald eagle, and swift fox. The black-tailed prairie dog is currently a candidate for listing under the Endangered Species Act and is therefore addressed as a federally listed species in accordance with USAF policy. The western burrowing owl, a state threatened species, has been seen using the prairie dog burrows within approximately five feet (1.7 meters) of the estimated construction footprint for the proposed widening of Irwin Road/DAR (Trenchik, 2001) (refer to Figure 4-1).

Because no formal burrowing owl surveys were conducted prior to the end of the field season in 2002, it is assumed that burrowing owls may be breeding in these burrows. The Migratory Bird Treaty Act prohibits the taking of burrowing owls.

The construction and operation of the West Gate improvements would result in direct (i.e., location of paving and construction zone directly upon) and indirect (i.e., noise, dust, vehicle emissions, habitat fragmentation) impacts to the black-tailed prairie dog colony south of Irwin Road. This impact is considered potentially significant. Avoidance may or may not be feasible. If avoidance is not feasible, implementation of a series of measures could mitigate this impact (see Mitigation Measures below).

The bald eagle, mountain plover, ferruginous hawk, and Swainson's hawk are the only other protected species that could be potentially affected by the partial loss of the black-tailed prairie dog colony (the ferruginous hawk and Swainson's hawk are protected under the Migratory Bird Treaty Act). The swift fox is a State special concern species and therefore not considered a protected species.

Bald eagles would probably hunt at the prairie dog colony during the winter or during migration, which is the time period when construction of the West Gate improvements would occur to avoid the burrowing owl breeding season. Construction activities would likely result in avoidance of the on-Base prairie dog colony by bald eagles, resulting in a potential indirect impact to this species. However, because bald eagles only use the Base for occasional foraging due to the lack of roosting sites (i.e., trees), the number of bald eagles using Base habitat during the winter is low and alternative food sources are present in the surrounding landscape, the Proposed Action would not have a significant impact on bald eagles.

Loss of the shortgrass prairie, as well as impacts to the prairie dog colony, would result in an indirect impact to the ferruginous hawk and Swainson's hawk. However, because neither of these hawks is known to nest on the Base and alternative nesting sites and food sources are available either on-Base or in surrounding areas, this impact would be considered less than significant.

Mountain plovers, a candidate for listing under the Endangered Species Act, could potentially nest in the prairie dog colony and in heavily grazed areas (e.g., shortgrass prairie) on the Base, although this species has not been observed or surveyed for on-Base. Impacts to the prairie dog colony and shortgrass prairie habitat would result in a potential indirect impact to mountain plovers. However, because suitable habitat is available in surrounding areas, the Proposed Action would not be expected to have a significant impact on mountain plovers.

The Proposed Action would not have direct or indirect impacts on plains ragweed. Site 2 for the SFSRF would be located immediately west of the potential habitat site delineated by CNHP shown in Figures 3-1 and 4-1. It is anticipated that by avoiding this habitat impacts to plains ragweed would be less than significant.

4.6.4 Impacts to Wetlands

The improvements associated with the Proposed Action or site alternatives would not require dredging or filling of wetland areas or other waters of the U.S. and are not anticipated to disrupt water resources. Additionally, no development associated with the Proposed Action or site alternatives is located within approximately 300 feet (91 meters) of a wetland or waters of the

U.S. (Figure 4-1). Therefore, there would be no direct or indirect impacts on wetlands.

4.6.5 Impacts of the No Action Alternative

The No Action Alternative would allow site conditions to remain unchanged; therefore, no impacts on biological resources would occur.

Mitigation Measures

Based on initial informal consultation and coordination with the USFWS and the CDOW, respectively, the following measures are recommended to avoid or minimize potential impacts to shortgrass prairie habitat and to black-tailed prairie dogs, western burrowing owls, bald eagles, ferruginous hawks, Swainson's hawks, and mountain plovers from implementation of the proposed West Gate improvements. Further consultation and coordination with USFWS and CDOW is required to finalize these measures:

- The final design process for the West Gate improvements should include a thorough evaluation of design alternatives that would avoid impacts to black-tailed prairie dogs and western burrowing owls. Complete avoidance of direct and indirect impacts to these species would include a plan that would:
 - Maintain a 150-foot (46-meter) buffer between a burrowing owl/prairie dog habitat perimeter established during a formal field survey.
 - Involve a construction period when burrowing owls are not present (1 November through 28 February).
 - Involve relocation of prairie dogs in the adjacent colony

If avoidance through redesign is not feasible, the following measures would be required to minimize and mitigate the potential impacts of the West Gate conceptual design:

- The Base shall continue informal consultation and coordination with the USFWS and CDOW.
 - The Base shall perform a field survey for prairie dogs, burrowing owls, and mountain plovers near the West Gate of the Base during the 2003 field season.
 - The Base shall complete the ongoing Black-Tailed Prairie Dog Management Plan that includes BMPs to avoid, minimize and mitigate impacts to the existing prairie dog colony.
 - The Base shall perform the construction of the West Gate improvements when burrowing owls are not present (1 November through 28 February) or stage construction to maintain a 150-foot (46-meter) buffer between the habitat boundary and the construction area. No construction activities, material, or equipment storage areas, or parking or other human activities shall be allowed within this buffer area.
- Revegetation of shortgrass prairie areas temporarily disturbed by construction that are not lost to new improvements should be revegetated with a shortgrass prairie seed mix

suitable for this site and monitored and maintained to avoid establishment of noxious weeds.

- As part of the ongoing long-range planning for the Base and in accordance with the Base INRMP, consideration should be given to shortgrass prairie preservation. Shortgrass prairie preservation should include contiguous areas of good quality on-Base land cover and coordination with adjacent landowners (e.g., State of Colorado) to create contiguous blocks of shortgrass prairie.

4.7 CULTURAL RESOURCES

4.7.1 Impacts on Known and Previously Unknown Cultural Resources

Construction of the proposed improvements would not impact any known cultural resources because none are known to exist on the site. However, construction would present the potential to uncover previously unknown cultural resources during excavation for foundations and site grading. Implementation of formally adopted CRMP procedures would be expected to prevent any significant impacts if cultural resources were discovered during construction.

No substantive cultural resource impact differences would be expected for Sites 1 and 2 for the SFSRF and SFSOF, respectively.

4.7.2 Impacts of the No Action Alternative

Under the No-Action Alternative, there would be no new construction, so the potential for discovery of cultural resources on the site would be low and no adverse impacts would be expected.

Mitigation Measures

There are no significant impacts; therefore, no mitigation measures are required under NEPA.

4.8 SOLID AND HAZARDOUS WASTE

Air Force Instruction (AFI) 32-7042, Solid and Hazardous Waste Compliance, and AFI 32-7080, Pollution Prevention Program, provide directive requirements for the proper management of solid waste and hazardous materials and wastes at USAF installations.

4.8.1 Solid Waste Generation and Disposal

Solid waste would be generated from demolition of existing structures and paving, construction, and operation of the proposed facilities. Construction contractors and the Base's disposal contractor would remove this waste from the Base and dispose of it in the Colorado Springs landfill. A minimum of 35 percent of solid waste materials would be diverted from the landfill through reuse or recycling. These materials would include metals, plastic, glass, used oil, lead acid batteries, tires, high quality copier paper, cardboard, and newspaper. The amount and types of solid waste generated would be minimized by the application of adopted pollution prevention procedures and would not be considered significant or unusual. However, the

incremental increase would contribute toward cumulative impacts associated with limited local landfill capacity.

The use of Site 2 for the SFSOF would involve slightly more solid waste generation than Site 1 because Site 2 involves demolition of the existing ball field and its associated pavilion. No other substantive solid waste impact differences would be expected for Sites 1 and 2 for the SFSRF and SFSOF, respectively.

4.8.2 Hazardous Materials and Waste

The SFSRF would require handling, storage, and use of fuel and related materials for ATV operation and maintenance, and the rifle range would generate lead-based and other slugs that would be considered hazardous waste. Standard procedures and facility design standards for handling and disposal of these materials would be expected to minimize related impacts. Any hazardous waste generated as a result of the Proposed Action would be disposed of in accordance with the current Schriever AFB hazardous waste program and would not be expected to change the small quantity generator status of the Base.

No substantive hazardous materials or hazardous waste impact differences would be expected for Sites 1 and 2 for the SFSRF and SFSOF, respectively.

4.8.3 Impacts of the No Action Alternative

The No Action alternative would not increase the volume of solid waste generated on the sites and would avoid impacts associated with additional handling and use of weapons, ammunition, and fuel on the Base.

Mitigation Measures

There are no significant impacts; therefore, no mitigation measures are required under NEPA.

4.9 HEALTH AND PUBLIC SAFETY

4.9.1 Impacts of the Proposed Action

The potential for health and public safety risks created by the Proposed Action during the construction process and during training activities at the SFSRF (firing range, obstacle course, and the ATV training course) would be avoided, minimized, and mitigated by compliance with a wide range of regulations, standard practices, and requirements for activity supervision. Construction issues would be addressed by OSHA compliance. No new radio frequency emissions would be created and no new on-site or off-site exposure risks would be anticipated.

Construction of the West Gate improvements and associated potential relocation of black-tailed prairie dogs would present a small potential for Schriever AFB personnel to contract the plague from direct contact with prairie dogs. Construction associated with the West Gate improvements would present a small potential for construction workers to come in direct contact with prairie dogs if they are not first relocated or removed from the site. Relocation of prairie dogs would be expected to present a higher risk for infection due to the likelihood of direct human contact with prairie dogs; therefore, the Base prairie dog management plan should include proper procedures for the handling of prairie dogs to minimize the likelihood that

personnel could become infected. It is not anticipated that operation of the West Gate would present a considerable risk with regard to plague because no facilities associated with this project would entail human habitation or direct contact with prairie dogs.

Site 1 and 2 for the SFSRF and SFSOF, respectively, would not alter potential risks or raise additional health and public safety issues.

4.9.2 Impacts of the No Action Alternative

The No Action alternative would avoid the risk increases associated with new construction and operation of new facilities.

Mitigation Measures

In order to minimize potential health issues associated with prairie dogs, the following measure should be implemented:

- The Base prairie dog management plan should include proper procedures for the handling of prairie dogs to minimize the potential for human exposure to plague.

4.10 SECONDARY AND CUMULATIVE EFFECTS

Secondary impacts are those that are caused by a Proposed Action, but may occur later in time or farther removed in distance, relative to the primary impacts of the Proposed Action.

“Cumulative impacts result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions” (40 CFR Section 1508.7). To assess secondary and cumulative impacts, NEPA documents must consider past, present and reasonable foreseeable short-term and long-term future actions related to the Proposed Action and project site and other relevant off-site factors.

The relevant past and present actions associated with the impacts of the Proposed Action include existing Base development and operations, plus nearby land development and infrastructure improvements such as roads, pipelines, and power transmission lines. The reasonably foreseeable future actions reflect ongoing construction projects or projects that have obtained approvals and/or funding commitments and would not be deemed speculative at this time. The reasonably foreseeable off-site improvements in the vicinity of the Base are limited to the ongoing construction of the sewer pipeline that serves the Base and future development on parcels of land in the vicinity of the Base. Development of small residential properties and commercial uses is anticipated in the future. This development will occur under the limitations set forth by current zoning and the results of an ongoing planning process (Gorney, 2002) (see Sections 3.1 and 4.1). Reasonably foreseeable on-site projects, other than the Proposed Action, include a specific set of improvements that were within Phase 1 of the Base’s Vision 2020 Plan (see Table 4-2).

Table 4.2. Reasonably Foreseeable Future On-Site Improvements

REASONABLY FORESEEABLE FUTURE ON-SITE IMPROVEMENTS	STATUS
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Secure Area Logistics Building	Planned
Medical/Dental Clinic	Construction to be Completed in 2004
310 th Operations Building	Construction to be Completed in 2004
Multi-Purpose Chapel/Comm.	Planned
Outdoor Recreation	Planned
GM-3 (Communication Building)	Planned
Park	Tank Removals Completed, Phase 1 Site Preparation Underway
Two Ballfields North of Falcon Parkway (NE/SE Fields Only)	Planned
Physical Fitness Center (PFC) – Gymnasium Expansion	Planned
Headquarters Building Expansion	Under Construction
Spaced Based Infra-Red System (SBIRS) Building (52,000 sq. ft.)	Under Construction
Sewer Pipeline (from Rapid Infiltration Beds, S and W along Enoch Road	Under Construction

The remaining Phase 1 improvements and all of the components of Phases 2, 3 and 4 of the Vision 2020 Plan are not considered reasonably foreseeable at this time because the Vision 2020 Plan, which served as the Base's long-range site planning document, is now outdated and subject to revisions. In addition, the designs were conceptual, the plans and locations for these facilities may change, construction of these facilities is not anticipated within 10 years, and no management or funding commitments exist for these improvements at this time.

Cumulative and secondary impacts are discussed in Sections 4.1 through 4.12, as appropriate. The most important examples of secondary and cumulative impacts associated with the Proposed Action are as follows:

- Further demand for support facilities and infrastructure at the Base and off-site
- Incremental losses of grazing land, open space, and shortgrass prairie habitat associated with converting undeveloped land to urban uses.
- Incremental contributions to local traffic and the potential for accidents.
- Incremental impacts associated with light pollution.
- Contributions to regional and local air pollutant emissions.
- Incremental increases in urban stormwater runoff quantities and contaminant loads.
- Continuing incremental loss of plant and wildlife habitat, including the loss of 34 to 42 acres of shortgrass prairie.
- Use of hazardous materials and production and disposal of solid and hazardous wastes.

4.11 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

An irreversible commitment of resources is defined as the loss of future options. The term applies primarily to the effects of use of nonrenewable resources such as minerals or cultural resources, or to those factors such as soil productivity that are renewable only over long periods of time. It could also apply to the loss of an experience as an indirect effect of a "permanent" change in the nature or character of the land. An irretrievable commitment of resources is defined as the loss of production, harvest, or use of natural resources. The amount of production foregone is irretrievable, but the action is not irreversible. If the use changes, it is possible to resume production.

The Proposed Action would not have irreversible impacts because future options for using this site would remain possible. A future decommissioning process could restore the site for alternative uses, ranging from natural open space to urban development. No loss of future options would occur.

The Proposed Action would result in an irretrievable commitment of materials, energy, fuel, and labor utilized during construction activities. Building and construction equipment wear (i.e., depreciation) would also be irreversible. The irretrievable resources to be committed are typical for the scale of the proposed project. Implementation of best construction management practices, standard equipment maintenance schedules, and use of energy conservation and recycling measures during building operation would minimize the use of irretrievable resources. At the end of the useful life of the facility, it is expected that some building materials (e.g., asphalt and concrete, scrap metal, and fixtures) could be retrieved for recycling and reuse. Direct losses of biological productivity and the use of natural resources from these impacts would be inconsequential.

4.12 THE RELATIONSHIP BETWEEN LOCAL SHORT-TERM USES OF THE HUMAN ENVIRONMENT AND THE MAINTENANCE AND ENHANCEMENT OF LONG-TERM PRODUCTIVITY

The following discussion addresses the commitment of resources associated with the Proposed Action relative to the loss of long-term productivity associated with these commitments.

The Proposed Action would commit resources in the form of energy, labor, materials, and funds over 20 years or more. The justification for these commitments at this time is described in Section 1.1 Purpose and Need. Long-term productivity associated with the site relates to agricultural value for livestock grazing, biological value as habitat, and open space values associated with aesthetic quality. The Proposed Action would involve the use of lands where these values have already been compromised by facility development and operations; therefore any losses would be incremental and insignificant. The Proposed Action would create no long-term risks to public health and safety.

4.13 UNAVOIDABLE ADVERSE IMPACTS

There would be no significant unavoidable adverse impacts from the Proposed Action.

5. LIST OF PREPARERS

The following persons were primarily responsible for preparing this EA.

Schriever Air Force Base Contributors:

Dwight Jones, Environmental Flight Chief, Schriever Air Force Base.
Melissa Trenchik, Natural/Cultural Resources Manager, Schriever Air Force Base.
Ralph Mitchell, Community Planner, Schriever Air Force Base.

SAIC Contributors		
Name	Qualifications	Primary Responsibilities
Brian Kennedy, AICP	B.A. Special Major: Environmental Planning and Design, California State University, Chico, 1982. 19 years of related experience	Project Manager, Task Leader for Summary, Chapters 1 and 2, and Sections 4.10, 4.11, 4.12 and 4.13 Special NEPA Sections
Carlos Jallo	B.A. Environment, Economics, Politics 7 years of related experience	Task Leader for 3.1 and 4.1 Land Use, Socioeconomics and Environmental Justice, 3.2 and 4.2 Air Quality, and 3.3 and 4.3 Noise
Tom Greengard, P.G.	Graduate Studies, Civil Engineering, Colorado State University, 1990-1996 M.S., Watershed Hydrology University of Arizona, 1981 B.S., Soil and Water Science, University of Arizona, 1976 20 years of related experience	Task Leader for 3.4 and 4.4 Water Resources, 3.5 and 4.5 Earth Resources, 3.8 and 4.8 Solid and Hazardous Materials and 4.9 Health and Safety
Christiana Manville	M.A. in Ecology, Indiana University, Bloomington, Indiana, 2000 M.S. in Environmental Science, School of Public and Environmental Affairs, Indiana University, Bloomington, Indiana, 2000 B.A. Biology major, Developing Nations Studies minor, <i>cum laude</i> , Middlebury College, Middlebury, Vermont, 1991 10 years of related experience	Task Leader for 3.6 and 4.6 Biological Resources

SAIC Contributors		
Name	Qualifications	Primary Responsibilities
Laura Ziemke	B.A., Anthropology, Boise State University, 1993 10 years of related experience	Task Leader for 3.7 and 4.7 Cultural Resources
Gary Pauls	A.A.S., Drafting for Industry, Red Rocks Community College, 1988 Certificate Program in Geographical Information Systems, University of Denver, 2002	Graphics
Robert Henke	B.S., Forest Science, University of Missouri, 1982 B.S., Fisheries & Wildlife Management, University of Missouri, 1982, M.S., Wildlife Biology, University of Vermont, 1987	Peer Review

6. BIBLIOGRAPHY AND REFERENCES

6.1 DOCUMENTS AND INTERNET SITES

Andrews, R. and R. Righter. 1992. Colorado birds. Denver Museum of Natural History, Denver, CO. 442 pp.

Colorado Natural Heritage Program. 2000. Natural Heritage Inventory of Schriever Air Force Base, El Paso County, Colorado. Fort Collins, CO. July 2000. 16 pp.

Colorado Division of Wildlife. [date] Memorandum: Suggestions for Handling Burrowing Owl Issues, 2 pp.

Colorado Division of Wildlife. 2001. Colorado listing of endangered, threatened, and wildlife species of special concern. Updated October 2001. Available via the Internet at: <http://wildlife.state.co.us/T&E/list.asp>. Accessed September 25, 2002.

El Paso County Web Site: <http://www.co.el-paso.co.us/>.

Fitzgerald, J.P., C.A. Meaney, and D.A. Armstrong. 1994. Mammals of Colorado. Denver Museum of Natural History and University Press of Colorado, Niwot, CO.

Hammerson, G.A. 1999. Amphibians and reptiles in Colorado, a Colorado field guide. 2nd ed. University Press of Colorado, Niwot, CO.

Kingery, H.E. (ed.) 1998. Colorado Breeding Bird Atlas. Colorado Breeding Bird Atlas Partnership and Colorado Division of Wildlife. Denver, CO.

Sharps and Ursek. 1990. Ecological review of black-tailed prairie dogs and associated species in western South Dakota. Great Basin Naturalist 50 (4), pp. 339-345.

Spackman, S., B., J. Jennings, C. Coles, M. Dawson, M. Minton, A. Kratz, and C. Spurrier. 1997. Colorado rare plant field guide. Prepared for the Bureau of Land Management, the U.S. Forest Service and the U.S. Fish and Wildlife Service by the Colorado Natural Heritage Program.

United States Air Force. 2002 a. Web Site: <http://www.schriever.af.mil/>.

United States Air Force. 2002 b. Air Force Form 813, Request for Environmental Impact Analysis, Security Forces Regional Training Facility, 05 March 2002.

United States Air Force. 2002 c. Air Force Form 813, Request for Environmental Impact Analysis, Security Forces Operations Facility, 05 March 2002.

United States Air Force. 2002 d. Security Forces Squadron Operations Center, Project # GLEN 01-1011 E, Requirements Document, Final 100% Submittal, Merrick & Company, 7 February 2002.

- United States Air Force. 2002 e. Environmental Assessment and Finding of No Significant Impact, Space Based Infrared System, Mission Control Station Backup Facility, Headquarters Space and Missile Systems Center, Schriever AFB, Colorado. January 2002.
- United States Air Force. 2002 f. Long Range Plan, Schriever AFB, PowerPoint Presentation, Colorado, 21-28 June 2002.
- United States Air Force. 2002 g. Vision 2020 Plan, PowerPoint Presentation, January 2002.
- United States Air Force. 2001 a. Integrated Natural Resources Management Plan Schriever AFB Colorado, November 2001.
- United States Air Force. 2001 b. Main Gate, West Gate and Visitor's Control Center, Project Number GLEN 01-1101E, Requirements Document, Final 100% Submittal, Prepared by Merrick & Company, 7 August 2001.
- United States Air Force. 2001 c. Environmental Assessment for Construction of a Consolidated 310th Space Group Operations Facility, Schriever AFB, Colorado, Prepared by 50 CES/CEV, August 2001.
- United States Air Force. 2001 d. Air Force Form 813, Request for Environmental Impact Analysis, Upgrade Force Protection: Visitor Control Center, 27 June 2001.
- United States Air Force. 2001 e. Environmental Assessment and Finding of No Significant Impact for Construction of Medical – Dental Clinic, Schriever AFB, 8 February 2001.
- United States Air Force. 2000 Environmental Assessment for Child Development Center, January 2000.
- United States Air Force. 1999 a. Environmental Assessment for the Physical Fitness Center at Schriever AFB, Colorado. Prepared by Parsons Engineering Science, Inc. September 1999.
- United States Air Force. 1999 b. Environmental Assessment for the Wastewater Pipeline, Schriever Air Force Base, Colorado. Prepared by Parsons Engineering Science, Inc. August 1999.
- United States Air Force. 1999 c. General Plan Schriever Air Force Base. May 1999.
- United States Air Force. 1997. Cultural Resources Management Plan. Falcon AFB, Colorado. Prepared by Parsons Engineering Science, Inc., June 1997.
- U.S. Army Corps of Engineers. 2001. Wetlands re-examination Schriever AFB, CO. Prepared by US Army Engineer Research and Development Center, Construction Engineering Research Laboratory, Champaign, IL. August 2001. Prepared for 50th CES, 50th Support Group, and 50th Space Wing. Pp. 26.

United States Forest Service. 1999. Draft Environmental Impact Statement for the White River National Forest land and Resources Management Plan – Appendix N. White River National Forest, Glenwood Springs, CO.

United States Fish and Wildlife Service. 2001. Federally listed and candidate species and their status in Colorado. Ecological Services, Colorado Field Office. 21 August 2001.

United States Fish and Wildlife Service. 1999 a. Endangered and threatened wildlife and plants: Proposed threatened status of the mountain plover. Federal Register: 64(30). 16 February 1999.

United State Fish and Wildlife Service. 1999 b. Plague and Black-Tailed Prairie Dogs. USFWS Mountain Prairie Region. <http://www.r6.fws.gov/btprairiedog/plague>. Document dated March 23, 1999. Site accessed November 25, 2002.

6.2 AGENCIES AND PERSONS CONSULTED

Dwight Jones, Environmental Flight Chief, Melissa Trenchik, Natural/Cultural Resources Manager and Ralph Mitchell, Community Planner, at Schriever Air Force Base were primary contacts in the preparation of this document. The following individuals from outside of the USAF were contacted during the preparation of this EA:

Gorney, Joe, Long Range Planner, El Paso County Planning Department, telephone communication, September 2002.

Sandy Vana-Miller, Biologist, U.S. Fish and Wildlife Service, telephone communication, September 2002.

Casey Cooley, Biologist, Colorado Division of Wildlife, telephone communication, September 2002.

7. COMMENTS ON THE DRAFT EA

This section of the EA presents all comments on the Draft EA received by the Base during the comment period. The Draft EA was distributed on 11 December 2002 with a 30-day comment period ending 15 January 2003. On 8 January 2003, the comment period was extended until 20 January 2003 to allow additional time for comments and review of the associated FONSI.

7.1 ORIGINAL COMMENTS

The Base received one comment letter on the Draft EA. This letter was from the El Paso County Planning Department. A copy of the letter is presented on pages 7-2 and 7-3.

7.2 SUMMARIZED COMMENTS AND RESPONSES

The following discussion summarizes and responds to substantive comments on the proposed action, alternatives and environmental findings in the Draft EA.

A. El Paso County, Planning Department, Kenneth G. Rowberg, Director, 21 January 2003

Summarized Comment A.1: To ensure compatibility with the rural character of the area, the Base should consider the issue of skyglow in its project lighting and when possible, incorporate lighting principles to ensure both Base security and compatibility with surrounding land uses.

Response to Comment A.1: Schriever AFB appreciates the efforts made by the El Paso County Planning Department to review and provide positive input on this Draft EA. Schriever AFB is currently researching the topic of sky glow, color rendering, and energy efficient lighting alternatives for the base.

There were no other comments requiring a response.

Kenneth G. Rowberg
Planning Director

Carl F. Schueler
Assistant Director

A.

El Paso County Planning Department



Melissa Trenchik
50 CES/CEV
300 O'Malley Avenue, Suite 19
Schriever AFB, CO 80912-5019

January 21, 2003

Ms. Trenchik

Attached are comments for the El Paso County Planning Department concerning the Draft Environmental Assessment for Construction of Security Forces Training Facilities and Force Protection Upgrades at Schriever Air Force Base, Colorado.

We concur with your recommendation of a Finding of No Significant Impact. We have reviewed the previous Schriever AFB Master Plan (1999) and have anticipated the future development of the Base property. Given Schriever's distance to other military facilities and its expanding security requirements, we recognize the importance of these projects.

The Draft 2003 Highway 94 Comprehensive Plan Update also recognizes potential Base development. Mr. Ralph Mitchell, Schriever AFB Planner, has been an integral part of the Highway 94 Plan Update for a number of years. The Update recognizes the potential for urban uses north and west of the Base. Areas to the south and east are anticipated as rural-residential and agricultural. The planned Base uses appear compatible with the land uses recommended in the Highway 94 Plan Update.

A.1. To ensure compatibility with the rural character of the area, we recommend that the Base consider the issue of skyglow in its project lighting design. We ask that, when possible, the Base incorporate the following lighting principles to ensure both Base security and compatibility with surrounding land uses:

- Lights should not result in glare for passersby
- Mounting heights should be as low as possible
- Only downward directed lighting should be installed. No light should be directed into the sky
- Shielded, full cutoff fixtures should be used
- An increased number of lights at lower heights offer security advantages over fewer lights at increased heights
- Metal halide is the preferred lamp for lighting applications for both color rendering and energy efficiency
- No light should spill over onto adjacent properties

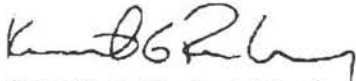
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We recognize that Department of Defense and Air Force requirements may preclude the adoption of such measures.

Again, we concur with your recommendation of a Finding of No Significant Impact. Feel free to contact us regarding our comments or if we may be of further assistance. We appreciate the thorough nature of your Draft Environmental Assessment and the opportunity to comment.

Sincerely,



Kenneth G. Rowberg, Director
El Paso County Planning Department