Finding of No Significant Impact

Fort Carson Trap and Skeet Range, Fort Carson, Colorado

Fort Carson has prepared a Supplemental Environmental Assessment (SEA) (NOV 2015) that evaluates the potential environmental impacts of the Army's proposal to construct and operate a Trap and Skeet Range on Fort Carson to serve as additional recreation shooting and training facilities and to operate it as part of the Directorate of Family, Morale, Welfare, and Recreation (DFMWR) Cheyenne Mountain Shooting Complex.

In 2011 Fort Carson assessed the construction and operation of a shooting complex (collectively referred to as the Rod and Gun Club) on Fort Carson property to serve as a recreational shooting and training center. The proposed trap and skeet range was included in that assessment, but changes in the trap and skeet field proposal since that assessment in 2011, prompted the need for this supplemental analysis.

Description of the Proposed Action

Fort Carson is proposing the construction and operation of a trap and skeet range. The range would consist of five fields, based on the National Rifle Association (NRA) standards, directly north of the Cheyenne Mountain Shooting Complex, in the downrange area of existing Ranges 17 and 19. Three fields would be combined trap and skeet; the two northern fields would be trap only due to Surface Danger Zone (SDZ) and associated shot-fall limits.

The trap and skeet range would contain the firing stations, targets and target areas, target guards, trap houses, skeet high/low houses, shotfall zone, lighting, side walls, walkways, and parking.

The trap and skeet range would require clearing and grading. Approximately 15 acres of land would be required for the ranges. Underground electrical wiring would be installed for target operations and lighting.

No Action Alternative

Under the No Action Alternative, Fort Carson would not be able to construct or operate the trap and skeet field. Implementing the No Action Alternative would not allow Fort Carson to provide authorized DFMWR patrons and local law enforcement personnel a safe, convenient, and economical opportunity for recreational trap and skeet shooting and further training that isn't otherwise available in or near El Paso County.

Environmental Consequences

Implementation of the Proposed Action would allow Fort Carson to construct a trap and skeet range to meet DFMWR and patrons shooting needs. The Proposed Action would result in less than significant long-term adverse impacts to all resources. Best management practices (BMPs) and identified minimization measures would be implemented to further reduce potential impacts. After construction and during utilization, the trap and skeet range will be monitored by DFMWR and range personnel

to evaluate the land condition and coordinate proper rehabilitation methods as necessary.

Mitigation

There is potential for negative effects caused by the migration of lead from the range and by soil erosion that could affect surface water. To minimize this, Fort Carson would incorporate elements of design and BMPs to reduce this potential. During the design review process, Fort Carson would ensure that appropriate measures have been included to mitigate soil and water quality impacts. These measures include, but are not limited to, the following:

- Cutting a drainage swale along the toe of the cut slope and armoring the swale. Construction of a cutoff ditch just above the top of the cut slope, to catch overland flow and divert it to one or both sides of the range.
- Side slopes (based on steepness) may require turf reinforcement mats or erosion control blankets.
- Direct the flow from both ditches into larger stilling basins or ponds. Stilling basins or ponds will have a concrete forebay to allow for maintenance and removal of sediment and lead shot; pond design will meet requirements of Army Low Impact Development guidelines and will meet water rights criteria.
- Construction of cutoff or diversion berms at the tributaries to Clover Ditch on the northern side of the project site to ensure migration of lead shot is minimized.
- Conduct periodic lead removal activities and recycling to minimize the accumulation of lead on the range.
- Use inert and non-toxic targets or biodegradable targets that will not contribute pollutants to the soil.
- The use of biodegradable targets can, over time affect soil pH and vegetation growth. In high volume target areas, adverse soil impact can be avoided by raking up target residue on a quarterly basis and/or by adding agricultural limestone to the soil if the pH decreases abnormally. Soil pH in high volume target areas should be checked bi-annually.
- The use of clay targets containing polycyclic aromatic hydrocarbons (PAH) are not recommended for use. Targets of this type would require raking up target residue on a monthly basis and hauled off post to a designated landfill. Soil testing for PAH contamination would be done semi-annually.

As part of Fort Carson's Municipal Separate Storm Sewer System (MS4) permit, Clover ditch is regularly monitored for compliance with State of Colorado water quality standards. This continued monitoring allows for analysis on the effectiveness of mitigation measures. Mitigation measures would be adjusted as necessary if monitoring indicates an issue.

Conclusion

The attached SEA was prepared pursuant to 32 Code of Federal Regulations (CFR) Part 651 and Council on Environmental Quality (CEQ) regulations (Title 40, U.S. Code,

Parts 1500-1508) for implementing the procedural requirements of the National Environmental Policy Act (NEPA).

The findings of this EA are that the Proposed Action Alternative, with minor mitigation, would have no significant direct, indirect or cumulative adverse impact on the human or natural environment Based on review of the SEA, I hereby approve its findings and adopt the mitigation measures outlined in its Section 5.0.

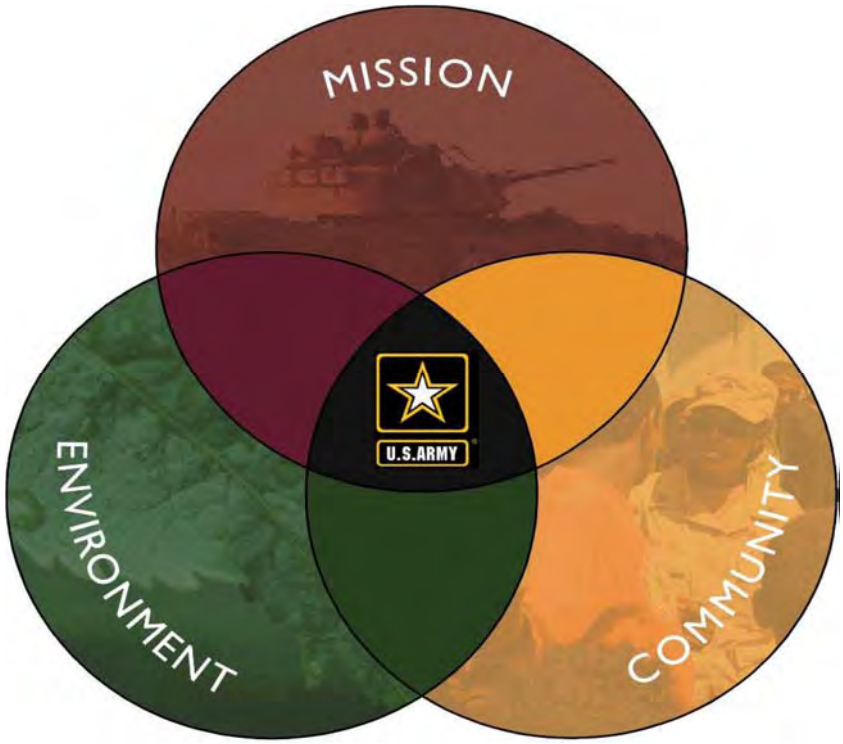
Therefore, I conclude that with appropriate mitigations, the Proposed Action is not a major federal action that would significantly affect the quality of the environment within the meaning of Section 102(2) (c) of the National Environmental Policy Act of 1969, as amended. Accordingly, no environmental impact statement (EIS) is required.

1 FEB 16

JOEL D. HAMILTON
COL, FA
Garrison Commander
Fort Carson, Colorado

Date

Supplemental Environmental Assessment for the Construction and Operation of a Trap and Skeet Range Fort Carson, CO. October 2015



Fort Carson
Directorate of Public Works, Environmental Division

ENVIRONMENTAL ASSESSMENT

Construction and Operation of a Trap and Skeet Range
Fort Carson, CO.

October 2015

Prepared By:

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Fort Carson, Colorado

22 Jan 2016
Date

Approved By:

JOEL D. HAMILTON
COL, FA
Garrison Commander
Fort Carson, Colorado

1FEB16
Date

ENVIRONMENTAL ASSESSMENT

Construction and Operation of a Trap and Skeet Range
Fort Carson, CO.

Contents

List of Figures and Tables

APPENDICES

ENVIRONMENTAL ASSESSMENT
Construction and Operation of a Trap and Skeet Range
Fort Carson, Colorado

1.0 PURPOSE, NEED, AND SCOPE

1.1 Introduction

This Supplemental Environmental Assessment (SEA) has been prepared in compliance with the National Environmental Policy Act of 1969 (NEPA), to discuss and disclose any potential environmental effects that may result from the construction and operation of a trap and skeet range at the existing Cheyenne Mountain Shooting Complex, Fort Carson, CO. The trap and skeet range has been previously evaluated under the NEPA and documented in the Final (May 2011) Environmental Assessment (EA) prepared by the Environmental Research Group, LLC for Fort Carson, CO.

1.2 Location

Cheyenne Mountain Shooting Complex is located on the southeastern side of the Fort Carson's main post area and adjacent to (west of) Interstate 25. It is located south of entrance Gate 20 off Highway 16, accessed by Route 1 (Figure 1.1-1). The proposed Trap and Skeet range would be located north of the existing shooting complex as depicted in Figure 1.1-2.

1.3 Trap and Skeet Range Project Background

In 2011 Fort Carson assessed the construction and operation of a shooting complex (collectively referred to as the Rod and Gun Club) on Fort Carson property to serve as a recreational shooting and training center. The proposal was to be implemented in three phases. Phase II was identified as the phase for construction of the five regulation trap and skeet fields, which would require approximately 15 acres of land. Each trap and skeet field would consist of a skeet low house, a skeet high house, and a trap bunker that can store clay targets. Underground wiring would support the target-throwing equipment as well as lighting for the ranges.

1.3.1 Purpose of this Supplemental EA

Changes in the trap and skeet field proposal since the assessment of the Rod and Gun Club in 2011, prompted the need for this supplemental analysis and is described more fully in Section 2.0.

1.4 Purpose and Need for Proposed Action

The Fort Carson Directorate of Family, Morale, Welfare, and Recreation (DFMWR) directly supports readiness by providing a variety of community, Soldier, and Family support programs, activities and services. These programs include social, fitness, recreational, educational, and other activities that enhance community life, foster Soldier and unit readiness, promote mental and physical fitness, and generally provide a working and living environment that is attractive to U.S. Army Soldiers, Family Members, retirees and the civilian workforce. Revenue generated by operation of the trap and skeet shooting range would be used to fund other DFMWR projects and

programs. As part of the overall shooting complex, this action would provide additional shooting facilities, which would improve quality of life in support of the DFMWR Outdoor Recreation Program, assist the Soldiers in sustaining readiness level by sustaining or improving their marksmanship skills, and serve as an additional facility for law enforcement personnel.

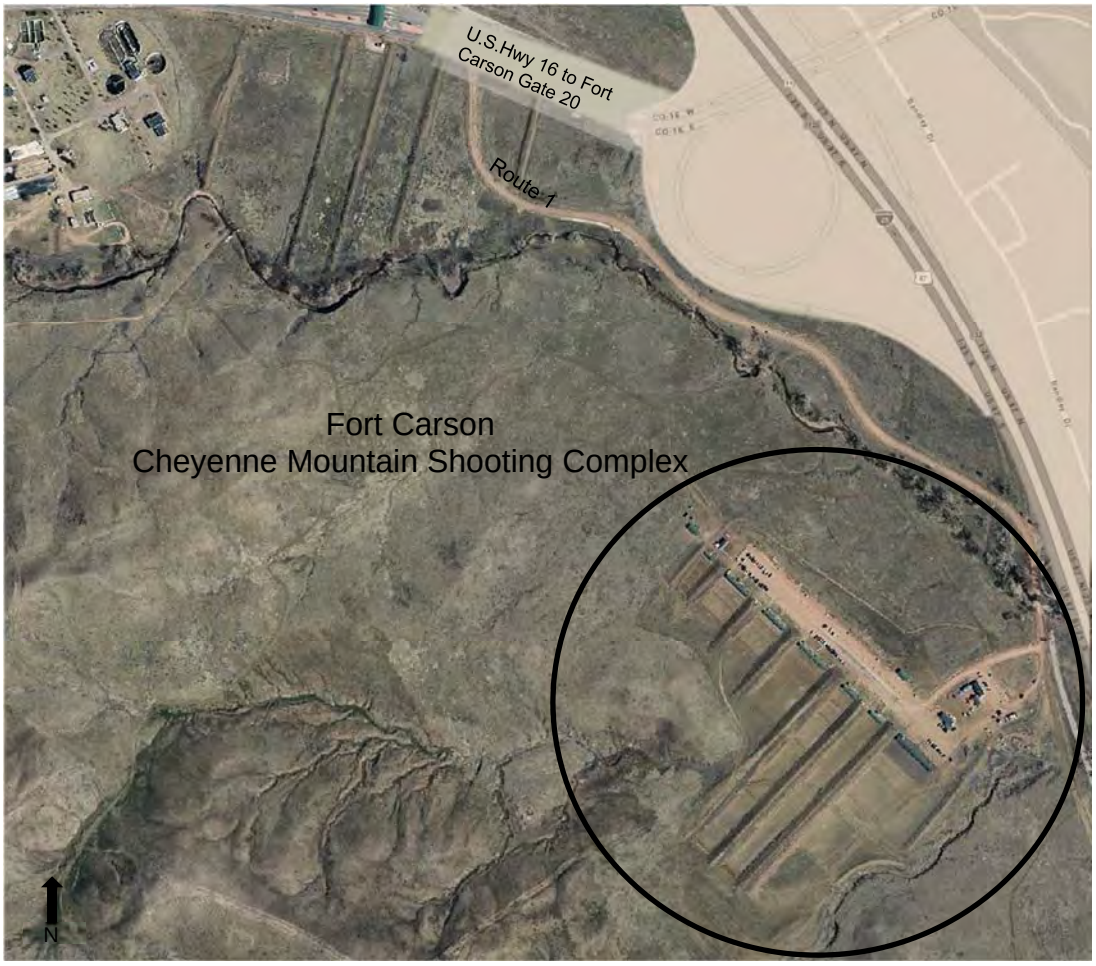

Figure 1.1-1. Location of Cheyenne Mountain Shooting Complex, Fort Carson, CO.

1.5 Previous Environmental Documents and Organization of the SEA

This SEA analyzes effects of construction and operation of a trap and skeet field on Fort Carson. It has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969 and implementing regulations issued by the President's Council on Environmental Quality (CEQ) and the Army. Its purpose is to inform decision-makers and the public of the likely environmental consequences of the Proposed Action and Alternatives.

Figure 1.1-2 Location of the proposed Trap and Skeet range, Fort Carson, CO.

This SEA describes the potential environmental consequences of the Proposed Action and the Alternatives resulting from the changes in the proposed trap and skeet field since the 2011 analysis on the following resource areas:

Water Resources, Geology and Topography, and Soils. A brief description of issues eliminated from further analysis is in Section 3.1, *Valued Environmental Components (VECs) Not Addressed.*

The 2011 Rod and Gun Club EA is incorporated by reference throughout this SEA and is included as an attachment at the end of this document (Attachment 1) in its entirety.

1.6 Decision(s) to Be Made

The decision to be made is whether or not to implement the Proposed Action and if implementation would cause significant impacts to the human or natural environment. The final decision is the responsibility of the Garrison Commander at Fort Carson. If no significant environmental impacts are determined based on the evaluation of impacts in the SEA, a Finding of No Significant Impact (FNSI) will be signed by the Garrison Commander. If it is determined that the Proposed Action will have significant environmental impacts, either the action will not be undertaken, or a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS) will be published in the *Federal Register*.

1.7 Agency and Public Participation

Public participation opportunities with respect to this SEA and decision-making on the Proposed Action are guided by 32 Code of Federal Regulations (CFR) Part 651, *Environmental Analysis of Army Actions (Army Regulation* [AR] *200-2)*. Consideration of the views and information of all interested persons promotes open communication and enables better decision-making. All agencies, organizations, and members of the public having an interest in the Proposed Action, including minority, low-income, disadvantaged, and Native American groups, will be given the opportunity to comment on this SEA.

Upon completion, the Proposed Action and the entire record will be reviewed and the Agency will determine the foreseeable impacts and the need for mitigation. If the Proposed Action remains within the assessment parameters described in this draft, the SEA along with a Draft FNSI, with mitigation measures if applicable, will be available to the public for 30 days, starting from the last day of publication of the Notice of Availability (NOA) in the local media. The documents will be available at: http://www.carson.army.mil/DPW/nepa.html

Anyone wishing to comment on the Proposed Action or request additional information should contact the Fort Carson NEPA Coordinator, Directorate of Public Works; Environmental Division at: usarmy.carson.imcom-central.list.dpw-ed-nepa@mail.mil.

At the end of the 30-day public review period, the Army will consider all comments submitted by individuals, agencies, or organizations on the Proposed Action, SEA, or Draft FNSI. Copies of individual comment letters and the associated responses received during this period will be included in the final documentation in Appendix A.

1.8 Legal Framework

A decision on whether to proceed with the Proposed Action rests on numerous factors such as mission requirements, schedule, funding availability, safety, and environmental considerations. In addressing environmental considerations, Fort

Carson is guided by relevant statutes (and their implementing regulations) and Executive Orders (EOs) that establish standards and provide guidance on environmental and natural resources management and planning. These include, but are not limited to, the following:

- Clean Air Act;
- Clean Water Act;
- Noise Control Act;
- Endangered Species Act;
- Migratory Bird Treaty Act;
- National Historic Preservation Act;
- Archaeological Resources Protection Act;
- Resource Conservation and Recovery Act;
- Toxic Substances Control Act;
- EO 11988, Floodplain Management, as amended;
- EO 11990, Protection of Wetlands;
- EO 12088, Federal Compliance with Pollution Control Standards;
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations;
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks;
- EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management;
- EO 13175, Consultation and Coordination with Indian Tribal Governments;
- EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds; and
- EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section describes the Proposed Action and alternatives to the Proposed Action. 32 CFR Part 651 (AR 200-2) and Council on Environmental Quality regulations (40 CFR 1500) require the identification of reasonable alternatives to the Proposed Action, including the No Action Alternative.

The Proposed Action is identified as the Army's preferred alternative.

2.1 Alternatives Eliminated From Consideration

Alternative locations on Fort Carson were assessed in the 2011 Rod and Gun Club EA. These alternative sites were deemed not feasible and this remains unchanged, thus were dismissed from further consideration in this SEA.

Another site, located to the south of the existing Cheyenne Mountain Shooting Complex, was also considered. This alternative would have required extensive soil displacement, had a potential to impact a Waters of the U.S., and would have required Unexploded Ordnance (UXO) clearance prior to any earthwork. This alternative had

the potential for significant environmental impacts to soils and water resources without extensive mitigation, as well as safety concerns due to potential UXO. To mitigate these concerns was cost-prohibitive, therefore, this alternative was eliminated from further consideration.

2.2 No Action Alternative

Consideration of the No Action Alternative is a requirement of the NEPA process. It provides a basis of comparison for the Proposed Action and also addresses issues of concern by avoiding or minimizing effects associated with the Proposed Action. Under this alternative there would be no construction or operation of the trap and skeet field. Implementing the No Action Alternative would not allow Fort Carson to provide authorized DFMWR patrons and local law enforcement personnel a safe, convenient, and economical opportunity for recreational trap and skeet shooting and further training that isn't otherwise available in or near El Paso County. The No Action Alternative will be considered in the environmental consequences to provide a basis of comparison for the Proposed Action.

2.3 Preferred Alternative – Construction and Operation of a Trap and Skeet Range

The area for development of the trap and skeet ranges was evaluated using siting criteria (described in Section 2.0 of the 2011 EA). Criteria included range safety (a location with adequate acreage for the appropriate surface danger zones (SDZs). A SDZ is a depiction of the maximum area a projectile will impact upon return to earth, either by direct fire or ricochet. A shot fall zone is the area determined by the largest size shot fired on the facility with additional yardage included to compensate for displacement of shot by adverse wind conditions. The maximum range (yards) according to the NRA source book using Journee's Formula for 7 ½ shot (largest allowable size for the proposed action) is 209 yards.

2.3.1 Construction of a Trap and Skeet Range

The proposed action would consist of constructing five fields, based on the National Rifle Association (NRA) standards, in the downrange area of existing Ranges 17 and 19. Three fields would be combined trap and skeet; the two northern fields would be trap only due to safety fan limits. The ideal orientation of a trap/skeet range would be firing conducted from south to north, however due to safety and environmental constraints, the firing would be conducted from a more northeast to southwest direction.

The trap and skeet range would contain the firing stations, targets and target areas, target guards, trap houses, skeet high/low houses, shot fall zone, lighting, side walls, walkways, and parking.

The trap and skeet range would require clearing and grading. Grading would include the range and associated parking area. The surface grade on the facility must be fairly level between the firing line and target lines (100 yards from the baseline) maintaining an approximate 2 percent grade) to allow for drainage. Underground electrical wiring

would be installed for target operations and lighting. Clean soil fill would be utilized to reduce the amount of clearing and grading necessary to achieve the proper surface gradient.

2.3.1.1 Trap Only Field Construction

The two northern fields of the proposed action would be trap only fields (Figure 2.3.1.1-1).

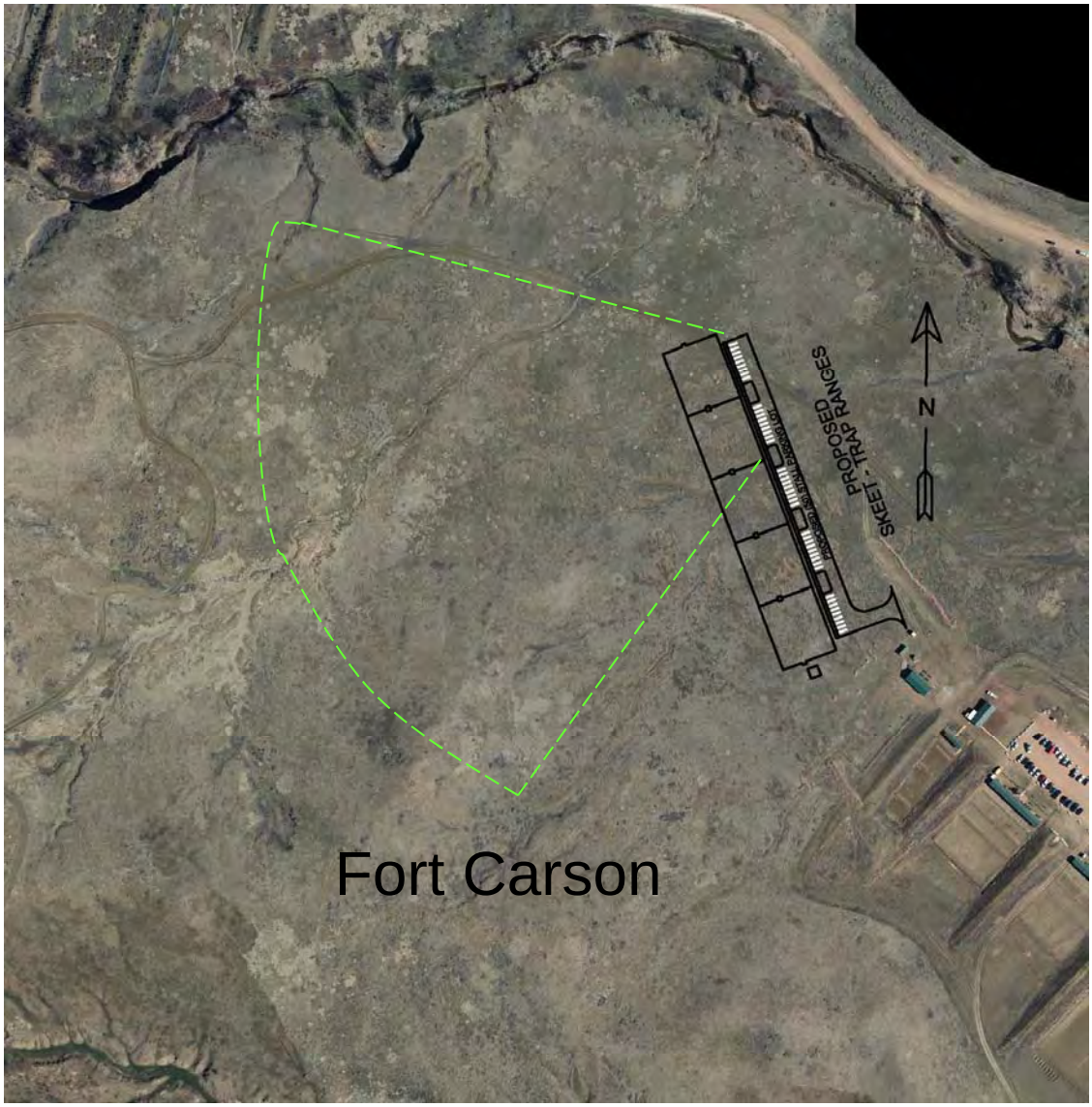

Figure 2.3.1.1-1 Trap Only Fields at the Trap and Skeet Range, Fort Carson, CO.

Construction of a trap field would consist of five different shooting stations, a trap house, shot fall zone (300 yards SDZ), firing points, targets and target areas, trap machine, and lighting. A standard trap field has five lanes extending behind the trap house. Each of the five shooting stations is located on a lane, 16 yards from the trap house. Each station is located three yards apart. There are marked firing points along

the lane indicating the yardage from 16 through 27 yards from the trap house. Figure 2.3.1.1-2 depicts the standard design for a trap field based on the 2003 Department of Defense (DoD) *Unified Facilities Criteria (UFC) Design: Outdoor Sports and Recreation Facilities* (2003, DoD UFC).

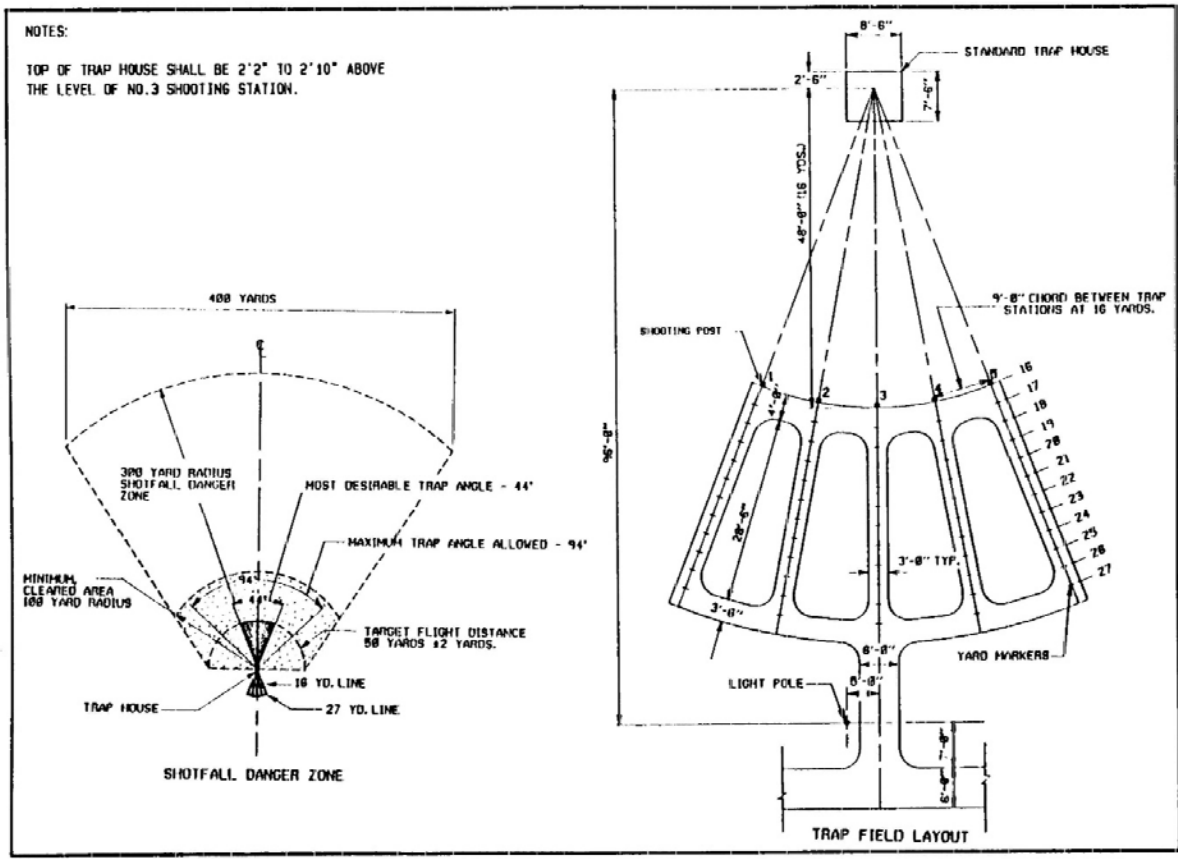

Figure 2.3.1.1-2 Standard Trap Field Layout.

The trap house which is partially buried, contains the trap machine that launches standard clay targets anywhere within 22-degrees to the right or left of the machine's center. It is calibrated to launch the targets at approximately 41 miles-per-hour, with a trajectory that places them between 8 and 12 feet above the ground at a distance of 10 feet downrange of the trap, no less than 48 yards and not more than 52 yards out.

2.3.1.2 Trap and Skeet Combination Field Construction

Figure 2.3.1.2 – 1 is the standard design for a skeet field based on the 2003 DoD *UFC Design: Outdoor Sports and Recreation Facilities* (2003, DoD UFC). A standard skeet field is arranged in a semicircle. The baseline of the semicircle is 120’ 9”. A low house launches targets from three feet above the ground and is located about sixty feet to the right from the center along the baseline. The high house launches targets from ten feet above the ground is located about sixty feet to the left of the center along the baseline. There are eight shooting stations. Station 1 is directly adjacent to the high house; Station 7 is directly adjacent to the low house; Stations 2 through 6 are on the arc of the semi-circle just over 26 feet apart. Station 8 is located at the center of the baseline between the high and low houses.

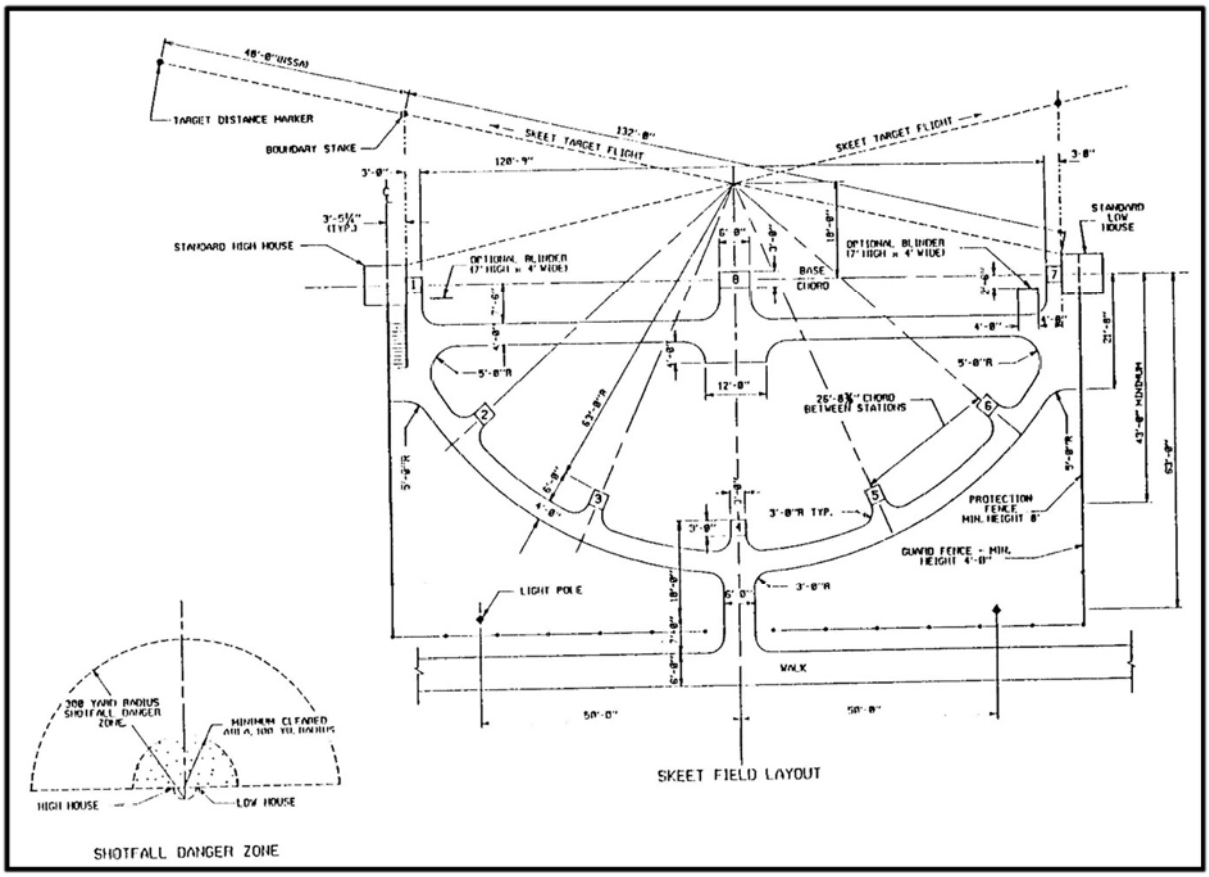

Figure 2.3.1.2–1 Standard Layout of a Skeet Field.

The combination trap and skeet field is a trap field overlaid on a skeet field. Figure 2.3.1.2-2 depicts the standard design based on the 2003 DoD *UFC Design: Outdoor Sports and Recreation Facilities* (2003, DoD UFC). At Fort Carson, the proposed trap and skeet range would be three combination trap and skeet fields and two trap only fields (Figure 2.3.1.2-3).

Construction would include hard surfaced firing positions, with walkways (concrete or gravel) for providing routes onto, between and across ranges.

Each combined trap and skeet field would consist of the skeet low house, skeet high house, and a trap house. Underground wiring would be required to support the target-throwing equipment and lighting. Side walls would be used to separate each field and outer edge of the range. The side walls would be impenetrable by shotgun pellets (even at close range). The walls would be placed in front of the skeet houses to protect personnel on the adjacent fields. Target guards would be installed on the trap machine windows.

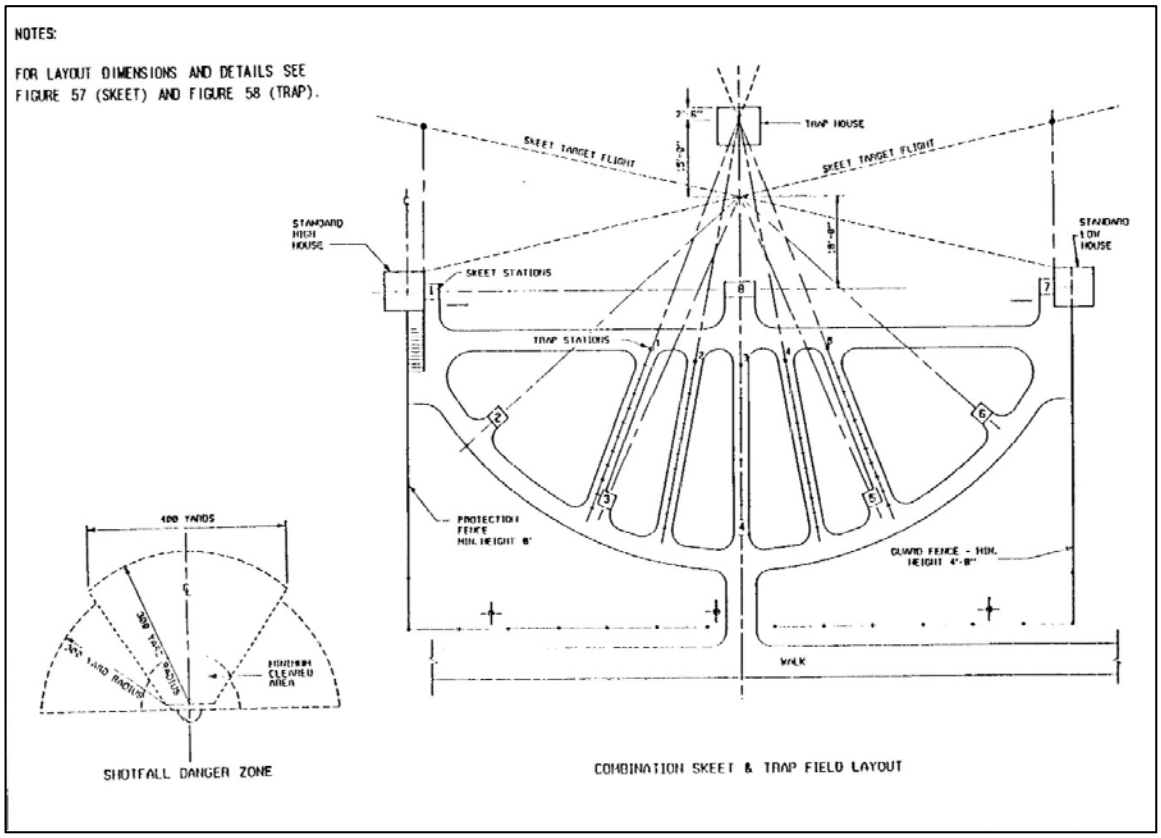

Figure 2.3.1.2–2 Standard Layout of a Combination Trap and Skeet Range.

2.3.2 Operation of the Trap and Skeet Range

The trap and skeet range would be operational during normal business hours with extended evening operations until ten o'clock at night. The extended evening hours at Cheyenne Mountain Shooting Complex would be limited to the trap and skeet range only. Shotguns allowed on the trap and skeet range would not be larger than a 12 gauge. Shot size for trap and skeet would be restricted to No. 7 ½ or smaller target loads (no high velocity or magnum loads). The shot fall zone and/or SDZ would be 300 yards. A combined trap and skeet field can only be used for one training type at a time (i.e., if practicing trap shooting, the skeet field must remain idle, and vice versa).

2.3.2.1 Trap Shooting

In trap shooting, clay targets are launched from a single machine (trap house) away from the shooter. The process involves six shooters (one per station) with the sixth shooter starting at a holding station immediately behind shooter number one. Round one, upon receipt of the start signal, the first shooter calls for the target to be launched. After firing, the second shooter calls and fires. Once complete, the first shooter moves to station two, shooter number six moves to station one. This procedure continues through the squad until each shooter has completed shooting at each station. Each shooter is allowed one shot per target. The shooter is allowed 5 target attempts per station. One round of trap equals 25 targets per participant.

2.3.2.2 Skeet Shooting

In skeet shooting, clay targets are launched from two fixed stations (high and low houses). The shooter shoots from seven positions on a semicircle and an eighth position halfway between stations 1 and 7. The two houses hold and launch the targets, one at each corner of the semicircle. The targets are launched to a point 15 feet above ground and 18 feet outside of station 8. The high house launches targets from 10 feet above the ground and the low house launches it from 3.5 feet above ground.

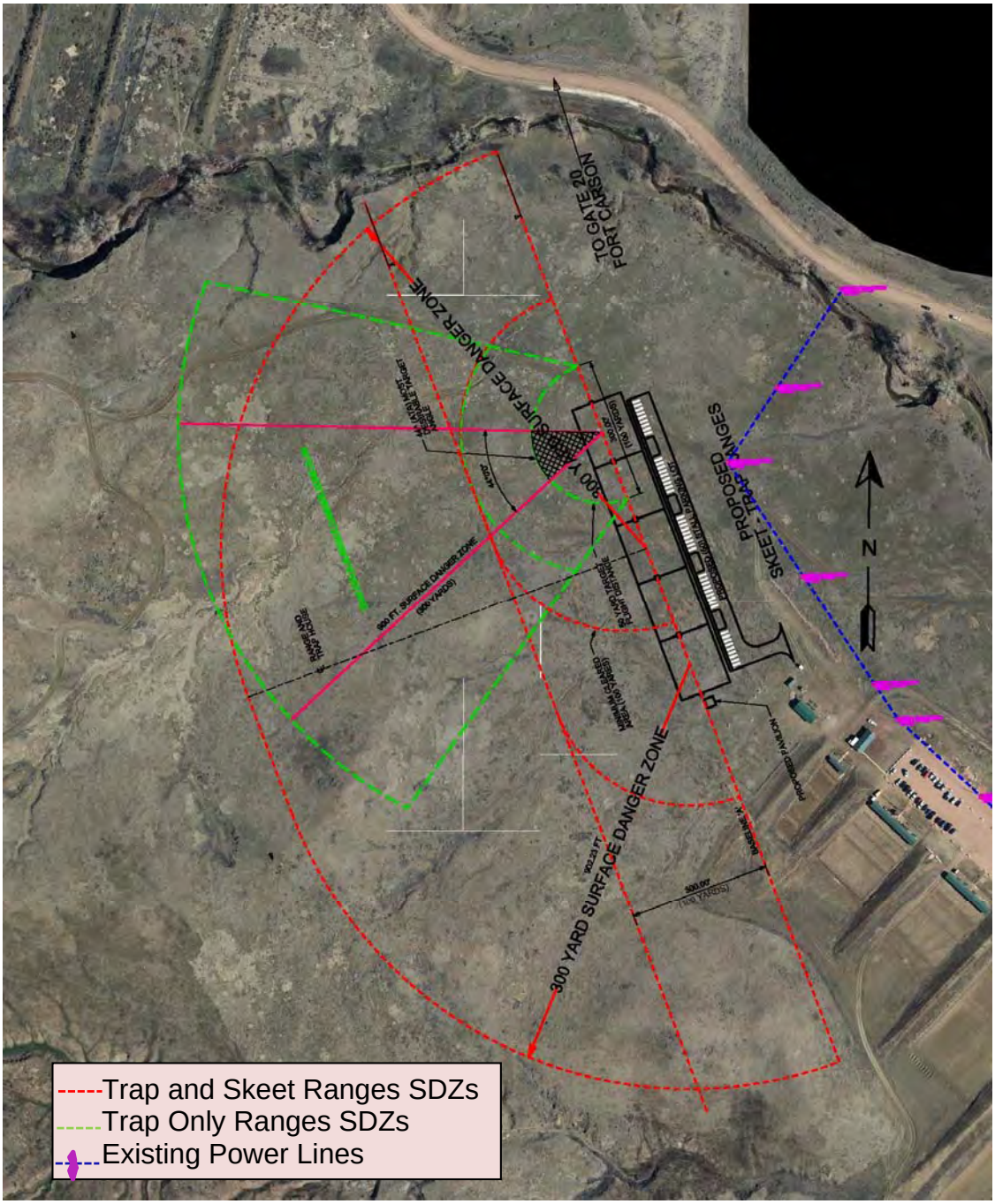

Figure 2.3.1.2–3 Trap Only and Combination Trap and Skeet Fields, Fort Carson, CO.

A round of skeet consists of 25 targets, with 17 shot as singles and 8 as doubles. The first miss is repeated immediately and is called an option. If no targets are missed during the round, the last (25th target) is shot at the last station, low house 8. The shooting sequence is as follows:

- Stations 1 and 2 the shooter shoots at single targets launched from the high house, then the low house, then shoots a low house/high house double (two targets are launched simultaneously).
- At stations 3, 4, and 5 the shooter shoots at single targets launched from the high house and then the low house.
- At stations 6 and 7 the shooter shoots at single targets launched from the high and low houses, then shoots a double launched from both houses.
- At station 8 the shooter shoots one high target and one low target.

Skeet is shot in squads of up to five shooters. They move as a group from station to station, ending at station 8 (center).

3.0 Affected Environment and Environmental Consequences

This section describes the environmental resources in the action area, as well as any effects of the proposed action on those resources. Each resource section below presents the existing resource conditions, environmental effects, and when necessary, mitigation measures are also proposed to avoid, reduce, minimize, or compensate for any significant effects. In determining the effects, the consequences of the proposed action are compared to the consequences of taking no action. Impacts are identified as direct or indirect, and cumulative. For the purposes of the cumulative impacts analysis, the Proposed Action Region of Influence (ROI) is defined to include Fort Carson and adjacent lands (including communities around the Installation). Appendix B lists the past, present, and reasonably foreseeable future Army actions (defined as those projects that are well-developed, in mature planning stages, and/or have funding secured), and other actions within the ROI, that were reviewed in conducting the cumulative effects analysis. Conceptual projects, broad goals, objectives, or ideas listed in planning documents that do not meet the above criteria are not considered reasonably foreseeable for the purposes of this analysis. For ease in comparing environmental effects with existing conditions and mitigation specific to each environmental area of concern, each below section will describe existing conditions, describe the effects of each alternative, identify any cumulative effects on that area of concern, and describe site-specific mitigation. A summary of environmental consequences and general mitigation is provided in Chapter 4.

This EA focuses on resources and issues of concern in the following resource areas:

Geology and Topography
Soils
Water Resources

Areas with no discernible concerns or known effects and/or were adequately assessed in the 2011 Rod and Gun Club EA, as identified in the issue elimination process (Section 3.1, *Valued Environmental Components (VECs) Not Addressed*), are not included in this analysis.

3.1 Valued Environmental Components (VECs) Not Addressed

Certain resources were eliminated from further analysis in this SEA because there would be no or minimal effect and/or they were addressed adequately in the 2011 EA and implementation of the Proposed Action would remain consistent with that assessment. Brief discussions of the rationale for these decisions are below.

Air Quality

The construction and operation of a trap and skeet field and the potential impact to air quality was adequately considered in the 2011 Rod and Gun Club EA. The changes proposed in this SEA do not change the results of the previous assessment. The excavation of soil during construction has the potential for fugitive dust, however the Fort Carson Fugitive Dust plan would be implemented and best management practices (BMPs) would be required. Therefore, the Proposed Action is not anticipated to result in violations of National Ambient Air Quality Standards (NAAQS).

Socioeconomics, Environmental Justice, and Environmental Health and Safety Risks for Children

The construction and operation of a trap and skeet field and the potential impact to socioeconomics, environmental justice, and environmental health and safety risks for children was adequately considered in the 2011 Rod and Gun Club EA. The changes proposed in this SEA do not change the results of the previous assessment.

Land Use

The construction and operation of a trap and skeet field and the potential impact to land use was adequately considered in the 2011 Rod and Gun Club EA. The changes proposed in this SEA do not change the results of the previous assessment.

Air Space Use

Neither the Proposed Action nor its alternatives would change existing airspace use on Fort Carson.

Biological Resources

The construction and operation of a trap and skeet field and the potential impact to biological resources was adequately considered in the 2011 Rod and Gun Club EA. The changes proposed in this SEA do not change the results of the previous assessment.

Cultural Resources

The construction and operation of a trap and skeet field and the potential impact to cultural resources was adequately considered in the 2011 Rod and Gun Club EA. The changes proposed in this SEA do not change the results of the previous assessment.

Noise

The construction and operation of a trap and skeet field and the potential impact to noise was adequately considered in the 2011 Rod and Gun Club EA. The change in evening operations proposed in this SEA does not change the results of 2012 Noise

Study from the previous assessment, but would increase in the length of time that noise from shooting would occur. Studies conducted for the U.S. Environmental Protection Agency (USEPA) indicate noise complaints are likely when inhabited dwellings exist less than one-half mile from the shooting range. The nearest inhabitants from the proposed trap and skeet field is one-half mile or more, separated by I-25 and Highway 16. No significant impacts from noise are anticipated.

Hazardous Waste/Materials
The construction and operation of a trap and skeet field and the potential impact to hazardous waste/materials was adequately considered in the 2011 Rod and Gun Club EA. The changes proposed in this SEA do not change the results of the previous assessment.

Transportation
The construction and operation of a trap and skeet field and the potential impact to transportation was adequately considered in the 2011 Rod and Gun Club EA. The changes proposed in this SEA do not change the results of the previous assessment.

Visual and Aesthetic Resources
The construction and operation of a trap and skeet field and the potential impact to visual and aesthetic resources was adequately considered in the 2011 Rod and Gun Club EA. The changes proposed in this SEA do not change the results of the previous assessment.

Sustainability
The construction and operation of a trap and skeet field and the potential impact to sustainability was adequately considered in the 2011 Rod and Gun Club EA. The changes proposed in this SEA do not change the results of the previous assessment.

Utilities
The construction and operation of a trap and skeet field and the potential impact to utilities was adequately considered in the 2011 Rod and Gun Club EA. The changes proposed in this SEA do not change the results of the previous assessment. The increased electrical demand would be within Colorado Springs Utilities (CSU's) ability to provide energy and Fort Carson's ability to transmit.

3.2 Geology and Topography

3.2.1 Existing Conditions
The majority of Fort Carson lies at elevations between 5,500 and 6,000 feet above mean sea level. Geologic units at Fort Carson range in age from the Quaternary period (one million years before present to recent) to the Pennsylvanian period (200 to 250 million years before present). During the Quaternary period both consolidated and unconsolidated sediments were deposited.

Unconsolidated sediments consist primarily of fluvial and alluvial sands, silts and gravels, and wind-deposited silts and sands. Consolidated sediments include shale, limestone, hard sandstone, siltstone, claystone, and conglomerate sandstone and shale. Three main fault lines exist within the region of Fort Carson — the Oil Creek, Ute Pass, and Rampart Range faults. The region is rated Zone 1 for earthquake potential on a scale of zero to four, with a rating of four having greatest earthquake potential. Small earthquakes are known to occur in the region with generally undetectable effects (Fort Carson, 2013).

3.2.2 No Action

Under the No Action Alternative, there would be no change to geology. No new construction would occur, and erosion rates would not exceed those occurring at the present.

3.2.3 Environmental Consequences

The creation of safety berms and preparation of the site would require cut and fill activities effecting topography. Site grading would most likely affect the local geology in minor ways. As can be seen in the soil descriptions in Section 3.3, the depth to bedrock or other 'restrictive feature' at the site ranges from about 3 feet to more than 7 feet. However, it is estimated that in at least one area of the range, the cut would need to be 10 to 15 feet deep, thus cutting into bedrock. Those areas of bedrock within the cut would be susceptible to more rapid weathering, due to exposure to temperature fluctuations and precipitation, and resulting freeze-thaw cycles. Fort Carson maintains a clean fill (soil) area for use in site development. Utilization of this clean fill to raise the lower elevation areas of the proposed area would reduce the depth of cut necessary. The proposed action includes approximately 5000 yards of clean fill to elevate the site.

3.2.4 Cumulative Effects

Relatively small areas of bedrock that are exposed or are closer to the ground surface than they previously were, would weather more quickly than they would have at their original depths. However, this is not anticipated to be significant. Using available clean fill to elevate the area would reduce the impacts even further.

3.2.5 Site-Specific Mitigation

Engage natural resource personnel in the design process. Early in the construction process, strip off 6-12 inches of the top soil layers, and set aside in a stockpile. Once the site has been filled and graded to final subgrade, then re-spread the topsoil to bring the area up to final grade. Reseed as soon as possible to primarily native perennial grasses. Treat as necessary for invasive plant species.

3.3 Soils

3.3.1 Existing Conditions

The Areas of Interest (AOI) for the Proposed Action include the Surface Danger Zones (SDZs). The SDZs are the area extending from a firing point to a distance downrange based on the projectiles fired. The soil compositions and soil descriptions of the

proposed trap and skeet field were collected from the Natural Resources Conservation Service (NRCS), U.S. Department of Agriculture (USDA) (NRCS 2015). The AOI encompasses approximately 108 acres. There are three soil types described within the AOI. The three soil types described are Razor-Midway complex, Schamber-Razor complex, and Manzanola silty clay loam. Appendix C contains a map of the AOI and information on the major soil types within the area.

Razor-Midway complex (39 percent of the AOI) is a well-drained soil with 3 to 15 percent slopes. A typical profile is 0 to 4 inches stony clay loam, 4 to 22 inches cobbly clay loam, 22 to 29 inches cobbly clay, and 29 to 33 inches weathered bedrock. Its depth to restrictive feature is 20 to 40 inches to paralithic bedrock. The available water storage in the profile is low at about 4.7 inches.

Schamber-Razor complex (27.6 percent of AOI) is a well-drained soil with 8 to 50 percent slopes. A typical profile is 0 to 5 inches gravelly loam, 5 to 15 inches very gravelly loam, and 15 to 60 inches very gravelly sand. Its depth to restrictive feature is greater than 80 inches. The available water storage in the profile is low at about 3.0 inches.

Manzanola silty clay loam (33.4 percent of AOI) is a well-drained soil with 0 to 2 percent slopes. A typical profile is 0 to 4 inches silty clay loam, 4 to 11 inches silty clay loam, 11 to 26 inches silty clay loam, 26 to 38 inches silty clay loam, and 38 to 79 inches silty clay loam. Its depth to restrictive feature is more than 80 inches. The available water storage in the profile is very high at about 12.1 inches.

3.3.2 No Action

Under the No Action Alternative, there would be no change to soils. No new construction would occur, and erosion rates would not exceed those occurring at the present.

3.3.3 Environmental Consequences

Implementation of the proposed construction of the trap and skeet field would have short-term adverse impacts on soils during construction. The soils at the proposed site are mostly undisturbed and covered with native vegetation; however, the potential for soil erosion exists at the site due to the variations in grade. Loss of vegetative cover (primarily grasses) and disturbance to soils from construction activities would expose soils to wind and water erosion. Construction traffic would result in some compaction of soils and would temporarily increase amounts of surface water run-off from the site. Collectively, construction would result in the clearing, filling, and compactions of approximately 15 acres, which includes access road extension, parking, skeet houses, trap bunker, and underground wiring. This would have long-term adverse impacts to these soils; however, these impacts would be mitigated through development and implementation of best management practices (BMPs) as required by the Stormwater Pollution Prevention Plans (SWPPPs) developed for the project during and post-construction.

The process of grading the site by cutting and filling would change existing soil profiles. However, that is neither unusual nor significantly negative. The potential for erosion would be increased temporarily, until vegetation can be re-established over the site.

3.3.4 Cumulative Effects

Cumulative, long term effects on soils resulting in sedimentation and/or fugitive dust, could be potentially significant if left unrepaired. However, Fort Carson policy is to eliminate or minimize dust and the degradation of all water resources on Fort Carson and ensure compliance with all applicable federal, state and local quality standards (see Section 3.4). Any impacts from the Proposed Action would be mitigated by use of BMPs to catch potential sediment, such as reestablishing the area by drill seeding and installation of erosion control blanket, use of silt fences, and other rehabilitation efforts. It is expected that, with monitoring and employment of standard BMPs, cumulative effects would not be significant.

3.3.5 Site-specific Mitigation

Development and implementation of BMPs during and post-construction.
Engage natural resource personnel in the design process. Early in the construction process, strip off 6-12 inches of the top soil layers, and set aside in a stockpile. Once the site has been graded and filled to final subgrade, then re-spread the topsoil to bring the area up to final grade. Reseed as soon as possible to primarily native perennial grasses. Treat as necessary for invasive plant species.

Slope stability is critical. Recommend substantial swales and ponds to direct the water in order to maintain the integrity of the buildup. The side slopes (depending on steepness) may require turf reinforcement mats or erosion control blanket determined during project design. Recommend cutting a drainage swale along the toe of the cut slope, plus a cutoff ditch just above the top of the cut slope, to catch overland flow and divert it to one or both sides of the range. On steeper sections of the cutoff ditch, line with riprap to minimize erosion. On flatter sections of both ditches, install a series of small check dams, if feasible, to catch sediment and lead shot. Direct the flow from both ditches into larger stilling basins or ponds. Stilling basins or ponds will have a concrete forebay to allow for maintenance and removal of sediment and lead shot. Ponds will be designed to drain within 72 hours of a rainfall event and will have controlled outlet structures to reduce the velocity of flows. Scour protection will be required at the outlet of the pond.

If adequate vegetative growth cannot be re-established over the site in a timely manner, erosion by wind or water could occur. If so, it may be necessary to do some re-grading and re-seeding. Utilization of erosion control blanket will minimize soil loss while waiting for establishment of vegetation.

The use of cutoff or diversion berms will be necessary at the tributaries to Clover Ditch on the northern side of the project site to ensure migration of lead shot is minimized.

The tributaries are at the border of the maximum SDZ distance, however, these mitigation measures will ensure the protection of existing waterways.

3.4 Water Resources

3.4.1 Existing Conditions

Fort Carson policy is to eliminate or minimize the degradation of all water resources on Fort Carson and ensure compliance with all applicable federal, state and local water quality standards (Fort Carson Regulation 200-1). Water resources are managed in coordination with U.S. Geological Survey (USGS), NRCS, U.S. Fish and Wildlife Service (USFWS), and many other external agencies. The *Water Resources Management Program* on Fort Carson includes watershed/sedimentation monitoring and management and project reviews to address erosion and sediment control issues. In addition, the *Stormwater Management Plan* (Fort Carson 2013b) is designed to reduce the discharge of pollutants from Fort Carson to drainage ways, to protect water quality, and to satisfy Colorado's water quality standards.

3.4.1.1 Surface Water and Watersheds

The primarily undeveloped southern and western portions of Fort Carson drain into the Arkansas River to the south. The highly developed and industrialized portion of Fort Carson (the main post area) consists of four tributaries within the Fountain Creek watershed that provide local surface drainage: B Ditch, Clover Ditch, Infantry Creek (formerly known as Central Unnamed Ditch), and Rock Creek. The constituent of concern in Fort Carson's portion of the Fountain Creek watershed is *E. coli* (5 Code of Colorado Regulation [CCR] 1002-93, Colorado Regulation #93). The main document that currently guides surface water and watershed management at Fort Carson is the Fort Carson Stormwater Management Plan (SWMP) (Fort Carson, 2013b). This SWMP is designed to reduce the discharge of pollutants from Fort Carson to the maximum extent practicable and to protect water quality.

3.4.1.2 Hydrogeology and Groundwater

Groundwater at Fort Carson exists in both alluvial and bedrock aquifers. The primary aquifer at Fort Carson is the Dakota-Purgatoire bedrock aquifer. In general, the quality of the groundwater on Fort Carson is good with the exception of localized areas of high dissolved solids and sulfates exceeding secondary drinking water standards and elevated nitrates and Selenium (Se) exceeding primary drinking water standards.

A site wide Se study looking at the occurrence and distribution of Se in groundwater at Fort Carson was conducted in August 2011 (Summit Technical Resources, 2011), with results coordinated with and concurred on by the CDPHE (CDPHE, 2011). Se has been detected at concentrations greater than the Colorado Ground Water Standard (0.05 milligrams per liter [mg/L] (0.05 parts per million [ppm])) and the Fort Carson background concentration (0.27 mg/L [0.27 ppm]) in samples collected from groundwater monitoring wells located primarily within Fort Carson's main post area. Analysis of qualitative and quantitative data from this study indicates a naturally occurring source (Pierre Shale) for relatively high Se concentrations in Fort Carson's compliance monitoring wells (Summit Technical Resources, 2011).

3.4.1.3 Floodplains

EO 11988, *Floodplain Management*, as amended in 2015, requires federal agencies to avoid, to the extent possible, the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative and to use natural systems, ecosystem processes, and nature-based approaches when developing alternatives for consideration. To accomplish this objective, the Army is required to take actions to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains for certain federal actions. The acquisition, management, and disposal of federal lands and facilities are specific qualifying federal actions addressed within the EO. Subsequently, the EO requires the application of accepted flood-proofing and other flood protection measures for new construction of structures or facilities within a floodplain. Agencies are required to achieve flood protection, wherever practicable, through elevation of structures above the elevation of the floodplain rather than filling in land.

3.4.2 No Action

Under the No Action Alternative, there would be no change to water resources. No new construction would occur.

3.4.3 Environmental Consequences

Construction and operation of the trap and skeet field, the access road extension and underground wiring is within the 100-year floodplain. Soil disturbance during construction could impact water resources from stormwater runoff. There is a potential for chemical decomposition of lead shot and projectiles to be introduced into the groundwater. In addition, a reduction of permeable surface area could increase stormwater runoff. There is the potential for petroleum drips and leaks from automotive-related transportation and parking.

3.4.4 Cumulative Effects

Cumulative effects on water resources would be slightly greater during construction, and on a permanent basis as well as due to the addition of impervious surface for the trap and skeet houses. The impacts however, would not be significant, and would be mitigated by use of BMPs during construction and directing runoff from new impervious surfaces to surrounding pervious areas and post construction BMP features. In addition, a requirement of the Construction General Permit (CGP) is the re-establishment of existing vegetation which would reduce the potential for erosion and sedimentation. After construction and during utilization, the trap and skeet range will be monitored by DFMWR and range personnel to evaluate the land condition and coordinate proper rehabilitation methods as necessary.

3.4.5 Site-specific Mitigation

No direct impacts of fill or channel modifications or wetlands would occur, thus no Section 404 permits would be required.

During construction, the project will be required to comply with the EPAs CGP. This requires the development of a project specific Stormwater Pollution Prevention Plan (SWPPP) that details BMPs to be utilized during construction, as well as post construction BMPs and stabilization requirements.

During the design review process, Fort Carson would ensure that appropriate measures have been included to mitigate water quality impacts. These measures include, but are not limited to, the following:

- Cutting a drainage swale along the toe of the cut slope and armoring the swale
- Construction of a cutoff ditch just above the top of the cut slope, to catch overland flow and divert it to one or both sides of the range
- On steeper sections of the cutoff ditch, line with riprap or other armoring materials to minimize erosion
- On flatter sections of both ditches, install a series of small check dams, if feasible, to catch sediment and lead shot
- Direct the flow from both ditches into larger stilling basins or ponds
- Stilling basins or ponds will have a concrete forebay to allow for maintenance and removal of sediment and lead shot
- Ponds will be designed to drain within 72 hours of a rainfall event and will have controlled outlet structures to reduce the velocity of flows
- Scour protection will be required at the outlet of the pond
- Construction of cutoff or diversion berms at the tributaries to Clover Ditch on the northern side of the project site to ensure migration of lead shot is minimized
- Side slopes (based on steepness) may require turf reinforcement mats or erosion control blankets.

In addition, if adequate vegetative growth cannot be re-established over the site in a timely manner, erosion by wind or water could occur. If so, it might be necessary to do some re-grading and re-seeding. Utilization of erosion control blanket will minimize soil loss while waiting for establishment of vegetation.

As part of Fort Carson's Municipal Separate Storm Sewer System (MS4) permit, Clover ditch is regularly monitored for compliance with State of Colorado water quality standards. This continued monitoring would allow for analysis on the effectiveness of mitigation measures. Mitigation measures would be adjusted as necessary if monitoring indicates an issue.

The Trap and Skeet Range would be required to conduct periodic lead removal activities and recycling to minimize the accumulation of lead on the range. In addition, they would be required to use inert and non-toxic clay targets that will not contribute pollutants to the soil. These inert clay target pieces would also be removed periodically to minimize accumulation on the range. The use of biodegradable targets

can, over time affect soil PH and vegetation growth. In high volume target areas, adverse soil impact can be avoided by raking up target residue on a quarterly basis and/or by adding agricultural limestone to the soil if the PH decreases abnormally. Soil PH in high volume target areas should be checked bi-annually. The use of clay targets containing polycyclic aromatic hydrocarbons (PAH) are not recommended for use. Targets of this type would require raking up target residue on a monthly basis and hauled off post to a designated landfill. Soil testing for PAH contamination should be done semi-annually.

4.0 SUMMARY OF EFFECTS AND CONCLUSIONS

4.1 Unavoidable Adverse Effects Should the Proposed Action Be Implemented

Some adverse effects due to construction cannot be avoided if the Proposed Action is implemented. Disturbance of soils and vegetation would occur, and these effects would be cumulative and long-term. There is a potential to impact US jurisdictional waters, however Section 404 of the Clean Water Act (CWA) is required to minimize the potential impacts.

Table 4.1 summarizes potential effects for each alternative, after mitigation. Environmental effects would not be significant within the larger geographic and temporal context in which they would take place.

Table 4.1. Summary of Potential Environmental Consequences

Resource Area	Environmental Consequence"	
	No Action Alternative	Proposed Action
Geology	No effect	Negative, but mitigatable
Soils	No effect	Negative, but mitigatable
Water Resources	No effect	Negative, but mitigatable

* No effect: Actions have no known demonstrated or perceptible effects
  Negative: Actions have apparent negative effects

4.2 Irreversible and Irretrievable Commitments of Resources

The Proposed Action would involve no irreversible or irretrievable commitment of resources other than the consumption of various expendable materials, supplies, and equipment associated with construction and operations and implementation of environmental mitigation measures.

4.3 General Mitigations

Fort Carson practices sustainability, land rehabilitation, BMPs, and many other management strategies to avoid, minimize, and/or reduce potential negative impacts. These practices will continue and will be implemented as part of the Proposed Action.

4.4 Conclusions

The Proposed Action to the trap and skeet field on Fort Carson was analyzed by comparing potential environmental consequences against existing conditions. Findings indicate that implementation of the Proposed Action would result in no

significant adverse environmental consequences. The affected environment would not be significantly or adversely effected by proceeding with the Proposed Action. No significant cumulative effects would be expected with implementation of mitigation.

Based on this supplemental environmental assessment, implementation of the Proposed Action (*i.e*., construct and operate the trap and skeet field) would have no significant negative environmental or socioeconomic effects. The Proposed Action does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, preparation of an environmental impact statement is not required, and preparation of a Finding of No Significant Impact is appropriate.

5.0 MITIGATION SUMMARY

Fort Carson practices sustainability, land rehabilitation, BMPs, and many other management strategies to avoid, minimize, and/or reduce potential negative impacts. These practices will continue and will be implemented as part of the Proposed Action.

During construction, the project will be required to comply with the EPAs CGP.

During the design review process, Fort Carson would ensure that appropriate measures have been included to mitigate water quality impacts (as detailed in Section 3.4.5).

Continued monitoring for compliance with State of Colorado water quality standards. Mitigation measures would be adjusted as necessary if monitoring indicates an issue.

Conduct periodic lead removal activities and recycling to minimize the accumulation of lead on the range.

Use of biodegradable and non-toxic clay targets. The target pieces would be removed periodically to minimize accumulation on the range. The use of biodegradable targets can over time, affect soil PH and vegetation growth. In high volume target areas, adverse soil impact can be avoided by raking up target residue on a quarterly basis and/or by adding agricultural limestone to the soil if the PH decreases abnormally.

6.0 PERSONS CONTACTED

Name	Installation/ Affiliation	Role
Altepeter, Lana	Fort Carson/ Environmental (ENV)	Air Program Manager (PM)
Allen, Rebekah	Fort Carson/ENV	IRP Assistant
Barness, Steave	Fort Carson/DFMWR	Recreation Division Chief
Benford, James	Fort Carson/DPTMS	Plans, Training, Mobilization, and Security (PTMS), Director
Buccambuso, Emma	Fort Carson/DPW	Noise Program Manager
Camp, Mike	Fort Carson/DPTMS	Range Control Deputy

Clark, Scott	Fort Carson/DPW	Energy Program Coordinator
Davis, Bert	Fort Carson/DPTMS	Range Control Officer
Dunker, Eric	Fort Carson/ENV	Water Program Support Specialist
Gallegos, Joseph	Fort Carson/ENV	Compliance Branch Chief
Goss, Brian	Fort Carson/ENV	Natural Resource Specialist
Gray, Danny	Fort Carson/ENV	Installation Arborist
Guthrie, Vincent	Fort Carson/DPW	Utility PM
Haflett, Jack	Fort Carson/DPW	NEPA Coordinator
Hennessy, William	Fort Carson/SJA	Environmental Law Specialist
Hooper, William	Fort Carson/ DPTMS	Chief of Training
Kelley, David	Fort Carson/ENV	HazWaste/Mat PM
Kulbeth, James	Fort Carson/ENV	Sec 404/Watershed PM
Linn, Jeff	Fort Carson/ENV	Natural Resources Branch Chief
Martin, David	Fort Carson/ENV	Asbestos/Lead/Radon PM
Miller, Pamela	Fort Carson/ENV	Cultural Resources PM
Noonan, Harold	Fort Carson/ENV	Wastewater PM
Peyton, Roger	Fort Carson/ENV	Wildlife Biologist
Rohrs, Suzanne	Fort Carson/ENV	Stormwater PM
Smith-Froese, Stephanie	Fort Carson/ENV	Wildlife Biologist
Thomas, Wayne	Fort Carson/ENV	NEPA/Cultural Branch Chief
Whiting, Betty	Fort Carson/ENV	Archaeologist
Wiersma, Thomas	Fort Carson/DPW	Community Planner
Zayatz, Jason	Fort Carson/DPW	Installation Forester

7.0 REFERENCES

5 Code of Colorado Regulations (CCR) 1002-93, Colorado Regulation #93

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8.0 ACRONYMS

Acronym	Definition
AOI	Areas of Interest
AR	Army Regulation
BMPs	Best Management Practices
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CGP	Construction General Permit
CSU	Colorado Springs Utilities
CWA	Clean Water Act
DFMWR	Directorate of Family, Morale, Welfare, and Recreation
DoD	Department of Defense
EA	Environmental Assessment
EIS	Environmental Impact Statement
EO	Executive Order
FNSI	Finding of No Significant Impact
NAAQS	National Ambient Air Quality Standard
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NOI	Notice of Intent
NRCS	Natural Resources Conservation Service
SEA	Supplemental Environmental Assessment
SDZ	Surface Danger Zone
SWMP	Stormwater Management Plan
SWPPP	Stormwater Pollution Prevention Plan
UFC	Unified Facilities Criteria
USC	United States Code

USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
USGS	United States Geological Survey
UXO	Unexploded Ordnance
VEC	Valued Environmental Component

APPENDIX A – Comments Received and Responses

No comments were received.

APPENDIX B – Actions/Projects Considered for Cumulative Impacts Assessment for Fort Carson, CO, 2015

No longer foreseeable or valid projects

- Additional IBCT that would train at Fort Carson and PCMS (part of the GTA EIS Proposed Action)

Recently Completed or In Progress Projects at Fort Carson
Completed

- Battle Command Training Center
- Warriors in Transition Unit Complex (Barracks/Admin)
- Special Forces Tactical Unmanned Aerial Vehicle hangar, battalion operations facility complex, building renovations, and climbing/rappelling tower
- Combat Aviation Brigade (CAB) air control tower, ASB hangar, and barracks
- Range 111 Digital Multi-Purpose Training Range
- Unheated Storage building

In Progress – Fort Carson

- CAB associated construction including infrastructure – Ongoing through FY18
- Central Energy Plant
- AMCOM Aircraft Maintenance Hangar
- Athletic Field, Tank Trail and Site Improvements
- National Institute Center of Excellence
- Special Forces Language Training Lab
- Air Support Operations Squadron Facility Expansion
- Iron Horse Park Area Development
- Family Housing deconstruction and rebuild in Cherokee Village
- Verizon Wireless tower construction

In Progress – Off Post

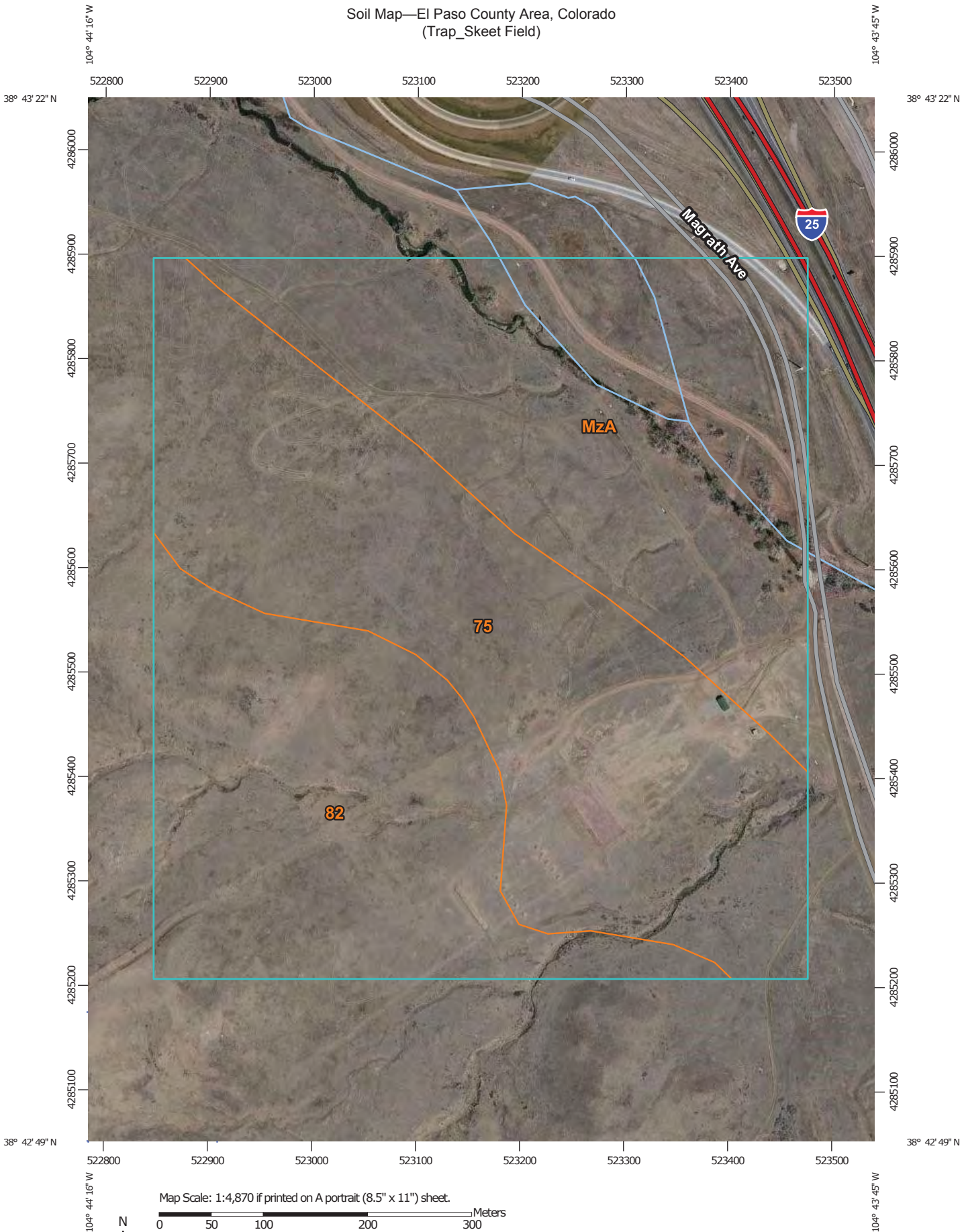
- Sam's Club / Walmart Academy Boulevard South construction
- Southern Delivery System

Foreseeable Future

- Unmanned Aerial System Hangar
- Special Forces Mountaineering Facility, Headquarters, and THOR3 facility
- Ammo Supply Point Expansion
- Physical Fitness Facility
- Army National Guard Readiness Center
- 1st Space Brigade Operations Complex
- Charter Oak Ranch road improvement
- Gate 20 Access Control Facility
- Cheyenne Mountain Trap/Skeet range addition

APPENDIX C – Trap and Skeet Field Soil Survey Data, NRCS/USDA 2015.

Soil Map—El Paso County Area, Colorado
(Trap_Skeet Field)



MAP LEGEND

Area of Interest (AOI)
- Area of Interest (AOI)

Soils
- Soil Map Unit Polygons
- Soil Map Unit Lines
- Soil Map Unit Points

Special Point Features
- Blowout
- Borrow Pit
- Clay Spot
- Closed Depression
- Gravel Pit
- Gravelly Spot
- Landfill
- Lava Flow
- Marsh or swamp
- Mine or Quarry
- Miscellaneous Water
- Perennial Water
- Rock Outcrop
- Saline Spot
- Sandy Spot
- Severely Eroded Spot
- Sinkhole
- Slide or Slip
- Sodic Spot
- Spoil Area
- Stony Spot
- Very Stony Spot
- Wet Spot
- Other
- Special Line Features

Water Features
- Streams and Canals

Transportation
- Rails
- Interstate Highways
- US Routes
- Major Roads
- Local Roads

Background
- Aerial Photography

MAP INFORMATION

The soil surveys that comprise your AOI were mapped at 1:24,000.

Warning: Soil Map may not be valid at this scale.

Enlargement of maps beyond the scale of mapping can cause misunderstanding of the detail of mapping and accuracy of soil line placement. The maps do not show the small areas of contrasting soils that could have been shown at a more detailed scale.

Please rely on the bar scale on each map sheet for map measurements.

Source of Map: Natural Resources Conservation Service
Web Soil Survey URL: http://websoilsurvey.nrcs.usda.gov
Coordinate System: Web Mercator (EPSG:3857)

Maps from the Web Soil Survey are based on the Web Mercator projection, which preserves direction and shape but distorts distance and area. A projection that preserves area, such as the Albers equal-area conic projection, should be used if more accurate calculations of distance or area are required.

This product is generated from the USDA-NRCS certified data as of the version date(s) listed below.

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 12, Sep 29, 2014

Soil map units are labeled (as space allows) for map scales 1:50,000 or larger.

Date(s) aerial images were photographed: Apr 15, 2011—Sep 22, 2011

The orthophoto or other base map on which the soil lines were compiled and digitized probably differs from the background imagery displayed on these maps. As a result, some minor shifting of map unit boundaries may be evident.

Map Unit Legend

El Paso County Area, Colorado (CO625)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
75	Razor-Midway complex	41.9	39.0%
82	Schamber-Razor complex, 8 to 50 percent slopes	29.7	27.6%
MzA	Manzanola silty clay loam, saline, 0 to 2 percent slopes	36.0	33.4%
Totals for Area of Interest		**107.6**	**100.0%**

Attachment 1–2011 Fort Carson Rod and Gun Club EA

Environmental Assessment

Fort Carson Rod and Gun Club

Fort Carson, Colorado

United States Army

May 2011

Finding of No Significant Impact

Fort Carson Rod and Gun Club, Fort Carson, Colorado

Fort Carson has prepared an Environmental Assessment (EA) (May 2011) that evaluates the potential environmental and socioeconomic impacts of the Army's proposal to construct a Rod and Gun Club (R&G Club) on Fort Carson to serve as a recreation shooting and training center and to operate it as a Directorate of Family, Morale, Welfare, and Recreation (DFMWR) facility. The proposed facility would also be available for use by local law enforcement personnel. The proposal includes the construction and operation of shooting ranges, a clubhouse, trap and skeet fields, access roads, installation of required utilities, and changes in the perimeter fence.

Description of the Proposed Action

Fort Carson is proposing the construction and operation of an R&G Club on Fort Carson to serve as a recreation shooting and training center. The proposed facilities would include five regulation trap and skeet fields, and six rifle and pistol ranges. The proposed R&G Club would include a 10,000 square foot clubhouse (constructed in two phases) to accommodate all of the functions associated with operating a full-service sportsman's club.

The location of the proposed R&G Club would be on the southeastern side of the installation's cantonment area and adjacent to (west of) Interstate 25. Approximately 100 acres of land would be required for the ranges and clubhouse facilities. The proposed site was formerly small arms Ranges 17, 19, and 29. The proposed location would allow for the design to utilize the existing Small-Arms Impact Area. The proposed facilities would be near Fort Carson's Gate 20 with an access road to be constructed at a point east of (outside) the security checkpoint at Gate 20. The Proposed Action includes the construction of road improvements for access to the R&G Club and changes in the Fort Carson perimeter fence. The proposed changes in the perimeter fence would allow access to the R&G Club without accessing the remainder of Fort Carson.

Construction for the Proposed Action is contingent on funding and could commence as early as 2011 and continue for approximately two years.

No Action Alternative

Under the No Action Alternative, Fort Carson would not construct an R&G Club. Implementing the No Action Alternative would not allow Fort Carson to provide authorized DFMWR patrons and local law enforcement personnel a safe, convenient, and economical opportunity for recreational shooting and further training.

Environmental Consequences

Implementation of the Proposed Action would allow Fort Carson to construct an R&G Club and associated facilities to meet DFMWR and law enforcement shooting needs. The Proposed Action would result in less than significant long-term adverse impacts to all resources. In

addition, construction-related effects to all resource areas would be temporary and localized. Best management practices and identified minimization measures would be implemented to further reduce potential impacts. A temporary, minor beneficial impact to the local economy would result from construction-related jobs and construction-related purchases, and improvement of quality of life would occur through providing a recreational outlet not currently available.

Conclusion

The attached EA was prepared pursuant to 32 Code of Federal Regulations (CFR) 651 and Council on Environmental Quality (CEQ) regulations (Title 40, U.S. Code, Parts 1500-1508) for implementing the procedural requirements of the National Environmental Policy Act (NEPA). The findings of this EA are that the Proposed Action Alternative, with minor mitigation, would have no significant adverse impact on the human or natural environment. Based on review of the EA, I hereby approve its findings and adopt the mitigation measures outlined in its Section 5.0.

Therefore, I conclude that the Proposed Action is not a major federal action that would significantly affect the quality of the environment within the meaning of Section 102(2) (c) of the National Environmental Policy Act of 1969, as amended. Accordingly, no environmental impact statement (EIS) is required.

Date 19 MAY 11

ROBERT F. MCLAUGHLIN
COL, FA
Garrison Commander
Fort Carson, CO

Environmental Assessment
Fort Carson Rod and Gun Club
Fort Carson, Colorado

January 2011

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19 May 2011
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ENVIRONMENTAL ASSESSMENT
FORT CARSON ROD AND GUN CLUB
FORT CARSON, COLORADO

TABLE OF CONTENTS

APPENDICES

FIGURES

TABLES

1.0 PURPOSE, NEED, AND SCOPE

1.1 INTRODUCTION

This Environmental Assessment (EA) analyzes the potential impacts of the proposal to construct and operate a Rod and Gun Club (R&G Club) on Fort Carson, Colorado. The proposal includes the construction and operation of a shooting range, clubhouse, trap and skeet fields and installation of required utilities on approximately 100 acres within the vicinity of Range 29 near Gate 20. Construction is contingent on funding. It could begin as early as the spring of 2011 and is anticipated to take approximately two years to complete. The proposed R&G Club is to serve as a Fort Carson Directorate of Family, Morale, Welfare, and Recreation (DFMWR) facility for the use of authorized DFMWR patrons.

This section presents the purpose and need for the Proposed Action, defines the scope of the environmental analysis and issues to be considered, identifies decisions to be made, and lists relevant actions.

1.2 HISTORY

The South Rampart Shooting Range was formerly located in Pike National Forest and was the only public shooting area in El Paso County. The shooting range opened in 1990 and closed in 2009 and was an unsupervised area that consisted of four shooting lanes; 75, 150, 300 feet, and a shotgun-only lane. According to a 2009 article in the Colorado Springs Gazette, "The South Rampart Shooting Range was used by 40,000 people per year" (Colorado Springs Gazette, 2010). South Rampart Shooting Range closed after a fatal accident in July 2009. In a community supporting a large military presence that already lacked sufficient recreational shooting facilities, the closure of the South Rampart Shooting Range created an even greater need for shooting facilities. The remaining shooting facilities in the area are private and require memberships with fees and are not convenient or affordable for Soldiers and their Families.

The El Paso County Sheriff's Department, Colorado Springs Police Department, and other local law enforcement currently train at a shooting range at Pikes Peak Community College's south campus (Centennial Campus). The facility at Pikes Peak Community College has a limited maximum target distance of 150 feet and is shared with other law enforcement agencies and users. The ranges are used by approximately 700 Colorado Springs police officers and 120 Sheriff's Deputies and their trainees who must qualify four times a year, or more often if assigned to special duties such as Specialized Weapons and Tactics (SWAT) teams. The private shooting facilities in the area have limited target distances, training support (e.g., classrooms), or the ability to accommodate the specialized training needs of SWAT teams.

In response to the lack of shooting facilities in the area that can support recreational use by DFMWR patrons and the need for training facilities for local law enforcement agencies, a joint-use facility is needed.

Design criteria were used to identify potential sites, and this EA presents the potential beneficial, adverse, and cumulative environmental effects of constructing and operating a professionally organized shooting facility.

1.3 PURPOSE AND NEED FOR PROPOSED ACTION

The Proposed Action, as detailed in Section 2.0, is the construction and operation of a joint-use R&G Club. This action would provide shooting facilities and a professional level gun club with supporting structures, which would improve quality of life in support of the DFMWR Outdoor Recreation Program, assist the Soldiers in sustaining readiness level by sustaining or improving their marksmanship skills, and serve as an additional facility for law enforcement personnel.

The Fort Carson DFMWR directly supports readiness by providing a variety of community, Soldier, and Family support programs, activities and services. These programs include social, fitness, recreational, educational, and other activities that enhance community life, foster Soldier and unit readiness, promote mental and physical fitness, and generally provide a working and living environment that is attractive to U.S. Army Soldiers, Family Members, retirees and the civilian workforce. Revenue generated by operation of the R&G Club would be used to fund other DFMWR projects and programs.

According to the National Shooting Sports Foundation, approximately 15 percent of the U.S. population, representing 34.4 million people went target shooting in 2009 (NSSF, 2009). The South Rampart Shooting Range closure left the community without a convenient public shooting facility. The existing clubs in the area are mostly private and are limited in capacity. The closure of South Rampart Shooting Range has created public safety concerns that the public will be forced to shoot in areas that are not properly designed to stop bullets or have suitable impact areas where a bullet that ricochets or misses the target can safely land. The proposed R&G Club would provide a professional level shooting facility for authorized patrons (over 100,000 Soldiers, Family members, retirees, and civilian employees) where an experienced range control officer is present and has the authority to manage the facility and enforce safety policies. It would also provide a safe facility for the use of law enforcement personnel. Currently, the only recreational range available for use by authorized patrons is Range 1 which has its restrictions to be discussed in Section 2.2.3.

The proposed R&G Club would include a clubhouse allowing for restaurant and retail space in addition to conference capacity, which would be consistent with the DFMWR mission. A firearms storage vault would provide a secure and convenient location for patrons to store their firearms and ammunition.

As of 2010, the 120 sworn El Paso County Sheriff's Deputies and other El Paso County law enforcement officers lack adequate training facilities, and the demand for training facilities is expected to increase. The current facility used to train local law enforcement is limited in appropriate capacity. Law enforcement agencies that utilize the Fort Carson training ranges include the Boulder County Sheriff, Colorado Springs Police Department, Longmount Police Department, Fort Carson security and contractors, and other local law enforcement. The Proposed Action includes a facility that would also help meet the training needs of local law enforcement agencies.

1.4 SCOPE OF ANALYSIS

This EA has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969 and implementing regulations issued by the President's Council on Environmental Quality (CEQ) and the Army. Its purpose is to inform decision-makers and the public of the likely environmental consequences of the Proposed Action and alternatives.

This EA identifies, documents, and evaluates the potential effects of the Proposed Action and alternatives. An interdisciplinary team of environmental scientists, biologists, planners, engineers, archaeologists, local law enforcement, and military technicians has analyzed the Proposed Action and alternatives, and has identified relevant beneficial and adverse effects associated with these actions. The Proposed Action and alternatives are described in Section 2.0. Conditions existing in 2010, which are considered to be the baseline conditions of the affected environment against which the Proposed Action and alternatives are compared, are described in Section 3.0. The expected direct and indirect impacts of the Proposed Action are described immediately following the affected environment in Section 3.0, and the potential cumulative effects are addressed in Section 4.0. Appropriate mitigation measures are identified in Section 5.0 and conclusions are presented in Section 6.0.

The final decision to be made is whether the Proposed Action would cause significant impacts to the human or natural environment, and is the responsibility of the Garrison Commander at Fort Carson.

1.5 AGENCY AND PUBLIC PARTICIPATION

Public participation opportunities with respect to this EA and decision-making on the Proposed Action are guided by *Environmental Analysis of Army* Actions, 32 Code of Federal Regulations (CFR) Part 651. Consideration of the views of and information from all interested persons promotes open communication and enables better decision-making. All agencies, organizations, and members of the public having an interest in the Proposed Action, including minority, low-income, disadvantaged, and Native American groups, will be given the opportunity to comment on this EA.

A Notice of Availability (NOA) was announced in the local media and the Final EA was available to the public for 30 days, starting from the first day of publication, along with a draft Finding of No Significant Impact (FNSI). At the end of the 30-day public review period, the Army considered all comments submitted by individuals, agencies, or organizations on the Proposed Action, EA, or draft FNSI. All comments that were received along with the proofs of publication have been included in Appendix A. As appropriate, the Army can execute the FNSI and proceed with the implementation of the proposed action.

1.6 LEGAL FRAMEWORK

A decision whether to proceed with the Proposed Action rests on numerous factors such as mission requirements, schedule, availability of funding, safety, and environmental considerations. In addressing environmental considerations, Fort Carson is guided by relevant statutes (and their implementing regulations) and Executive Orders (EOs) that establish standards and provide guidance on environmental and natural resources management and planning. These include, but are not limited to, the following:

- Clean Air Act;
- Clean Water Act;
- Noise Control Act;
- Endangered Species Act;
- Migratory Bird Treaty Act;
- National Historic Preservation Act;
- Archaeological Resources Protection Act;
- Resource Conservation and Recovery Act (RCRA);

- Toxic Substances Control Act;
- Energy Independence and Security Act (EISA), Section 438;
- EO 11988, Floodplain Management;
- EO 11990, Protection of Wetlands;
- EO 12088, Federal Compliance with Pollution Control Standards;
- EO 12580, Superfund Implementation;
- EO 12372, Intergovernmental Review of Federal Programs;
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations;
- EO 13007, Indian Sacred Sites
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks;
- EO 13423, Strengthening Federal Environmental, Energy, and Transportation Management;
- EO 13175, Consultation and Coordination with Indian Tribal Governments;
- EO 13186, Responsibilities of Federal Agencies to Protect Migratory Birds; and
- EO 13514, Federal Leadership in Environmental, Energy, and Economic Performance.

2.0 PROPOSED ACTION AND ALTERNATIVES

The Directorate of Public Works (DPW) and DFMWR developed the following criteria to evaluate suitable areas for development of an R&G Club.

- Range safety: A location with adequate acreage for the appropriate surface danger zones (SDZs). A SDZ is a depiction of the maximum area a projectile will impact upon return to earth, either by direct fire or ricochet.
- General Safety: A location where a range safety officer is present to enforce safety policies.
- Size: A minimum of 100 acres is required, not including the appropriate SDZs.
- Location: A location that does not impact existing ranges or impact current Soldier training that would otherwise jeopardize the training mission. A location that does not conflict with adjacent training activities, ranges, facilities, or areas.
- Adjacent land uses: A location with surrounding land uses that would not be negatively affected by actions, noise, or light from the proposed project. A location that avoids firing projectiles into surface water resources.
- Topography: A location that minimizes the costs of earthwork.
- Force protection: A location where the proposed facility does not represent a national security risk. A location that would allow for the construction of fencing around the R&G Club that would tie into the perimeter security fence, which would allow access to the R&G Club without access to the remainder of Fort Carson.
- Utilities: A location where the cost and impacts to install utilities would be minimized.
- Cost: A location that would minimize overall cost of the project by using existing infrastructure and minimize impacts.

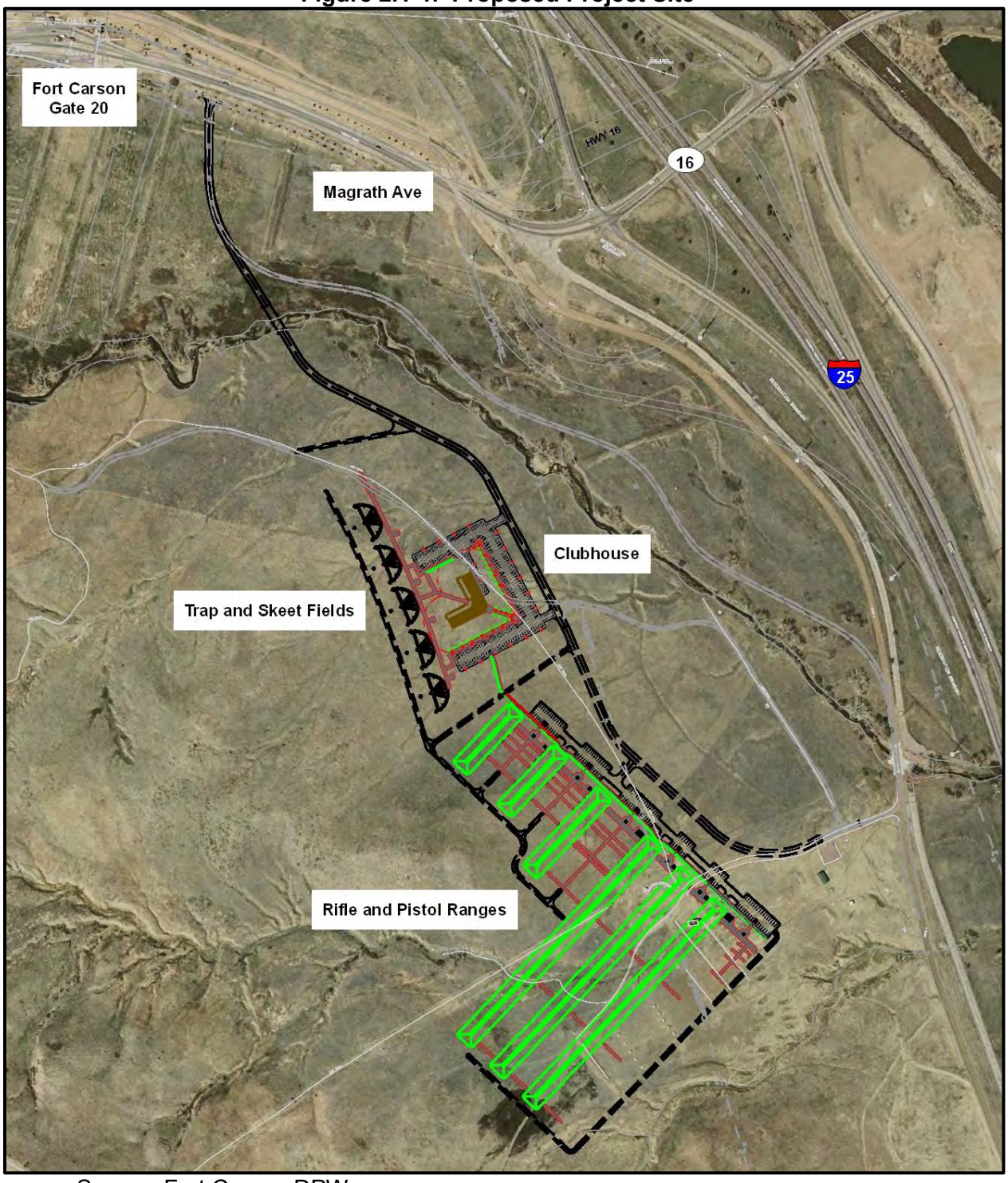
Five locations were evaluated based on these criteria. The results of the evaluation, as described below, warranted that only the Proposed Action and the No Action Alternative should be carried forward for detailed analysis.

2.1 PROPOSED ACTION

Fort Carson is proposing the construction and operation of an R&G Club on Fort Carson property to serve as a recreational shooting and training center for use by DFMWR patrons and local law enforcement personnel. The proposed facilities would include five regulation trap and skeet fields and six rifle and pistol ranges. The proposed R&G Club would include a 10,000 square foot clubhouse (constructed in two phases) to accommodate all of the functions associated with operating a full-service sportsman's club. DFMWR would provide the staff to operate the facility.

The location of the proposed R&G Club would be on the southeastern side of the installation's cantonment area and adjacent to (west of) Interstate 25 (Figure 2.1-1). Approximately 100 acres of land would be required for the ranges and clubhouse facilities. The proposed site was formerly small arms Ranges 17, 19, and 29. A portion of the proposed site was previously used as the Fire Team/Squad Close Quarters Combat Practice Range (Range 29) and is not currently being used. The proposed skeet and trap houses would encompass the downrange area of Ranges 17 and 19, a combat pistol range and a personal-owned weapons range, respectively. Ranges 17 and 19 are currently in dormant status and these ranges are not currently being used. Range 19 was (formerly) the only recreational range available for use by authorized patrons with the exception of Range 1 which has restrictions to be discussed in

Figure 2.1-1. Proposed Project Site



Source: Fort Carson DPW

Section 2.2.3. The proposed location would allow for the design to utilize the existing Small-Arms Impact Area. Ranges 17, 19, and 29 are currently part of the Fort Carson range inventory, but would be removed from the range inventory upon completion of this project. The

project area (Ranges 17, 19, and 29) would remain a part of the installation's small arms training complex and, therefore, keep the land use designation of training/ranges. DFMWR personnel would receive training and certification on Range Safety Officer/Officer-In-Charge. The range would operate and adhere to all Fort Carson and Army Regulation requirements. The proposed facilities would be near Fort Carson's Gate 20, with an access road constructed at a point east of (outside) the security checkpoint at Gate 20. The Proposed Action includes the construction of road improvements for access to the R&G Club and changes in the perimeter fence. The proposed changes in the perimeter fence would allow access to the R&G Club without accessing the remainder of Fort Carson.

The proposed construction would occur in three phases and may include:

Phase I

Phase I would include the construction of 6 operational weapon (pistol and rifle) ranges, overhead baffling where necessary, road access, and an operational, but temporary 2,500 square foot clubhouse facility. The temporary clubhouse would be serviced with water, communications, electric, a sewage tank, and associated parking. Phase I would also include the construction of a vehicle crossing over at Clover Ditch and a paved access road from Fort Carson Gate 20 to the permanent clubhouse site.

The ranges would allow firing of all rifles and pistols of less than .50-caliber, shotguns, and muzzle-loading or primitive firearms. The rifle ranges would be divided up between small-bore and high-powered rifle ranges. The small-bore rifle range would have 20 lanes and targets at 50, 75, 150, and 300 feet. The high-powered rifle ranges and multi-purpose range would include 16 firing positions on the rifle range and 20 firing positions at the multi-purpose range (targets at rifle and pistol distances). The pistol ranges would have 40 covered firing positions with targets positioned at 15, 45, 75, and 150 feet.

Phase II

Phase II would include a 7,500 square foot permanent clubhouse with upgrades to the utilities including the addition of gas and sanitary sewer service. The clubhouse would include a lobby, management offices, retail space, classrooms, lounge area, male and female latrines, and a storage area. A 45,000 square foot parking lot and 5 regulation combination trap and skeet fields would be constructed in Phase II.

The trap and skeet fields would require approximately 15 acres of land. Each trap and skeet field would consist of a skeet low house, a skeet high house, and a trap bunker that can store clay targets. Underground wiring would support the target-throwing equipment.

The clubhouse would include a secure weapons vault area for weapons and ammunition storage. There would be a reception station and an administrative area to support a staff of three individuals. Also included in the clubhouse would be two conference rooms, classrooms, storage space, restrooms, maintenance area with garage door access, janitorial room with sink and floor drain, reloading area for shotgun shells, and retail and customer service area with front service counter.

Phase III

Phase III would include the construction of a 2,500 square foot addition to the clubhouse facility and a 15,000 square foot addition to the parking area. The clubhouse addition would include a kitchen, food storage space, and a loading dock. It would house an area for a theme restaurant or snack bar to include a commercial kitchen with walk-in refrigeration and freezer. The

restaurant and/or snack bar would accommodate approximately 100 seats and serve as a social gathering place for the facility users. The clubhouse would also include dry storage areas, preparation areas, and a loading/receiving area.

Proposed SDZs

The SDZ depicted in Figure 2.1-2, is a depiction of the mathematically predicted area a projectile (from a typical 7.62 military munitions, M80 Ball) will impact upon return to earth, either by direct fire or ricochet. The SDZ is the area extending from a firing point to a distance downrange based on the projectiles fired. This area has specific dimensions for the expected caliber of the weapon(s) being fired so that all projectile fragments will be contained in this area. These dimensions are found in Department of the Army Pamphlet 385-63 - Range Safety (Army, 2003). While this area is not considered part of the range design, it is one of the deciding factors as to the location upon which the range facility can be built and the orientation of the lanes and targets. Typically, a composite SDZ is generated to encompass all firing points and the firing of several different caliber weapons. It encompasses all weapons within the largest SDZ footprint. Any weapons and/or ammunitions that have the capability of exceeding this SDZ would be prohibited from use (unless approved for use at designated lanes with overhead baffling) at the proposed R & G Club and would be identified in the Range Safety Standard Operation Procedures and provided to operators and users. Portions of the proposed range will require overhead baffling to accommodate weapons firing longer distances. Firearms, firearm calibers, ammunition types, positions that can be used, firing types (rapid fire, single shot only) are educational topics that would be provided to patrons prior to use. Enforcement of the safety policy and procedures would be the responsibility of the Facility Range Safety Officer.

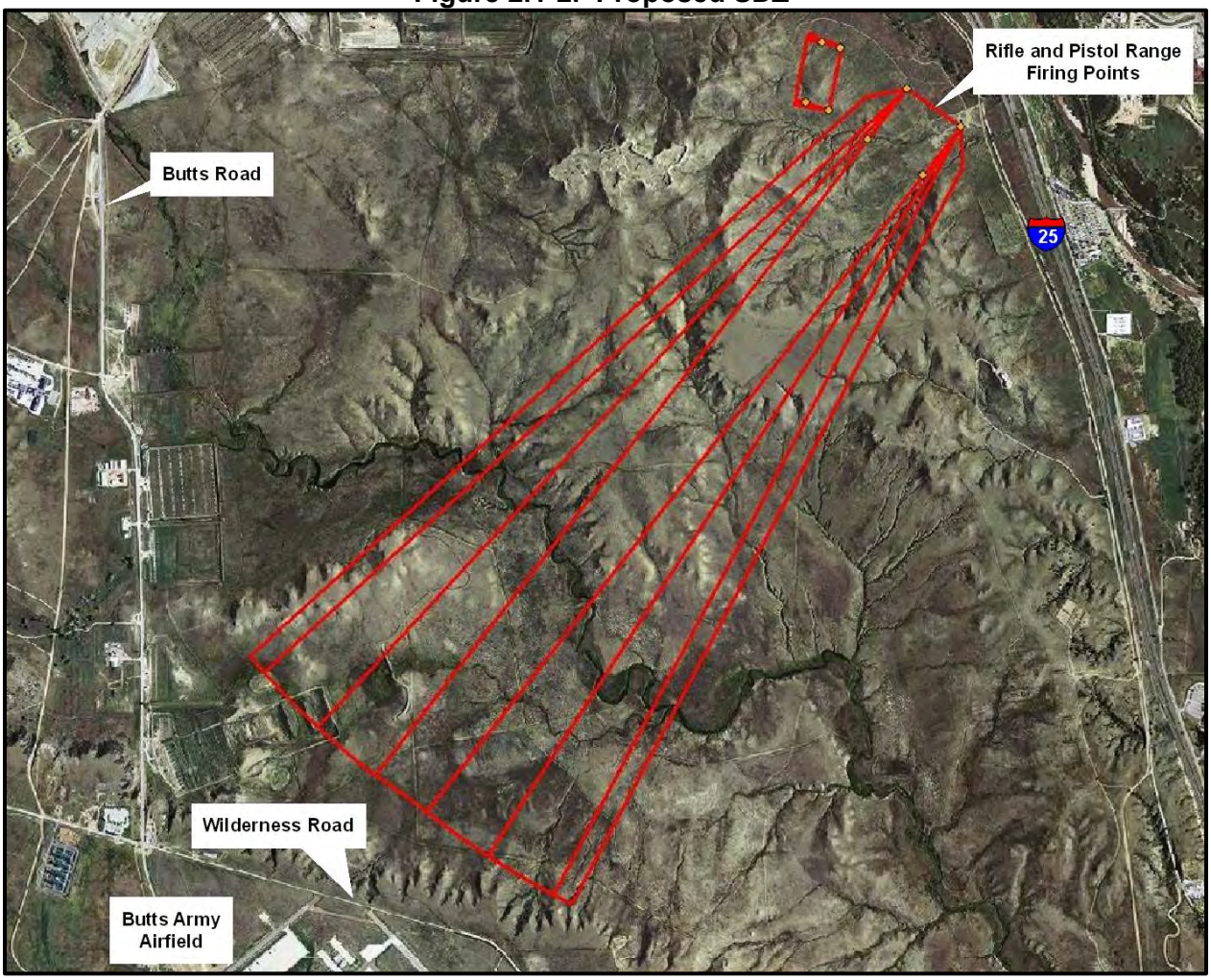
2.2 ALTERNATIVES CONSIDERED BUT DISMISSED

2.2.1 Wildlife Office Range

The Wildlife Office Range is the current site of the International Shooting Park, which is used by the United States Olympic Shooting Team. In 1985, four international-style skeet and bunker trap fields, shade shelters and a clubhouse were constructed on land leased to the United States Olympic Committee by Fort Carson.

The site is 102 acres located on the western edge of Fort Carson near Gate 7. There is sufficient acreage to develop the surrounding land to create an R&G Club. The current SDZ is acceptable for skeet and trap or pistol ranges. However, there are existing roads, ponds, and other recreational areas located nearby that are not compatible with a SDZ for rifles. Because this area would lack a safe and cost effective SDZ for rifles, this alternative does not meet the purpose and need of the project. Therefore, this alternative was not carried forward for detailed analysis.

Figure 2.1-2. Proposed SDZ



Source: Fort Carson DPW

2.2.2 Range 11/ Range 15

Range 11 and Range 15 are two similar ranges located within Fort Carson's Small-Arms Impact Area. They are located west of Gate 20 and Range 29. Range 11 and Range 15 are in a reasonable location to connect with utilities, within appropriate noise contours, and have appropriate adjacent land uses.

However, this location requires the removal of two ranges currently being used for military training. In light of the large increases in the numbers of units and Soldiers in recent years, existing ranges must be retained to meet current and projected military training needs. Therefore, this alternative was not carried forward for detailed analysis.

2.2.3 Range 1

The current Range 1 is a privately owned weapons range approximately 2 miles to the west of Gate 20. The range may be used only by active duty and retired personnel with a rank of E-5 (Sergeant) or E-6 (Staff Sergeant) and their Families. In addition, they must register with range control and maintain radio communication. This outdoor range has target positions from 25 to

375 yards with shooting tables, chairs, and target frames. Using the range requires that a two-person rule be in place at all times. This means that, for safety reasons, at least two people must be on the range for the range to be "open". One person must be a qualified range control officer (responsible for range safety and conduct), and that person must have taken the annual 20-minute range class given each Saturday at the Fort Carson Range Control Office.

At Range 1, the noise category and access to utilities are acceptable for the scope of this project. However, the use of Range 1 conflicts with the use of an adjacent range, Range 3 which is designed for Military Police Qualification. Range 1 can only be utilized when Range 3 is not scheduled for training use. Range 1 is less than the required 100 acres and thus does not meet the purpose and need of the project. Therefore, this alternative was not carried forward for detailed analysis.

2.2.4 Range 30

Range 30 is a bayonet range actively used for military training. It is located on the northeastern side of the installation south of Magrath Avenue and adjacent to Interstate 25. Range 30 is located within the Small-Arms Impact Area on its northeastern side. This site has suitable topography and acceptable adjacent land uses.

However, the size of the site is less than the required 100 acres. Also, the required SDZ would overlap a Fountain Water District substation that is located between the range and impact area. This location would not allow for 300-yard or longer firing points without significant new earthwork. Additionally, this location would require construction of a utility corridor that would be approximately 1/2-mile longer than the Proposed Action, which would increase the project impacts and cost. The size of the site is inadequate, earth work and utility installation costs would be significantly higher than those of the Proposed Action, and use of the site would endanger a civilian facility. Therefore, this alternative was not carried forward for detailed analysis.

2.3 NO ACTION ALTERNATIVE

Consideration of the No Action Alternative is a requirement of the NEPA process. It provides a basis of comparison for the Proposed Action and also addresses issues of concern by avoiding or minimizing effects associated with the Proposed Action. Under this alternative, Fort Carson would not construct an R&G Club. Implementing the No Action Alternative would not allow Fort Carson to provide authorized DFMWR patrons and local law enforcement personnel a safe, convenient, and economical opportunity for recreational shooting and further training that isn't otherwise available in or near El Paso County. The No Action Alternative will be considered in the environmental consequences to provide a basis of comparison for the Proposed Action.

3.0 AFFECTED ENVIRONMENT AND CONSEQUENCES

3.1 INTRODUCTION

This section provides general descriptions of the physical and biological environment and regional socioeconomic conditions for the Fort Carson area and the consequences of the Proposed Action and alternatives.

This section analyzes the direct, indirect, and cumulative impacts of the construction of the proposed R&G Club at Fort Carson for the following resources:

- Land Use (Section 3.2);
- Air Quality (Section 3.3);
- Noise (Section 3.4);
- Geology and Soils (Section 3.5);
- Water Resources (Section 3.6);
- Biological Resources (Section 3.7);
- Cultural Resources (Section 3.8);
- Socioeconomics (Section 3.9);
- Transportation (Section 3.10);
- Utilities (Section 3.11);
- Hazardous and Toxic Substances (Section 3.12); and
- Sustainability at Fort Carson (Section 3.13).

Specific design details of the Proposed Action, construction activities, and operation and maintenance have not yet been developed. A boundary-specific site location or footprint, was used as a basis to make conservative assumptions that were used to evaluate a worst-case scenario of possible impacts. Specific information on construction materials, or other such design details will be developed as the design process matures, design ideas received during the public comment period could be incorporated. Any dimensions or description of site features are approximate, based on a typical conceptual design that meets the purpose and need. Impacts analysis was completed utilizing information currently available based upon a maximum footprint. During the design process, mitigation measures (e.g., energy efficiency, water conservation design standards, erosion and sedimentation best management practices) would be implemented to minimize impacts to the environment so that the final site design could have fewer impacts when completed.

The impacts to environmental resources discussed in this chapter would be considered significant if they have a major and/or important effect, which cannot be mitigated to less than significant. A project will normally have a significant impact on the environment if it will:

- Conflict with adopted plans and established uses of the community where it is to be located.
- Have a substantial, demonstrable negative aesthetic effect.
- Substantially affect a rare or endangered species of animal or plant or the habitat of such species.
- Interfere substantially with the movement of any resident or migratory fish or wildlife species.
- Substantially diminish habitat for fish, wildlife, or plants.
- Breach standards relating to solid waste or litter control.
- Substantially degrade water quality.

- Contaminate a public water supply.
- Substantially degrade or deplete ground water resources.
- Interfere substantially with ground water recharge.
- Encourage activities which result in the use of large amounts of fuel, water, or energy.
- Use fuel, water, or energy in a wasteful manner.
- Disrupt or adversely affect an archaeological site or a property of historic or cultural significance.
- Cause an increase in traffic which is substantial in relation to the existing traffic load and capacity of the street system.
- Increase substantially the ambient noise levels for adjoining areas.
- Cause substantial flooding, erosion or siltation.
- Expose people or structures to major geological hazards.
- Create a potential public health hazard or involve the use, production or disposal of materials which pose a hazard to people or animal or plant populations in the areas affected.
- Violate any ambient air quality standard, contribute substantially to an existing or projected air quality violation, or expose sensitive receptors to substantial pollutant concentrations.
- Interfere with emergency response plans.

3.2 LAND USE

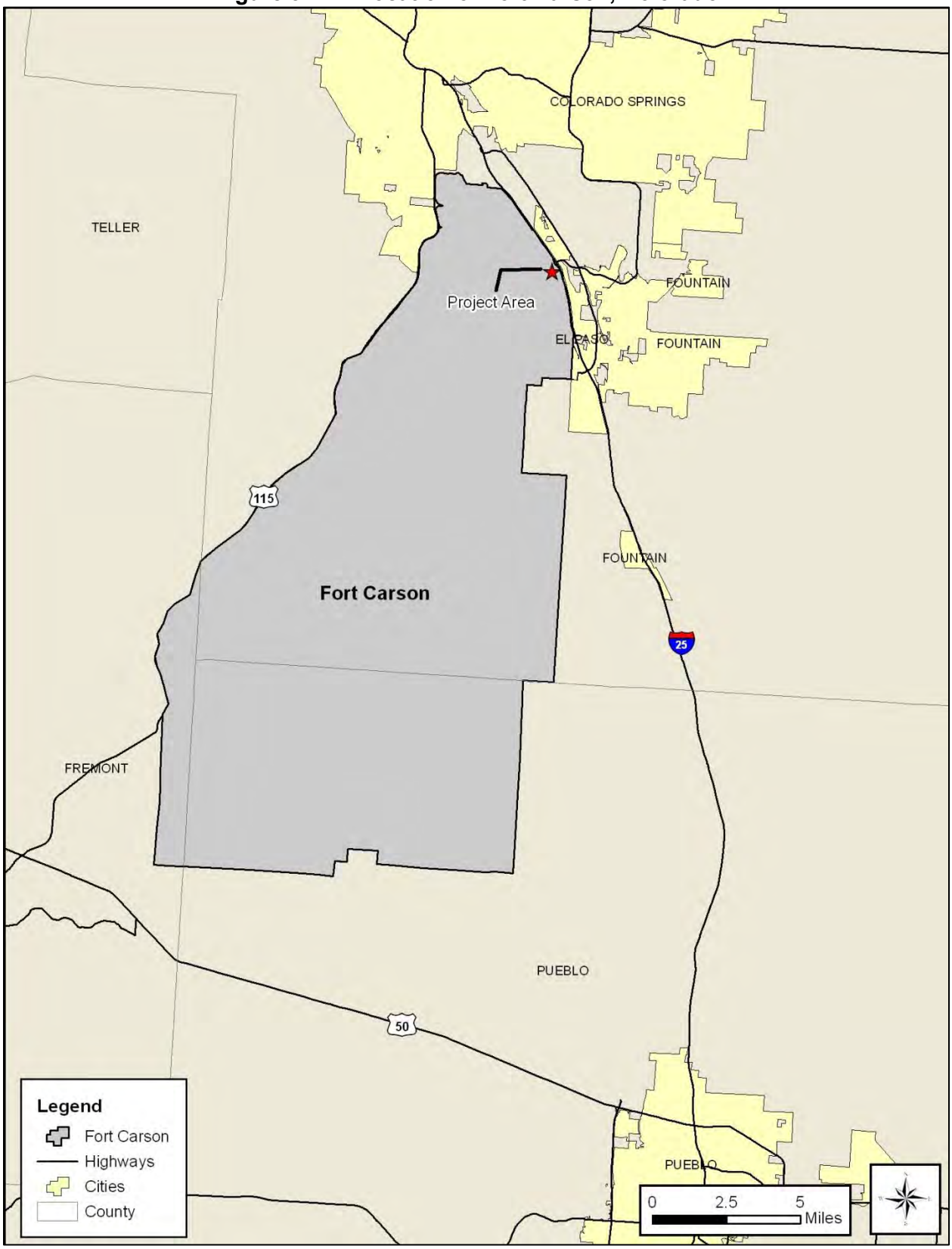
3.2.1 Affected Environment

3.2.1.1 Geographic Setting and Location

As seen in Figure 3.2-1, Fort Carson is located in central Colorado at the foot of the Rocky Mountains in El Paso, Fremont, and Pueblo counties. To the north is Colorado Springs, to the east is Interstate-25 and mixed development, to the south are privately-owned ranches, and to the west is State Highway 115. Downtown Colorado Springs and Denver lie approximately 8 miles and 75 miles, respectively, to the north, while the City of Pueblo is approximately 35 miles south of the cantonment area.

Fort Carson covers approximately 137,000 acres, and extends between 2 and 15 miles east to west and approximately 24 miles north to south. The cantonment area, which consists of developed land and a high density of urban uses, is located in the northern portion of the installation and covers approximately 6,000 acres. The downrange area, which is used for large caliber and small-arms live-fire individual and collective training; aircraft, wheeled and tracked vehicle maneuver operations; and mission readiness exercises, covers approximately 131,000 acres of unimproved or open lands. Additionally, Butts Army Airfield is located in the northeast quadrant of the downrange area and is used for command and control of flight operations as well as maintenance and repair of aircraft.

Figure 3.2-1. Location of Fort Carson, Colorado.



Source: Environmental Research Group, LLC

3.2.1.2 Climate

The region including Fort Carson is classified as mid-latitude semi-arid, characterized by hot summers, cold winters, and relatively light rainfall. July is the warmest month with the normal daily maximum temperature of 84.4° Fahrenheit, and January is the coldest with a normal daily minimum temperature of 14.5° Fahrenheit.

Mean annual precipitation at Fort Carson increases toward the northwest. Colorado Springs averages 17.5 inches of precipitation annually, which occurs in the region about 50 days per year, with about 80 percent falling during the period of April through August. Average annual snowfall in the region is 42.4 inches. Snow and sleet usually occur from September to May with the heaviest snowfall in March and possible trace accumulations as late as June.

3.2.1.3 Existing Land Use

Fort Carson is an active military training facility for both weapons qualification and field training. Land use falls generally into one of two broad categories, which are the cantonment area and downrange. The cantonment area consists of developed land and a high density of urban uses. The downrange area is used primarily for training and to a lesser extent for recreational purposes. The existing land use categories for Fort Carson are:

- Community
- Industrial
- Professional and Institutional
- Residential
- Training/ Ranges
- Troop

The proposed project site is located in the northeast corner of the downrange area and is classified as the Small-Arms Impact Area (training/range). It lies adjacent to the cantonment area and the installation boundary.

3.2.1.4 Visual and Aesthetic Resources

The proposed location currently exists as a mostly undeveloped area that is relatively flat. Development on the site includes a few gravel roads and one small, concrete block building (Range 29 Building B). The site is generally grassland, with trees along Clover Ditch. The site generally slopes from west to east towards Clover Ditch. Land to the south and west is grasslands and training ranges. Gate 20 and Interstate 25 and its access roads are located to the north and east, respectively.

3.2.2 Environmental Consequences

3.2.2.1 Proposed Action

The Proposed Action would change existing use of the proposed site from an undeveloped military training range to an R&G Club with associated shooting facilities. The approximately 100-acre site is located within Fort Carson's Small-Arms Impact Area, which is designated for use of all small-caliber weapons. Ranges 17, 19, and 29 are currently part of the range inventory, but would be removed from the range inventory upon completion of this project. The project area (Ranges 17, 19, and 29) would remain a part of the installation's small arms training complex and, therefore, keep the land use designation of training/ ranges. DFMWR

personnel would receive training and certification on Range Safety Officer/Officer-In-Charge. The range would operate and adhere to all Fort Carson and Army Regulation requirements.

The proposed R&G Club would be visible from Interstate 25 and areas outside the installation. This alternative would result in the loss of natural aesthetic features found in the project area. As proposed, development would occur in the open areas of the site, with only one proposed road crossing of Clover Ditch. The construction of an R&G Club would introduce new elements to the visual landscape, but these changes are consistent with the character of a military installation. The construction of facilities and infrastructure associated with the Proposed Action would infringe upon the predominately undisturbed visual resources currently found on the site. However, the facilities would be designed to be visually appealing and non-intrusive to the surrounding environment's aesthetics. Also, as phases of construction are completed native vegetation would be used in the landscaping to enhance the visual interest of the R&G Club. As a result, insignificant long-term indirect impacts to aesthetics and visual resources would occur.

3.2.2.2 No Action Alternative

Under this alternative there would be no change to land use or visual and aesthetic resources.

3.3 AIR QUALITY

3.3.1 Affected Environment

The Clean Air Act authorizes the USEPA to establish National Ambient Air Quality Standards for six principal pollutants, called "criteria pollutants," which are considered harmful to the public health and environment. These pollutants include ozone, carbon monoxide (CO), nitrogen oxides, sulfur dioxide, particulate matter, and lead particles. In an effort to control and minimize the direct and indirect impacts of these pollutants, the Clean Air Act established the New Source Review (NSR) and Operating Permit programs, which are administered federally by the United States Environmental Protection Agency (USEPA) and, in Colorado, by the Colorado Department of Public Health and Environment (CDPHE). New Source Review permits are considered pre-construction or construction permits, while operating permits are considered permits to operate, or post-construction permits. Fort Carson is required to comply with the requirements of both of these permitting programs.

There are three types of NSR permitting requirements, which are generally based on whether a major stationary source would be constructed or modified in an attainment, unclassifiable, or non-attainment area for National Ambient Air Quality Standards. These permit requirements include the Prevention of Significant Deterioration, Non-Attainment New Source Review, and minor NSR. A Prevention of Significant Deterioration permit is required for new or modified stationary sources in attainment or unclassifiable areas. Non-Attainment NSR permits are required for major sources in non-attainment areas as well as the minor NSR to a lesser extent. Recently, the USEPA added greenhouse gases (GHG) to be accounted for in NSR efforts in accordance with several USEPA final rules issued in 2010. Implementation of these rules went into effect on January 2, 2011. To determine NSR permitting requirements and ensure compliance with the Clean Air Act General Conformity Rule, a Conformity Applicability Analysis must be performed for each proposed federal action, or actions occurring on federal land, prior to initiation of the project. The purpose of the analysis is to ensure that federal actions do not cause or contribute to violations of the National Ambient Air Quality Standards (NAAQS) or worsen existing conditions.

Operating permits, also known as Title V permits, are legally enforceable documents issued to stationary sources after the source has begun to operate. Sources with emissions greater than the established permitting thresholds or that meet other applicable criteria are required to obtain an operating permit (USEPA, 2010a). The permits contain all the air pollution control requirements that apply to the source, including requirements from NSR permits or other applicable requirements such as New Source Performance Standards (USEPA, 2010b) or National Emissions Standards for Hazardous Air Pollutants (HAPs) (USEPA, 2010c).

3.3.1.1 Ambient Air Quality Conditions

Fort Carson is in an attainment area for all criteria pollutants, with the exception of CO for which part of the installation has been designated as a maintenance area (Colorado Springs achieved attainment in October 1999). The Colorado Springs urban area, including Fort Carson's cantonment area, is under a maintenance plan until 2019 to demonstrate compliance with the CO standard. The proposed project site is located outside of the CO attainment/maintenance area (CHPHE, 2003). Air-conformity regulations do not apply because the project area is in an attainment region.

Sources of ozone (O_3) are a concern in the region; however, local monitoring results demonstrate that this region is in attainment with the new 8-hour O_3 standard. The USEPA is reconsidering the 2008 ozone National Ambient Air Quality Standard and will likely strengthen the standard to be more protective of public health and the environment. The USEPA has delayed the issuance of the new standard to mid-2011 to further review and analyze data (CDPHE, 2011). The USEPA is expected to tighten the standard from its current 75 parts per billion to between 60 and 70 parts per billion, averaged over an 8-hour period (CDPHE, 2011). The long-term sustainability goal for Fort Carson is to reduce installation air pollutants including ozone to the lowest achievable emissions rates by 2027.

3.3.1.2 Air Pollutant Emissions

Air pollutant emissions are generated at Fort Carson mainly through the combustion of fossil fuels in equipment such as boilers and motorized vehicles. Combustion products include mainly CO, nitrogen oxides, sulfur dioxide, and particulate matter (both as PM_{10} and $PM_{2.5}$). Lesser contributions of emissions come from coating activities, gasoline filling stations, chemical usage, and fuel storage and fueling operations, landfill related emissions, military and fire training. Pollutants from these activities include those listed above, volatile organic compounds, and various HAPs. Travel by tanks and other military vehicles on unpaved roads is the largest generator of particulate matter.

Fort Carson is considered a Title V major source due to the potential to emit more than 100 tons per year of the following criteria pollutants: particulate matter, volatile organic compounds, CO, and nitrogen oxides, which would be emitted from stationary equipment such as boilers, generators, and parts cleaners. Significant net increases of these pollutants would invoke Prevention of Significant Deterioration review requirements, which are implemented by the State of Colorado Air Quality Control Commission, Regulation 3, Part D.

3.3.1.3 Greenhouse Gases

GHG are another air pollutant category of general concern. GHG are compounds in the atmosphere that absorb infrared radiation and reradiate a portion of it back to earth, thus trapping heat and warming the atmosphere. The most important GHG of concern are carbon dioxide, methane, and nitrous oxide. The overall global warming potential of GHG emissions is

typically presented in terms of carbon dioxide equivalents (CO_2e), using equivalency factors developed by the Intergovernmental Panel on Climate Change.

In May 2008, Fort Carson became the first Army installation nationwide to perform a comprehensive carbon equivalent emissions analysis for its operations. This analysis was based on guidance provided in the GHG Protocol, A Corporate Accounting and Reporting Standard, 2007 (WBCSD, 2007). The protocol was established by the World Business Council on Sustainable Development in partnership with the World Resources Institute, with the goal of helping businesses, governments, and environmental groups engage climate change through the establishment of effective, credible programs. The Fort Carson carbon emissions analysis was developed for scope 1 and 2 sources on the installation for which it has total operational control. The scope sources include direct emissions (scope 1) including units such as boilers, furnaces, emergency generators and government-owned vehicles and indirect (scope 2) units such as emissions from local utilities which are estimated for the production of electricity that Fort Carson consumes. The model does not consider privately owned vehicles (POVs) operated on Fort Carson, or tenant operations other than Evans Army Community Hospital.

3.3.2 Environmental Consequences

3.3.2.1 Proposed Action

Construction under the Proposed Action would have short-term minor adverse impacts on air quality. The proposed construction of the R&G Club would occur in three phases. Phase I consists of building a functional shooting range and check-in station with portable restrooms and parking. Phase II follows with construction of the clubhouse, trap and skeet fields and utility installation. Phase III includes addition to the clubhouse and parking lots. All phases of construction would include some minor increases in fugitive dust (i.e., airborne dust caused by vehicles, equipment, and wind) and vehicle emissions caused by the operation of heavy equipment. Operations under the Proposed Action would have long-term minor adverse impacts on air quality due to a minor increase in POV traffic and firing activity on the installation. The proposed operations of the R&G Club would include full-time staffing, maintenance and associated operational activities of the clubhouse and shooting ranges. Collectively, construction and operations under the Proposed Action are not expected to require any significant new major stationary emission sources or to require changes in air permits for existing stationary emission sources. The Proposed Action is outside of the CO maintenance area and is not subject to NSR and minor NSR requirements. Additionally, the Proposed Action is not considered a major stationary source (potential to emit 100/250-tons/year of any pollutant regulated by the Clean Air Act) in accordance with Prevention of Significant Deterioration requirements. A Draft Record of Nonapplicability (RONA) is provided in Appendix B.

The proposed action would increase HAPs emissions from new construction and operation of additional emissions sources (e.g., HVAC equipment, additional vehicular traffic). It is expected that an increase in air pollutants would occur with the potential to impact existing air quality conditions. Fort Carson's Sustainable Development Checklist encourages low NOx and low SOx emitting HVAC systems. The concentration levels of these pollutants, however, when added to background air concentrations, would be below the applicable air quality standards and, therefore, would not significantly affect regional air quality.

The firing of rifles, pistols, and shotguns produces smoke and localized lead dust. In an outdoor setting, this effect on air quality is not significant. The effect of residual lead dust, that is, lead dust that has fallen on the ground or onto equipment, can be a health risk to range operators

and maintenance staff when the dust is disturbed or stirred up and then inhaled. The use of personal protective equipment and good hygiene (i.e., hand washing after touching soil or equipment that may be contaminated) would limit exposure of range operators and maintenance staff to lead. The lead dust that travels away from the firing lines would be at insignificant concentrations that it would not affect local flora and fauna.

GHG emissions would be expected to increase from direct emissions from scope 1 sources and indirect emission from scope 2 sources. Minor long-term increases in GHG emissions would be minimized through sustainability initiatives to reduce air pollutant emissions and increases in the use of renewable fuels and alternate forms of energy.

The Proposed Action is not anticipated to result in violations of NAAQS.

3.3.2.2 No Action Alternative

Under the No Action Alternative, there would be no impacts to air quality.

3.4 NOISE

3.4.1 Affected Environment

Sources of noise associated with Fort Carson include military training operations, aircraft, and traffic. The military sources of noise are the firing of weapons and the operation of aircraft. Other sources of noise include motor vehicle traffic (for example, cars, trucks, and tracked vehicles) and construction activities.

Noise is defined as any sound that is undesirable because it interferes with communication, is intense enough to damage hearing, or is otherwise intrusive. Human response to noise varies depending on the type and characteristics of the noise, distance between the noise source and the receptor, receptor sensitivity, and time of day. Noise is often generated by activities as part of everyday life, such as construction or vehicular traffic.

Sound varies by both intensity and frequency. Sound pressure level, described in decibels (dB), is used to quantify sound intensity. The dB is a logarithmic unit that expresses the ratio of a sound pressure level to a standard reference level. A-weighing, described in a-weighted decibels (dBA), approximates this frequency response to express accurately the perception of sound by humans. Sounds encountered in daily life and their approximate level in dBA is provided in Table 3.4-1. Table 3.4-2 provides typical noise levels from construction equipment for reference.

Table 3.4-1.
Common Sounds and Their Levels

Outdoor	Sound level (dBA)	Indoor
Snowmobile	100	Subway train
Tractor	90	Garbage disposal
Noisy restaurant	85	Blender
Downtown (large city)	80	Ringing telephone
Freeway traffic	70	TV audio
Normal conversation	60	Sewing machine
Rainfall	50	Refrigerator
Quiet residential area	40	Library

Source: Harris 1998.

Table 3.4-2.
General Construction Equipment Noise Levels

Equipment	Typical Noise Level (dBA*) 50 ft from Source
Air Compressor	81
Backhoe	80
Ballast Tamper	83
Compactor	82
Concrete Mixer	85
Concrete Pump	82
Concrete Vibrator	76
Crane Mobile	83
Dozer	85
Generator	81
Grader	85
Impact Wrench	85
Jack Hammer	88
Loader	85
Paver	89
Pneumatic Tool	85
Pump	76
Roller	74
Saw	76
Scarifier	83
Scraper	89
Shovel	82
Truck	88

*dBA – A-weighted decibels
Source: Federal Highway Administration, 2006

Applicable sound quality criteria for Fort Carson are provided in the Fort Carson *Installation Environmental Noise Management Plan* (U.S. Army Center for Health Promotion and Preventive Medicine [USACHPPM], 2006). This plan outlines acceptable land uses based on noise contours that are compatible with the needs of the civilian community and the Army. Under its Environmental Noise Management Program, the Army describes the Installation Compatible Use Zone (ICUZ) program and defines locations with noise sensitive land uses that are exposed to generally unacceptable noise levels. Noise sensitive land uses include, but are not limited to, residences, schools, medical facilities, and churches.

Metrics used by the Army to quantify the noise environment at Army installations are the A-weighted day-night average sound levels (ADNL). Day-night average sound level (DNL) is a time-weighted average sound energy over a 24-hour period; a 10-dB penalty is added to the nighttime levels (10 P.M. - 7 A.M.). These characteristics make it a useful descriptor for continuous noise, such as a busy highway, aircraft noise, or the ongoing components of repetitious blast noise. The metric used in defining noise zones for small-arms ranges is PK15(met) contours. Peak level for small-arms weapons is strongly correlated with community annoyance (Hede and Bullen, 1982). The PK15(met) contour shows the peak noise level that is expected to be exceeded by only 15 percent of the events and gives personnel a truer indication of the maximum level they are likely to hear during training activities. This is useful because it is the same for one shot or 100 shots, and gives people a truer idea of the maximum level they are likely to hear. Table 3.4-3 outlines noise limits and zones for land use planning for transportation and small arms firing.

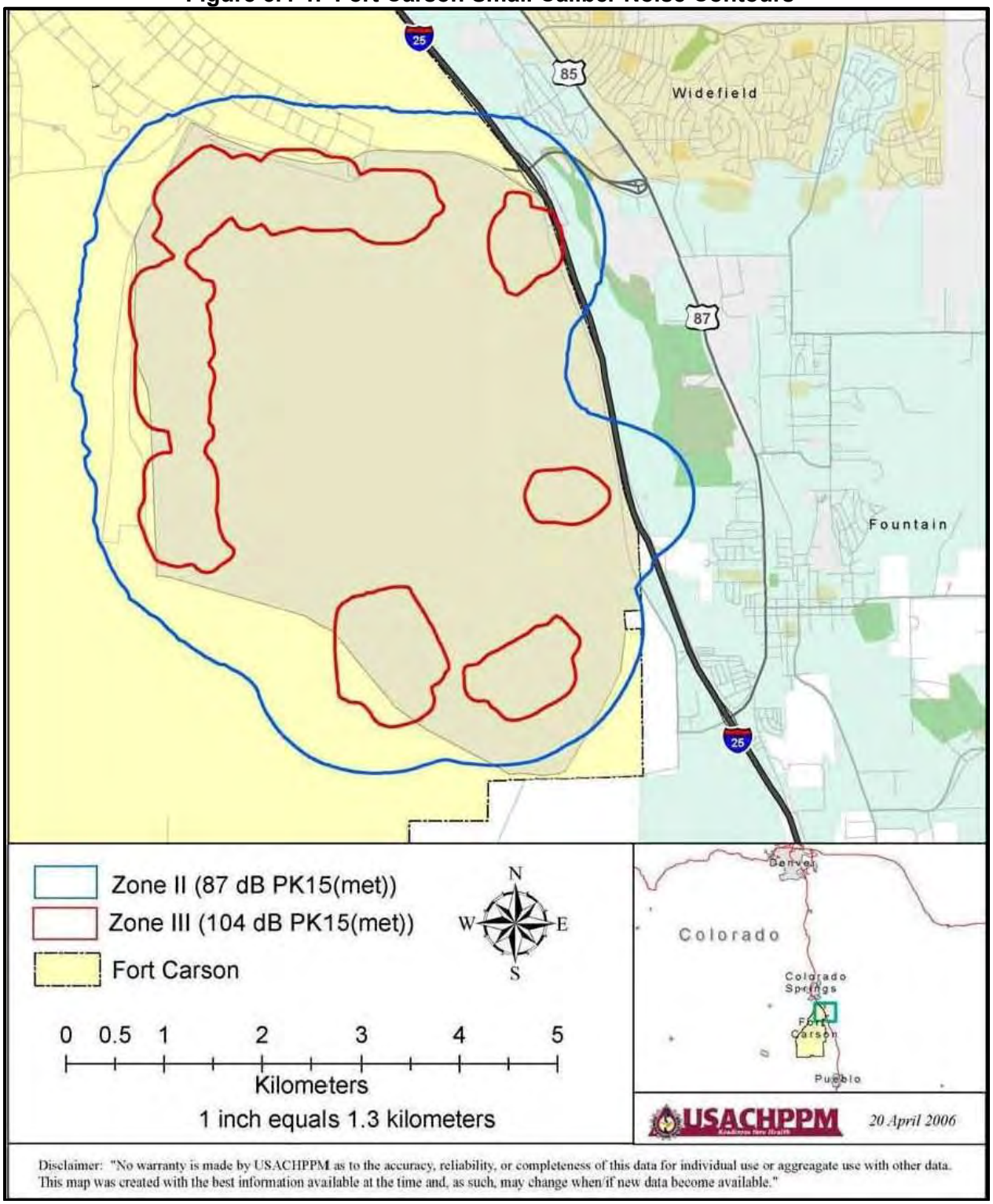
Table 3.4-3.
Noise Zone Limits

Noise Zone	Percent Population Highly Annoyed	Small-arms PK15(met)	Transportation and Small Arms (ADNL)	Recommended Uses
I	<15	< 87	< 65 dBA	All types of land use activities
II	15 – 39	87–104	65–75 dBA	Industrial, manufacturing, transportation, and resource production.
III	>39	> 104	> 75 dBA	So severe that noise sensitive land uses should not be considered therein.

Source: USACHPPM, 2006

The US Army Center for Health Promotion and Preventive Medicine (USACHPPM, 2006) evaluated potential noise impacts associated at Fort Carson in June 2008 for the *Final Environmental Impact Statement for Implementation of Fort Carson Grow the Army Stationing Decisions* (DPW, 2009). The evaluation compared Fort Carson's 2006 noise study against potential future actions, and resulted in no significant change. The 2006 study evaluated large and small-caliber weapon noise as well as aircraft noise and the resulting small caliber noise contours are shown in Figure 3.4-1.

Figure 3.4-1. Fort Carson Small Caliber Noise Contours



Source: USACHPPM, 2006

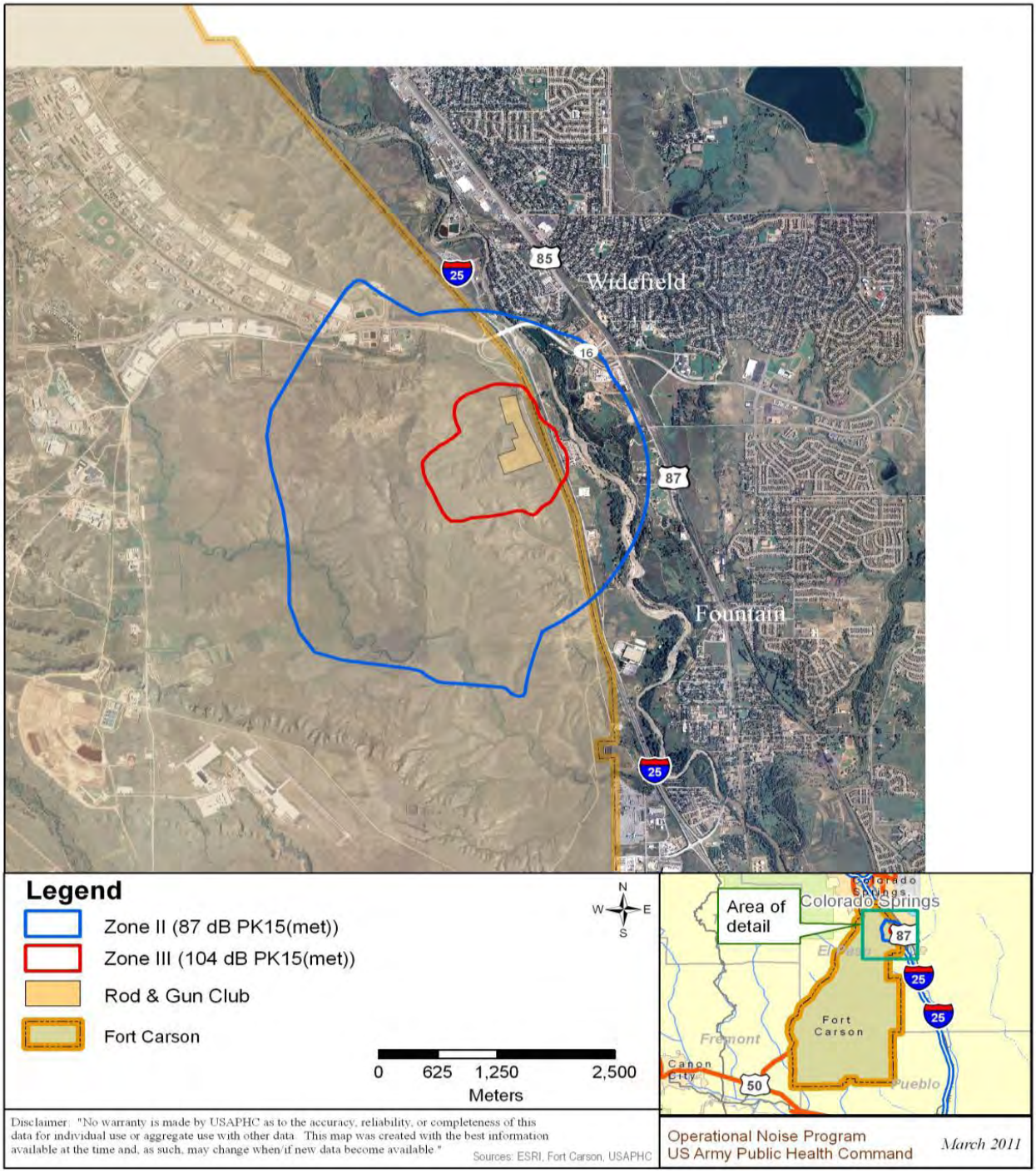
3.4.2 Environmental Consequences

3.4.2.1 Proposed Action

Noise under the Proposed Action would have minor long-term adverse impacts. The US Army Public Health Command (USAPHC, 2011) evaluated potential noise impacts associated with the Proposed Action at Fort Carson (Appendix C). The proposed project would occur in the area defined as NZ III. The existing small caliber weapon Zone II contour extends beyond the installation boundary. Within the Zone II are undeveloped, recreational, industrial and commercial land uses; with a small residential area near State Highway 16 and Interstate 25. The addition of the proposed R & G Club Range would slightly increase the size of the previous noise contours, shifting contours slightly to the east (Figure 3.4-2 and 3.4-3). The Zone III would not contain noise-sensitive land uses. The additional Zone II area would contain commercial and industrial land uses, but does not appear to impact the residential area. The overall effect on the noise environment would be negligible. The weapons that will be used at the proposed R&G Club are consistent with those used in the past (i.e. less than 50 caliber) and used to develop the noise contours. The frequency of noise is expected to increase but is dependent upon R&G Club patron use. Range operation would be limited to daytime hours. Noise is anticipated to decrease with increasing distance from the site. There are no sensitive noise receptors in the vicinity of the proposed project site.

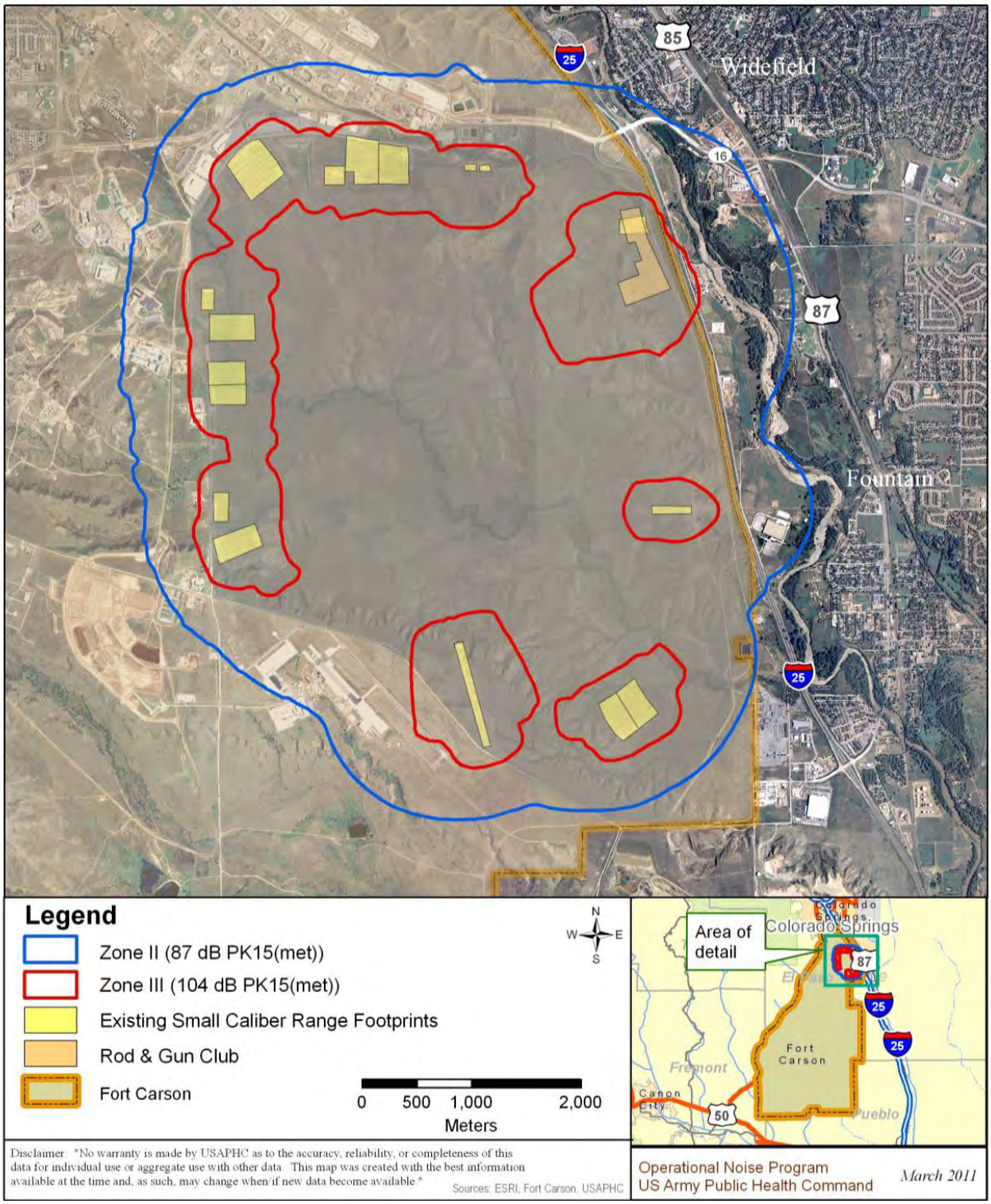
Equipment and vehicles used in construction activities would temporarily add noise to the proposed site. The construction of the R&G Club could result in noise levels of up to 89 dB in the immediate vicinity but would decrease with increasing distance from the site. Development activities of the Proposed Action would be limited to normal business hours, which would minimize short-term noise impacts. There may be minor long-term noise increases associated with the operation of the R&G Club. The Proposed Action would comply with the policies and procedures outlined in the *Installation Environmental Noise Management Plan* (USACHPPM, 2006) for managing and limiting noise impacts on the surrounding communities.

Figure 3.4-2. Fort Carson Projected R&G Club Small Caliber Noise Contours.



Source: USAPHC, 2011.

Figure 3.4-3. Fort Carson Cumulative Projected Small Caliber Noise Contours.



Source: USAPHC, 2011.

3.4.2.2 No Action Alternative

Under the No Action Alternative, there would be no noise impacts.

3.5 GEOLOGY AND SOILS

3.5.1 Affected Environment

3.5.1.1 Geologic and Topographic Conditions

The majority of Fort Carson lies at elevations between 5,500 and 6,000 feet above mean sea level. Geologic units at Fort Carson range in age from the Quaternary period (one million years before present to recent) to the Pennsylvanian period (200 to 250 million years before present). During the Quaternary period both consolidated and unconsolidated sediments were deposited.

Unconsolidated sediments consist primarily of fluvial and alluvial sands, silts and gravels, and wind-deposited silts and sands. Consolidated sediments include shale, limestone, hard sandstone, siltstone, claystone, and conglomerate sandstone and shale. Three main fault lines exist within the region of Fort Carson — the Oil Creek, Ute Pass, and Rampart Range faults. The region is rated Zone 1 for earthquake potential on a scale of zero to four, with a rating of four having greatest earthquake potential. Small earthquakes are known to occur in the region with generally undetectable effects (DECAM, 2007b).

3.5.1.2 Prime Farmland

The Farmland Protection Policy Act of 1981 requires federal agencies to consider the impact of any activity that would convert prime or unique farmlands to non-agricultural uses. The Natural Resource Conservation Service regulates compliance with the law (7 CFR Part 658). Fort Carson has not used land for agricultural use since 1973 (DPW, 2009). The soils within the project area are located within the limits of an existing military installation and are therefore considered public lands. Public lands cannot be considered prime farmlands. Therefore, farmlands would not be converted as part of the Proposed Action, and no action is required under the Farmland Protection Policy Act. Prime farmland is not analyzed further in this EA.

3.5.1.3 Soils

Thirty-four soil categories and 65 soil associations have been recognized on Fort Carson. These soils contain a high shrink-swell potential. Shrink-swell potential is the loss or gain of water in soil with soils increasing in volume with increasing moisture. Soil erosion, primarily from water runoff, is a significant problem on the installation. Soils of greatest concern for erosion control are clays, silty clays, and clay loams.

The soil composition of the proposed R&G Club site was collected from the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (USDA, 2010) and descriptions were taken from the Soil Survey of El Paso County Area, Colorado (USDA, 1981). The soil types that would be potentially affected by the Proposed Action are Schamber-Razor Complex, Razor-Midway Complex, and Manzanola Clay.

Schamber-Razor Complex, which has 8 to 50 percent slopes, consists of deep, well-drained soils that occur on eroded breaks and remnants of granite outwash over shale. The erosion hazard is moderate, permeability is rapid, surface runoff is medium to rapid, and available water capacity is low to moderate.

Razor-Midway Complex consists of gently sloping to moderately steep, clayey soils on uplands. Slopes range from 3 to 25 percent. The soil is well-drained, erosion hazard and available water capacity are moderate, permeability is slow, and surface runoff is medium.

Manzanola clay loam, with 1 to 3 percent slopes, is a deep, well drained soil that occurs on fans and terraces. Permeability is slow, available water capacity is high, surface runoff is medium, and the hazard of erosion is moderate.

3.5.2 Environmental Consequences

3.5.2.1 Proposed Action

Implementation of the proposed construction of the R&G Club would have minor short-term adverse impacts on soils during construction. The soils at the location proposed for the R&G Club are mostly undisturbed and covered with native vegetation; however, the potential for soil erosion exists at the site due to slight variations in grade. The creation of safety berms and preparation of the site could require cut and fill activities effecting topography. Loss of vegetative cover (primarily grasses) and disturbance to soils from construction activities would expose soils to wind and water erosion. Construction traffic would result in some compaction of soils and would temporarily increase amounts of surface water run-off from the site. Collectively, construction would result in the clearing and compactions of approximately 100 acres, which includes access road, buildings, and other impermeable surfaces. This would have long-term adverse impacts to these soils; however, these impacts would be mitigated through development and implementation of best management practices (BMPs) as required by the Stormwater Pollution Prevention Plans (SWPPPs) developed for the project during and post-construction.

Live-fire training was found to have no significant impact to soils according to the *Final Environmental Impact Statement for Implementation of Fort Carson Grow the Army Stationing Decisions* (DPW, 2009).

3.5.2.2 No Action Alternative

Under the No Action Alternative, there would be no change to geology or soils. No new construction would occur, and erosion rates would not exceed those occurring at the present.

3.6 WATER RESOURCES

3.6.1 Affected Environment

Fort Carson is required to eliminate or minimize the degradation of all water resources on Fort Carson and ensure compliance with all applicable federal, state and local water quality standards (Army Regulation 200-1) (Army, 2007). Water resources are managed in coordination with the U.S. Geological Survey, Natural Resource Conservation Service, U.S. Fish and Wildlife Service, U.S. Department of Justice, U.S. Army Corps of Engineers (USACE), U.S Environmental Protection Agency, and the Colorado State Division of Water Resources (DECAM, 2007a). The *Water Resources Management Program* on Fort Carson includes watershed/sedimentation monitoring and management and project reviews to address erosion and sediment control issues. In addition, the *Stormwater Management Plan* (DPW, 2010a) is designed to reduce the discharge of pollutants from Fort Carson to drainage ways, to protect water quality, and to satisfy Colorado's water quality standards.

3.6.1.1 Surface Water

The northern and eastern portions of Fort Carson, including Range 29, are located within the Fountain Creek watershed of the Arkansas River Basin and drain southeasterly into Fountain Creek. Stormwater runoff in the northern portion of the installation flows into one of four main drainages: B-Ditch, Clover Ditch, Unnamed Ditch or Rock Creek, which are all tributaries of Fountain Creek. The surface runoff of the proposed project site drains into the Clover Ditch, which is the only surface water within the proposed project site.

Historically, these drainages have been considered ephemeral or intermittent with no flow occurring in some reaches for long periods of time during the year, and high flows occurring between April and September. However, modern conditions within the watershed have changed the system dynamics, which now typically exhibit perennial flows in most areas of these northern-most drainages. The majority of flows consist of runoff (from precipitation and snowmelt), which has increased due to higher percentages of impervious surface. Groundwater seepage and return flows from water treatment also contribute to base-flows in these drainages.

3.6.1.2 Stormwater

The Fort Carson Stormwater Program's main objective is to protect surface waters from pollution. Stormwater runoff can carry physical, chemical, and biological pollutants to sewer systems or directly to a pond, creek, river, or wetland. Therefore, construction and post-construction stormwater controls are assessed on a watershed level during project planning phases.

Section 438 of the Energy Independence and Security Act requires that, if the post-development footprint of new surfaces (sidewalks, buildings, parking, non-vegetated landscaping, etc.) exceeds 5,000 square feet, then post-development stormwater controls are required to return the developed area to predevelopment hydrology. In accordance with Fort Carson's *Stormwater Management Plan (SWMP)* (DPW, 2010a), the difference in discharge between the natural condition and the proposed impacted condition will be the minimal target amount required to be mitigated through permanent BMP design. BMP design should address storms with a five-year return period or less (plus 10%) and should account for the pre-development temperature, discharge rate, volume, and duration of flow. The BMP designs should be constructed to mitigate the change in flow and volume while passing the 25-year native flow characteristics downstream.

Two stormwater permit types apply to the Proposed Action; the Municipal Separate Storm Sewer System (MS4) and the Construction General Permit. Fort Carson's MS4 permit goals are to maximize the utilization of multiple BMP placements at each new development site by focusing on Low Impact Development BMPs, such as swales and berms, bioretention, filter strips, and small check dams.

MS4

Under the National Pollution Discharge Elimination System (NPDES) stormwater program, operators of regulated MS4s, which includes all of Fort Carson, require authorization to discharge pollutants under a NPDES permit. The USEPA's Phase II MS4 permit for federal facilities in Colorado expired in June, 2008. However, the USEPA issued an individual MS4 permit to Fort Carson on April 30, 2009.

Fort Carson manages NPDES MS4 stormwater permit requirements in accordance with its MS4 permit (USEPA, 2009) and the SWMP (DPW, 2010a). Within this plan, baseline hydrologic

models have been completed for the B- Ditch, Clover Ditch, Unnamed Ditch, and Rock Creek watersheds. The MS4 permit and SWMP require that Fort Carson's hydrologic models be used, in part, to guide BMP design for projects proposed within the installation's four northern watersheds. This information provides a realistic representation of floodplains, peak flows, water and water quality for pre-development, existing, and future proposed conditions.

In addition, Fort Carson has developed three types of stormwater planning zones based on the hydrologic model results, comprehensive analysis of the installation's natural resources and needs for better management of stormwater runoff. In general, these zones represent different environmental settings requiring specific BMPs. The three zones are described below.

> **Zone 1** represents land that is primarily undeveloped and serves as a filter strip and buffer for major waterways, habitat and flood prone areas.
>
> **Zone 2** is primarily composed of undeveloped land.
>
> **Zone 3** is comprised of developed land, primarily in the cantonment area, and may contain areas that are prone to flooding.

If a project site is located within multiple zones, the entire site falls within the zone with the most stringent requirements (DPW, 2010a). In accordance with the SWMP, portions of the site for the Proposed Action are located along Clover Ditch in Zone 1, and the remainder of the site is located in Zone 2.

Construction General Permit

Construction projects are authorized to discharge stormwater runoff from construction sites under a NPDES Construction General Permit. To obtain coverage under the general permit, contractors must submit a notice of intent (NOI) for each construction project that disturbs one acre or more of land. In addition, contractors must develop and implement a SWPPP for each project and comply with the additional BMPs set forth in the SWMP (DPW, 2010a).

3.6.1.3 Hydrogeology and Groundwater

Groundwater at Fort Carson exists in both alluvial and bedrock aquifers. Alluvial aquifers are formed from unconsolidated deposits of stream alluvium, colluvium, and residuum derived from Pierre Shale that are moderately permeable. The alluvial aquifers can provide well yields from 10 to more than 100 gallons per minute (gpm) (Leonard, 1984). In much of the Arkansas River Basin, hydraulic heads are lower in the deep bedrock aquifers than those in the shallow formations, which indicate that deep bedrock aquifers are not in hydrological connection with the shallow formations. The primary bedrock aquifer at Fort Carson is the Dakota-Purgatoire aquifer, which can yield 10 gpm, although local fracturing can increase permeability and yield more than 200 gpm. Precipitation and stream flow infiltration recharge the bedrock aquifers (Leonard, 1984).

In general, the quality of groundwater on Fort Carson is good with the exception of localized areas of elevated nitrates, high dissolved solids, and sulfates exceeding secondary drinking water standards. Nitrates have recently been detected in the groundwater at multiple locations greater than the regulatory standard of 10 milligrams per liter. Currently, Fort Carson and the CDPHE are collaborating to evaluate the possibility that elevated concentrations of nitrates may be naturally occurring as a result of groundwater coming in direct contact with the shale bedrock (DECAM, 2005).

Fort Carson has 16 subsurface well water rights, including nine wells for domestic or military use, at Fort Carson. Seven wells classified as future wells are planned to be installed when needed (DECAM, 2007a). Water rights directly support the training mission by ensuring adequate water supplies for the support and rehabilitation of natural resources on Fort Carson, and to provide training capabilities and fire suppression.

3.6.1.4 Floodplains

Executive Order 11988 requires federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct and indirect support of floodplain development wherever there is a practicable alternative. To accomplish this objective, the Army is required to take action to reduce the risk of flood loss, to minimize the impact of floods on human safety, health, and welfare, and to restore and preserve the natural and beneficial values served by floodplains for certain federal actions. The acquisition, management, and disposal of federal lands and facilities are specific qualifying federal actions addressed within the EO. Subsequently, the EO requires the application of accepted floodproofing and other flood protection measures for new construction of structures or facilities within a floodplain. Agencies are required to achieve flood protection, wherever practicable, through elevation of structures above the base flood level rather than filling in land.

Fort Carson floodplain maps that address the R&G Club site show the 100-year floodplain located along Clover Ditch. The only feature of the Proposed Action that would be constructed in the 100-year floodplain is the access road at the Clover Ditch crossing.

3.6.2 Environmental Consequences

3.6.2.1 Proposed Action

According to EO 11988, an agency shall make a determination whether a proposed action would occur in a floodplain and use detailed maps of the area, if available. If these maps are unavailable, an agency is required to make a determination based on the best information available. The 2009 SWMP floodplain map was used for analysis purposes although it is currently being revised and a complete floodplain definition is anticipated in the summer of 2011. The USACE will validate the results of the floodplain map revision as soon as it is complete; therefore, there is some possibility that the floodplain contours could change in the near future.

Construction and operation of an access road at the Clover Ditch crossing would be within the 100-year floodplain and, must be properly designed and constructed so as to prevent impacts on water resources and damage to the structures themselves in the event of a 100-year flood episode. The flood hazard could be completely mitigated through appropriate grading, design, and construction of the Clover Ditch crossing. Current 35 percent design drawings do not describe the details of the Clover Ditch crossing; however, the impacts would be required to comply with the Fort Carson's MS4 permit (USEPA, 2009), the SWMP (DPW, 2010a), the USACE Fort Carson Regional Permit (USACE 2008), and the SWPPP developed for the project.

Construction activities are anticipated to have direct short-term impacts. Short-term minor impacts include increased soils disturbance and subsequent wind and water erosion. Clearing of vegetation would cause increased overland flow of surface water and subsequent alterations in surface hydrology (e.g., increased flood flows due to increased impervious surfaces). This in

turn has the potential to increase deposits of sediments into surface water features. Any water quality effects during construction such as increased turbidity and suspended sediments would be localized and temporary in duration. Adverse effects from construction would be minimized through the proper use of BMPs during land clearing and shaping operations. Stormwater permitting and adherence to permit requirements would effectively reduce impact significance. Project construction would utilize the Zone 1 BMPs, including installation guidelines detailed in the SWMP (DPW, 2010a). Impacts from construction activities would be insignificant with the proper use of BMPs.

The Proposed Action includes recreational shotgun ranges that fire lead shot (pellets ranging in diameter from 0.1 inches down to 0.07 inches) and bullets. Chemical decomposition of lead in Fort Carson's generally dry climate is minimal. The lead shot is fired into the air at moving clay targets. The shot is not deposited in an impact berm as with rifles and pistol but typically lands on the ground in a 180 degree arc ranging from 100 yards to 300 yards from the firing points. This shot-fall area could be checked on a regular basis (depending on intensity of use) to make sure the soil is not acidic. If necessary, additives can be used to bring the pH to between 6.5 and 8.5 to help prevent dissolved lead from migrating into the groundwater (USEPA, 2005 and Army, 2005)). In addition, biodegradable, non-toxic clay targets could be used. For the pistol and rifle ranges, the lead projectiles (bullets) would either land in berms, from which they can be extracted, or travel out into the Small-Arms Impact Area. Currently, projectiles that land in the Small-Arms Impact Area are left in place and Fort Carson monitors for lead and other potential pollutant migration through a series of water wells located throughout the installation. Lead removal activities from the trap/skeet fields would be periodically collected as needed and recycled. The lead shot deposition would be monitored for chemical decomposition and migration and also to minimize the opportunity for ingestion by birds or mammals.

Long-term minor impacts on waters of the U.S. would result from construction of bridges or installation of culverts (See Section 3.7.2.1.5 Waters of the U.S.). Clover Ditch, the only surface water in the vicinity of the proposed project, occurs to the east and away from the direction of fire. No wetlands are present on the proposed project site. Impact berms that would be built into the range would be designed to prevent lead from moving off-site. BMPs could be put in place to neutralize acidic soils if necessary and control stormwater runoff. As long as the berms are built and maintained in accordance with BMPs as noted in Section 5.0, there should be no significant impact on surface waters.

Long-term minor adverse impacts on water resources would result from operation of the R&G Club. Long-term minor impacts could include reduced permeable surface area and subsequent increased stormwater runoff and treatment. Additionally, transportation and parking activities inherently generate limited amounts of automotive related petroleum drips and leaks. Significance of these impacts would be greatly reduced through implementation of BMPs and the use of Low Impact Development.

3.6.2.2 No Action Alternative

Under the No Action Alternative, there would be no impacts to water resources.

3.7 BIOLOGICAL RESOURCES

3.7.1 Affected Environment

Biological resources on Fort Carson exist primarily on the training ranges. The proposed project site is disturbed, yet mostly undeveloped. Development on the site consists of gravel roads and one small concrete-block building.

3.7.1.1 Vegetation

The *Fort Carson Integrated Natural Resource Management Plan* (DECAM, 2007b) contains detailed descriptions of the vegetation communities on Fort Carson and a listing of scientific names of plant species known to occur. The proposed project site is undeveloped and vegetation consists primarily of native short grass prairie (Figure 3.7-1). The project site occurs in the foothills grassland and is generally composed of blue grama mixed with taller grasses including wheat grass, needle-and-thread, dropseed, ryegrass, bluestems and sleepy grass. Four-winged saltbush is the primary shrub that is interspersed in some portions of the site.

The area along Clover Ditch contains a narrow riparian corridor with a few mature trees with the dominant species being plains cottonwood, Siberian elm, and coyote willow with an understory composed of coyote willow, sandbar willow, and ragweed. Clover Ditch generally has a perennial flow from the cantonment area, where riparian communities are often invaded by non-native species such as Japanese brome, Eurasian tansy mustard, green ash, and Russian olive, and these same species may be present in the proposed project site.

3.7.1.2 Noxious Weeds

There are 22 noxious weeds known to occur on Fort Carson. Only one, Myrtle spurge (*Euphorbia myrsinites*) is considered a List A species in Colorado. List A species are those considered so potentially damaging (and not yet widespread throughout the state) that they are designated for eradication. List B weed species are species for which state management plans are developed to stop their continued spread.

There are 14 known List B weed species on Fort Carson. They are Canada thistle (*Cirsium arvense*), common teasel (*Dipsacus fullonum*), diffuse knapweed (*Centaurea diffusa*), hoary cress (*Cardaria draba*), houndstongue (*Cynoglossum officinale*), leafy spurge (*Euphorbia esula*), Musk thistle (*Carduus nutans*), Redstem filaree (*Erodium cicutarium*), Russian-olive (*Elaeagnus angustifolia*), salt cedar (*Tamarix chinensis, T. parviflora,* and *T. ramosissima*), Scotch thistle (*Onopordum acanthium*), spotted knapweed (*Centaurea maculosa*), perennial pepperweed (*Lepidium latifolium),* and yellow toadflax (*Linaria vulgaris*).

List C weed species are species for which the Colorado Department of Agriculture Commissioner, in consultation with the state noxious weed advisory committee, local governments, and other interested parties, would develop and implement state noxious weed management plans designed to support the efforts of local governing bodies to facilitate more effective integrated weed management on private and public lands. The goal of such plans would not be to stop the continued spread of these species but to provide additional education, research, and biological control resources to jurisdictions that choose to require management of List C species. List C weed species known to occur at Fort Carson include: common burdock (*Arctium minus*), common mullein (*Verbascum thapsus*), common St. Johnswort (*Hypericum perforatum*), downy brome (*Bromus tectorum*), field bindweed (*Convolvulus arvensis*), jointed

Figure 3.7-1. Photograph of Proposed Project Site Vegetation.

goatgrass (*Aegilops cylindrica*), poison hemlock (*Conium maculatum*), and puncturevine (*Tribulus terrestris*).

List C species are those that have become so widespread that eradication is impossible and species-specific control would be extremely difficult if not impossible. Therefore, measures for control of these species apply to all weeds in general and are geared towards education and BMPs to help suppress populations. On Fort Carson, the weed species of most concern are myrtle spurge, dalmation, yellow toadflax, leafy spurge, and Scotch thistle. As part of the federal mandate to control noxious weeds as directed in *Section 15 of the Federal Noxious Weed Act of 1974, "Management of Undesirable Plants on Federal Lands,"* Fort Carson has developed the *Fort Carson and PCMS Invasive Plants Management Plan* (DECAM, 2008a). The plan addresses noxious weed management strategies for Fort Carson through 2012 and is reviewed and updated each year, if necessary.

In 1997, Fort Carson initiated a biological control program as part of a federal initiative to reduce herbicide use by up to 80 percent. The program, using natural enemies (insects and mites) to reduce weed densities, provides a sustainable and environmentally-sound solution to noxious weed issues, while preserving the vulnerable plant and animal communities on Fort Carson. The biological control program has been successful at significantly reducing weed populations

at several sites and has grown into a partnering initiative with several other federal agencies along the Colorado Front Range.

3.7.1.3 Wildlife

Wildlife species that could occur within the site are typical grassland species such as coyote (*Canis latrans*), mule deer (*Odocoileus hemionus*), white-tailed deer (*Odocoileus virginianus*), prairie dogs (*Cynomys ludovicianus*), pocket gophers (*Thomonys* sp.), red tailed hawk (*Buteo jamaicensis*), cow bird (*Molothrus ater*), grassland nesting birds, as well as urban-adapted species such as red fox (*Vulpes vulpes*), raccoon (*Pryocon lotor*), and pigeon (*Columba livia*). Reptiles that could occur within the site include the western (prairie) rattlesnake (*Crotalus viridis*), whiptails (*Cnemidophorus* sp.), and coachwhip (*Masticophis flagellum*).

3.7.1.4 Sensitive Species

Federally-Listed Species

The Endangered Species Act defines an endangered species as any species in danger of extinction throughout all or a major portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future. Candidate species are those for which the U.S. Fish and Wildlife Service (USFWS) has sufficient information on their biological status and threats to support a proposal to list as threatened or endangered. Table 3.7-1 presents federally-listed endangered, threatened, and candidate species for counties in which Fort Carson is located (El Paso, Pueblo, and Fremont counties). No critical habitat for these species has been designated or proposed for designation in these counties (USFWS, 2008 and DPW, 2009).

The Arkansas Darter and greenback cutthroat trout are not known to occur in Clover Ditch, the only permanent waterbody within the proposed project site (DPW, 2011b). The black-footed ferret, Preble's meadow jumping mouse, and Ute ladies'-tresses are not known to occur on Fort Carson.

The Mexican Spotted Owl nests in rugged mountainous-forested canyons west of the Fort Carson boundary. It is a rare winter resident on Fort Carson, known only from Rock Creek, Little Fountain, and Red Creek canyons. The species is not suspected to breed on Fort Carson. The *Biological Assessment and Management Plan for the Mexican Spotted Owl on Fort Carson* contains more information on this species (DECAM, 2007b).

Table 3.7-1
Federally-Listed Endangered, Threatened, and Candidate Species of Potential Occurrence at Fort Carson[1]

Species	Scientific Name	Species Type	Status	Distribution on Fort Carson
Arkansas Darter[2]	*Etheostoma cragini*	Fish	C	Occurs in Turkey Creek (introduced population)
Greenback cutthroat trout[2]	*Oncorhynchus clarki stomias*	Fish	T	Occurred in Lytle Pond (introduced population)
Black-footed ferret	*Mustela nigripes*	Mammal	E	Not known to occur
Preble's meadow jumping mouse	*Zapus hudsonius preblei*	Mammal	T	Not know to occur; 1995 and 1996 surveys did not find evidence of this species
Mexican spotted owl	*Strix occidentalis*	Bird	T	Winter resident
Ute ladies'-tresses	*Spiranthes diluvialis*	Plant	T	Not known to occur, surveys 1994-1996 found no evidence

Source: DPW, 2009
Legend: [1]Species for which no reasonably suitable habitat exists on Fort Carson are not included
[2] Species occurring on Fort Carson are also state-listed.
C- Candidate
E- Endangered
T- Threatened

State Listed Species and Species of Concern

Special status wildlife species are known to occur on Fort Carson (DPW, 2009). These species are tracked by the Colorado Division of Wildlife (CDOW), Colorado Natural Heritage Program (CNHP), USFWS, Partners in Flight, and the Shortgrass Prairie Partnership. State threatened and endangered wildlife species are protected by Colorado state law, but Species of Concern are identified for planning purposes only. No sensitive wildlife species habitats on Fort Carson are known to occur in the proposed project site.

Species of special concern are either known or potentially occur on Fort Carson are listed in Appendix D. Those species that are federally-listed were discussed previously and were omitted from this list. Those species that could occur in the proposed project site are discussed in the following paragraphs. Detailed accounts of these species on Fort Carson can be found in the *Integrated Natural Resources Management Plan* (INRMP) *for Fort Carson and the Piñon Canyon Maneuver Site* (DECAM, 2007b). Surveys of the project area for black-tailed prairie dogs and the mountain plover were conducted by DPW-Environmental Division staff biologists on February 28, 2011.

Black-tailed Prairie Dog

During surveys of the project area, approximately 20 black-tailed prairie dog burrows (covering less than 1 acre) in the vicinity of the Range 29 Building B were observed. Of the burrows in this area, 6 are active and 4 black-tailed prairie dogs were observed. The black-tailed prairie dog, a former candidate for federal listing, is common on Fort Carson, occupying approximately 7,700 acres in 78 colonies. It is listed as a Species of Special Concern in Colorado by the CDOW and managed. Frequently referred to as a keystone species of the shortgrass prairie ecosystem, the prairie dog plays a significant role in life cycles of several Species of Special Concern on Fort Carson: the ferruginous hawk, bald and golden eagles, mountain plover, and the state-listed burrowing owl. These species were not observed and are not known to occur in the proposed project site. Prairie dogs are managed on Fort Carson according to prescriptions detailed in the installation's management plan for the black-tailed prairie dog (DPW, 2011a). The plan balances conservation with human health and property loss and details circumstances for lethal control of the species on Fort Carson.

Mountain Plover

Mountain plovers are rare on Fort Carson, and only a small percent of available habitat is occupied; Mountain plovers are known to selectively inhabit black-tailed prairie dog colonies on Fort Carson only during the breeding season (DECAM, 2002a). The mountain plover arrives at Fort Carson in March and generally migrates in August with breeding season between 10 April and 10 July (DPW, 2009).

Burrowing Owl

The burrowing owl is a small, burrow-dwelling owl nesting underground in unoccupied prairie dog burrows. The burrowing owl has never been common on Fort Carson, and the number of prairie dog colonies annually occupied by this species is low (DPW, 2009). Sylvatic plague does not directly influence nesting burrowing owls, and the owls generally do not nest in colonies where all prairie dogs have been killed by plague. However, burrowing owls on Fort Carson often use colonies partially killed by plague. No evidence of burrowing owl winter use was observed in the project area during field surveys conducted on February 28, 2011 by DPW-Environmental Division staff biologists, and the burrowing owl has not been recorded in the project area.

Southern Redbelly Dace

The Southern Redbelly Dace is a small fish, up to 3.5 inches total length, that inhabits small, meandering upland streams (Stasiak, 2007). The Southern Redbelly Dace, a Colorado endangered species, was introduced into Stone City Quarry Reservoir from the US Army Pueblo Chemical Depot by Fort Carson and USFWS in the mid-1990s. By 1995 the population was well established. Fort Carson is actively involved with state recovery efforts for this species by providing dace to the CDOW for transplanting in other locations within the Arkansas River drainage. Progeny of the Quarry Pond dace have recently been released in the Arkansas River drainage. Clover Ditch flows into Fountain Creek which is a part of the Arkansas River drainage. According to surveys done by the USFWS in 2006 and DPW-Environmental Division personnel since that time, the Southern Redbelly Dace has not been recorded in Clover Ditch (DPW, 2011b).

3.7.1.5 Waters of the U.S.

In 2008, the USACE re-issued a Regional Permit under Section 404 of the Clean Water Act (33 U.S.C 1344) for *Fort Carson and the PCMS Erosion Control Activities* (USACE, 2008). This regional permit authorizes Fort Carson to conduct erosion control activities that may result in

minimal individual and cumulative impacts to wetlands from dredge and fill activities. Typical erosion control measures include bank sloping of erosion courses, check dams, rock armor, hardened crossings, culverts and bridges, erosion control terraces and water diversions, water turnouts, and other erosion control activities approved by USACE.

Wetlands on Fort Carson are generally characterized as linear (e.g. along streams) or small and isolated. During the October 29, 2010 site visit conducted by Environmental Research Group, LLC., no wetlands were found within the proposed project site. The USACE Regulatory Office conducted an Advanced Identification of Waters of the U.S. in the Fort Carson cantonment area, including the proposed area for this action. The Regional Permit (SPA-2207-00125) identified Clover Ditch (aka. I-Ditch) as a waters of the U. S. Clover Ditch is the only waters of the U.S. located in the vicinity of the proposed project site.

3.7.2 Environmental Consequences

3.7.2.1 Proposed Action

3.7.2.1.1 Vegetation

The proposed project would involve minor adverse impacts to vegetation; however, the site has been previously disturbed due to training exercises. Up to 100 acres within the site footprint would be disturbed (i.e., used for buildings, roads, sidewalks, projectile impact areas, or urban landscaping). This proposed project site is a very small percentage of the overall areas of native vegetation on Fort Carson. Implementation of Fort Carson's erosion control program as BMPs would minimize impacts to vegetation. The only trees present in the construction area are located along Clover Ditch and the exact number and species to be removed would be determined once final design details of the Clover Ditch road crossing are complete. Tree removal would be avoided to the extent possible during development. Trees that could not be avoided would be replaced by a size and type suitable for the site at a ratio of 4 to 1, and marketable wood from the cut trees would be disposed of as required by Installation Management Command guidance.

Vegetation would be preserved and protected from damage by construction operations to the extent practicable. Upon completion of the work, all work areas would be graded for proper drainage and seeded with native short grass prairie seed mix to prevent erosion, dust and weed proliferation. All destruction, scarring, damage or defacing of the landscape resulting from construction operations would be repaired.

Improved landscaping would use low/no water use plants (after establishment) and materials. Use of low impact development techniques to manage storm water on site such as the use of bioswales or rain gardens would be used to improve water availability for plantings, water quality, flow, and volume control.

3.7.2.1.2 Noxious Weeds

The greater potential for noxious weed infestations under the Proposed Action would be addressed by the weed prevention strategies and weed control methods that are part of the Fort Carson Invasive Species Management Plan (DECAM, 2008b). Hardened or paved road surfaces increase runoff, which can alter plant species composition. Roadside margins are generally permanently disturbed and may provide conduits for invasion by weedy species (Gelbard and Belnap, 2003). Vegetation would be preserved and protected from damage by construction operations to the maximum extent practicable. Upon completion of the work, all

work areas would be graded for proper drainage and landscaped with native species or seeded with native short grass prairie seed mix to prevent erosion, dust and weed proliferation.

3.7.2.1.3 Wildlife

Long-term, insignificant adverse impacts to wildlife from construction activities would include the direct loss of approximately 100 acres of habitat. It is anticipated that planning of the proposed facilities and landscaping with native species would allow portions of the 100 acres to be utilized by wildlife. Impacts would result from the temporary displacement of wildlife due to disturbance from ground-clearing operations and construction operations. Similar habitat would remain in the area; therefore, proposed activities would not significantly affect wildlife communities on a regional basis. Disturbance to surrounding wildlife populations would occur during construction and operation of the proposed facilities, including increased stress by the presence of humans and construction equipment, noise, and lighting. The site is already subjected to levels of human activity and noise from the nearby roads including Interstate 25. All species within the construction limits of the Proposed Action could potentially be displaced and required to adjust their movements for foraging and travel. Although most species are mobile and would relocate into adjacent areas, some specimens would not survive. During construction, burrowing mammals, nesting birds, reptiles, and amphibians could incur mortality. The resultant loss of habitat and dislocation of species would create a temporary decrease in carrying capacity of adjacent habitats (more competition for resources). Adjacent lands on Fort Carson are very similar to the project area with regard to vegetation and topography. Thus, terrestrial wildlife species would simply move into adjacent habitats. Some animals may become stressed, die, or become more vulnerable to predation as a result of being forced to relocate into new areas or move into defended territories. The project would be coordinated with DPW Wildlife to minimize impacts to wildlife, to avoid impacts to migratory birds under the Migratory Bird Treaty Act, and to ensure that any activities that occur between September and January do not impact nesting birds.

If construction occurs during the avian breeding season (generally March 15 through September then surveys will be conducted no sooner than 72 hours prior to any ground disturbing activity to ensure the project does not result in the ~~t~~take" of any ground nesting or tree nesting avian species or next protected under the Migratory Bird Treaty Act or disturbance to golden eagles or other raptors that occur within 0.25 mile or less of the project site. If construction has to occur during the avian breeding season, appropriate coordination with the DPW - Wildlife to identify avoidance and mitigation measures to ensure construction does not result in nest abandonment. The construction schedule will take into consideration the areas with known nesting raptor occurrence to avoid these areas to the greatest extent feasible during the avian breeding season.

Construction and operation of an access road and the Clover Ditch crossing must utilize BMPs to prevent impacts on fish and wildlife. Short-term minor increases in soil erosion could increase turbidity in Clover Ditch. These impacts would be mitigated, in whole, through appropriate grading and design and construction of the Clover Ditch crossing. Current 35 percent design drawings do not describe the details of the Clover Ditch crossing; however, the impacts would comply with the SWMP*, Fort Carson, Colorado* (DPW, 2010a), *Fort Carson and the PCMS Erosion Control Activities* (USACE, 2008), and the SWPPP developed for the project. Impacts to aquatic habitats would be long-term but insignificant. These long-term impacts represents a minimal loss of habitat for fish and a food source for a few species that prey on frogs, insects, and small fish (i.e., herons, egrets, snakes) and the loss of a water supply valuable to terrestrial species and bats in the area of the proposed project site. Alternate water

resources (for use by wildlife), however, would be located immediately adjacent to the proposed construction area. Clover Ditch would have minor impacts from construction of bridges or installation of culverts, but this would not diminish its capacity to provide a wildlife corridor.

3.7.2.1.4 Sensitive Species

No federally-listed species or their habitats are known to occur on the proposed project site. The prairie dogs (State Species of Special Concern) would be managed under the guidelines in the installation's management plan for the black-tailed prairie dog (DPW, 2011a). Prairie dogs presently located on the site would be relocated to a suitable area by qualified personnel. If this is not feasible, the colony would be removed according to approved extermination measures. Prairie dog removal would need to occur before April, and the prairie dog holes would be graded shut. Impacts to the Fort Carson prairie dog population and regional population would be long-term but insignificant. The burrowing owl and mountain plover have not been known to occur or observed at this site. A three day clearing survey for burrowing owls that could use inactive prairie dog burrows would be conducted when temperatures are above 60ºF. If construction does not occur in the winter, another survey for burrowing owls, mountain plover, and other migratory birds would be conducted prior to construction to ensure none have moved into the site. The use of BMPs and compliance with Fort Carson and federal guidelines would reduce the impacts of the Clover Ditch crossing to insignificant; therefore, there should be no impacts to the Southern Redbelly Dace.

3.7.2.1.5 Waters of the U.S.

The Proposed Action would cause some minor impacts to waters of the U.S. because of the proposed construction of the Clover Ditch Crossing. The proposed R&G Club area discharges indirectly and directly into Clover Ditch which flows in a southeasterly direction to Fountain Creek. The proposed Clover Ditch crossing would need to comply with the USACE Fort Carson Regional Permit (SPA-2008-00058-SCO) (USACE 2008), which states for culvert or bridge construction, "*The filled or excavated area within the ordinary high water mark of the water course will not exceed 1/3 acre for each crossing. The net loss of wetlands will not exceed 1/10 acre for each crossing. The crossings must be designed to prevent the restriction of, and to withstand, expected high flows.*" Compliance with the permit also involves providing a complete description of the work to the Fort Carson Wetland Program including composition, source, and volume in cubic yards of all material to be discharged. BMPs would need to be used along the area of disturbance to Clover Ditch, per the Regional Permit. The ditch crossing would also need to comply with Fort Carson MS4 permit, NPDES Discharge Permit, and the SWMP. As required by law and Fort Carson, appropriate BMPs would be established to mitigate any potential erosion caused by construction and operational activities. The placement of fill in waters of the U.S. would be long-term and insignificant.

3.7.2.2 No Action Alternative

Under the No Action Alternative, there would be no impacts to biological resources.

3.8 CULTURAL RESOURCES

3.8.1 Affected Environment

Archeological and historical studies have been conducted on Fort Carson for the past 60 years. A comprehensive review of the work conducted on behalf of the Army is contained in the *Integrated Cultural Resources Management Plan* (ICRMP) (DECAM, 2002b). Prehistoric and

historic National Register-eligible sites are known to occur on the installation. Consultation in accordance with Section 106 of the National Historic Preservation Act (NHPA) was conducted in May 2010 with the Colorado State Historic Preservation Office (SHPO) and the Native American Tribes with a cultural affiliation to Fort Carson lands. In a letter dated June 1, 2010, the SHPO concurred that the R&G Club project would have ~~no~~ adverse effect" to cultural resources. The concurrence letter is included in Appendix C. Comments were also received from the Apache Tribe of Oklahoma and the Cheyenne and Arapaho Tribe of Oklahoma. Neither Tribe had objections regarding this action.

The following two requirements apply to all construction work on Fort Carson.

1. Comply with management and treatment strategies for cultural resources on Fort Carson for compliance with Sections 110 and 106 of the National Historic Preservation Act. These are addressed in the following documents: a 1980 Memorandum of Agreement between Fort Carson, the SHPO, and the Advisory Council on Historic Preservation and the ICRMP.
2. In the event that cultural materials and/or human remains are uncovered in the course of ground-disturbing activities during construction, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials Standard Operating Procedure (SOP), which are located in Appendix F would be applied and enforced.

3.8.2 Environmental Consequences

3.8.2.1 Proposed Action

No adverse effects are anticipated as the construction would occur primarily on previously disturbed area within the undeveloped range. Discovery of human remains during construction activities for the R&G Club project would result in Fort Carson entering into Native American Graves Protection and Repatriation Act (NAGPRA) (43 CFR Part 10) consultation with the appropriately identified Native American tribes for Fort Carson-administered lands.

3.8.2.2 No Action Alternative

Under the No Action Alternative, there would be no effects to cultural resources.

3.9 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

This section describes the affected environment and environmental consequences for economic development and the protection of children from environmental health and safety risks.

3.9.1 Affected Environment

Implementing the Proposed Action could have impacts that are concentrated in a geographical area referred to as the region of influence (ROI). The definition of the ROI considers local residential, shopping, and commuting patterns. The ROI is intended to encompass the geographical area within which linkages are strongest between businesses involved in construction activities and the long-term operation of the new facilities.

The ROI for the Proposed Action at Fort Carson comprises three counties: El Paso, Fremont, and Pueblo. Fort Carson, where all of the construction activity would occur, is located in southern El Paso County. Virtually the entire Colorado Springs urbanized area is located north of the installation and contained within El Paso County. Adjacent portions of surrounding

counties are also a part of the Colorado Springs functional economic region, including Fremont County to the southwest, and Pueblo County to the south.

Executive Order 12898 –Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations" requires federal agencies to identify and address disproportionate adverse effects of proposed actions on minority populations and low-income communities. The proposed project site is located on an active military installation, and no housing would be affected because none exist in the proposed project site. No concentrations of minority or low-income populations are located within or in areas adjacent to the proposed project site. The Proposed Action would not have any adverse effect on human or socioeconomic resources; therefore, the Proposed Action complies with the requirements of Executive Order 12898.

3.9.1.1 Employment

In 2009, the Colorado Department of Labor and Employment (CDLE, 2010) indicated that there were more than 2.7 million jobs in Colorado, of which about 384,000 were military and federal/civilian jobs.

Approximately 390,000 people were employed in the ROI in 2008, 76 percent of whom worked in El Paso County (CDLE, 2010). In El Paso County, the largest share of employment is federal, with 11 percent being military and military-related civilian jobs. The retail trade sector employed 11 percent, and state and local government accounted for 9 percent. In Fremont and Pueblo counties, employment in state and local government contributes substantially to both economies. The largest employers in El Paso County are the major military installations, with the proportion of military employment in the county being much higher than the ROI and the state.

The unemployment rate in all counties of the ROI gradually increased from an average low of three percent in 2000 to an average of 8.6 percent in 2009. In 2000, the unemployment rate of the State of Colorado was approximately three percent and in 2009 it was 7.7 percent. As of September 2010, the average unemployment rate was 8.0 percent in Colorado, and 9.3 within the ROI (CDLE, 2010).

3.9.1.2 Protection of Children

E O 13045, –Protection of Children from Environmental Health Risks and Safety Risks," seeks to protect children from disproportionately incurring environmental health or safety risks that might arise from government policies, programs, activities, and standards.

Children are present on Fort Carson in a number of settings within the cantonment area, including family housing neighborhoods, four elementary schools, one middle school, day care centers, and recreational areas. The Fountain-Fort Carson School District website shows that 2,322 children are enrolled in the schools on Fort Carson. Of the 2,322 children enrolled, 1,817 were in elementary and 505 were in Middle school, while high school students are bused to a school outside of the installation.

3.9.1.3 Local Economy

The Pikes Peak Area Council of Government's (PPACG) *Fort Carson Regional Growth Plan, Phase II (2008-2010)* key findings are summarized here, and to demonstrate the impact of Fort Carson on the local and regional economy (PPACG, 2010). The 2009 annual expenditures

from Fort Carson construction and operation, Soldier income, and Department of the Army (DA) civilian incomes provide an estimated $1.7 billion in direct stimulus for the state and regional economy. Fort Carson supports over 35,000 jobs and approximately half of those are off the installation. Estimated sales and use tax from Fort Carson expenditures contributed approximately $9.5 million in local sales tax to Colorado Springs, $4.2 million to the ROI, and approximately $11.7 million in state sales tax.

3.9.2 Environmental Consequences

3.9.2.1 Proposed Action

There is a slight safety risk associated with shooter error or firearm malfunction. On the other hand, the Proposed Action would improve safety over the existing conditions by allowing safe use of firearms in a controlled area with supervision. Construction of side berms and single direction shooting lanes would further help prevent stray fire from causing injuries that could be experienced without the Proposed Action. Range use and shooting practice would help promote and retain firearms safety practices for hunters and other range users.

3.9.2.1.1 Employment

The project would result in minor short-term beneficial impacts on the ROI economy. Employment and regional spending would increase during the development period, and there would be no collective population changes. Beneficial impacts to temporary employment could result from the hiring of private contractors to construct the new ranges. There would be no long-term changes in employment because the R&G Club would be operated by DFMWR staff.

3.9.2.1.2 Protection of Children

Adverse effects on the protection of children during construction would be considered negligible since the project site is not near any residential areas. There are two elementary schools both of which are located approximately 1 mile away and a high school located approximately 1.5 miles from the proposed project site. Access to the proposed project site is restricted by fencing because it is located within the Small-Arms Impact Area. Additionally, safety measures would be followed during construction to protect the health and safety of residents, including children. Barriers that restrict access would be placed around construction sites to deter non-authorized personnel from entering.

During operation of the proposed R&G Club, Fort Carson policy directs that firers must be a minimum of 10 years old and in the direct supervision of an adult. Children under 10 years of age would not be permitted at the facility. Enforcement of the safety policy and procedures that would protect both children and adults would be the responsibility of the Facility Range Safety Officer. If the proposed action is chosen then the facility will implement methods to ensure that all regulations to protect health and human safety are followed. No health concerns are expected to be generated during operation of the facility that could impact children.

3.9.2.1.3 Local Economy

The project would result in minor short-term beneficial impacts on the ROI economy. There would be no collective population changes associated with the Proposed Action.

Long-term beneficial effects on Fort Carson include an improvement in overall quality of life for Soldiers and their Families in support of the DFMWR Outdoor Recreation Program. Minor long-term beneficial effects on the economy of the ROI are expected from use of the facilities. Local

gun shops and businesses could benefit from the sale of guns, ammunition and other shooting supplies generating additional tax revenue for the local municipalities. Implementation of the Proposed Action could facilitate tournaments and competitions that would generate off post lodging, food/beverage, tourism dollars, and sales tax.

There is potential for some long-term economic impacts to local business as some Soldiers, Family members, retirees, and civilian employees may choose to use the proposed R&G Club instead of existing recreation shooting ranges off of the installation. The R&G Club would have banquet facilities, snack bar, and meeting spaces. There could be long-term loss of sales and use tax revenue to the surrounding communities from patrons that purchase goods and use the R&G Club instead of those in the local community.

3.9.2.2 No Action Alternative

Under the No Action Alternative, there would be no impact to the ROI economy because construction and associated procurements would not be implemented. No impacts to children's protection would occur.

3.10 TRANSPORTATION

3.10.1 Affected Environment

Interstate 25 runs along the east side of the installation and the proposed project site. Academy Boulevard (State Highway 83) which forms the northern installation boundary, provides access to Fort Carson via Gates 3 and 4, and connects Interstate 25 to State Highway 115. State Highway 115 is the western reservation boundary for Fort Carson; Gate 1 (visitor's gate) and Gate 2 are located along this roadway. Gate 20 is located at the southeastern portion of the installation and is accessible via Interstate 25 and State Highway 16.

In reaction to the *2005 Fort Carson, Colorado Comprehensive Transportation Study* (DPW, 2008), Colorado Department of Transportation executed a project to alleviate the significant congestion that had occurred along State Highway 16 near Gate 20 during the morning peak period. The limits of the State Highway 16 project extend from Fort Carson Gate 20 on the west to Syracuse Street on the east.

Fort Carson has a goal to reduce single occupancy vehicles on post by 40% by 2027, GHG, and other air emissions reductions from transportation sources are also desired. Initiatives such as ridesharing and improving pathways for pedestrian and low impact vehicle traffic such as bicycles are encouraged. More efficient vehicles and sustainable, alternative fuels are also desired to meet Fort Carson's Sustainable Transportation Plan goals.

3.10.2 Environmental Consequences

3.10.2.1 Proposed Action

Construction of the Proposed Action would slightly increase the traffic volume around the proposed project site at Gate 20 due to on-road use by construction equipment, construction workforce vehicles, and vehicles delivering construction materials. The size of the workforce and number of daily truck trips would vary during construction activities. The upgrades to State Highway 16 to Gate 20 would reduce impacts to a level of insignificant.

Development is anticipated to take 2.5 years. During the construction, truck and construction-related vehicle traffic is expected to increase on some roadways both on and off Fort Carson. Although a roadway routing plan has not yet been developed that would control which roads could be used by construction-related vehicles, the assumption is that Gate 20 would be the primary access point to the proposed site on Fort Carson. A further assumption is that construction-related vehicles would use existing roads, both on and off Fort Carson. During the construction period, it is likely that the greatest increases of construction-related traffic would occur around Gate 20.

Because the actual routes to be taken by residents, construction-related vehicles, and others are discretionary, it is not possible to accurately predict the level of traffic increases on particular roadways. However, the overall impacts are expected to be minor because construction-related traffic would be intermittent, and construction-related traffic increases would be of relatively short duration.

In sum, short-term traffic impacts during the construction period would likely be minor.

There would be minor long-term impacts to traffic due to increased traffic near Gate 20. The entrance to the proposed R&G Club is serviced by a 6-lane State Highway before Fort Carson's Gate 20 and adjacent to Interstate 25. There is a break in the islands to allow for turning left at the proposed R&G Club entrance. Peak traffic at Fort Carson is directional meaning the heavy traffic period is either coming on to the installation or leaving the installation, but not usually heavy in both directions. Even during major training events, competitions, or conferences held at the R&G Club, traffic impacts would be anticipated to be minor. Events at the R&G Club could be planned for non-peak hours or weekends, as practicable.

3.10.2.2 No Action Alternative

Under the No Action Alternative, there would be no impacts to traffic.

3.11 UTILITIES

3.11.1 Affected Environment

3.11.1.1 Potable Water

Colorado Springs Utilities (CSU) supplies water to residents and businesses in Colorado Springs and also to some entities outside the city limits, including Fort Carson. Potable water is purchased by Fort Carson from CSU for domestic, industrial, and irrigation use. Fort Carson's contracted water capacity with CSU is 2,775,451 gallons per day (gpd) average daily usage over a rolling 365 day period. Contracted peak daily demand is 5,161,890 gpd over 5 consecutive days. Fort Carson's average daily usage over a 365 day period is approximately 2,356,515 gpd. The current peak daily demand is approximately 4,488,600 gallons over 5 consecutive days. An estimated 10,000 gpd of additional water demand would be generated by the proposed R&G Club (DPPEA, 2010).

Fort Carson's current water conservation efforts have kept water usage below these capacity limits even with Fort Carson's growth. Water reduction has been achieved through installation of low-flow fixtures in some facilities, waterless urinals in new and renovated facilities, single-bay washes inside motor pools, and other conservation efforts. Reduced troop levels as a result of deployments are also a factor.

3.11.1.2 Wastewater System

Fort Carson operates and maintains a wastewater collection and treatment system for both sanitary and industrial wastewater components. Effluent discharges from the sewage treatment plant are regulated under USEPA NPDES Permit Number Permit No. CO-0021181, which was effective until September 30, 2010. An application for renewal was submitted on March 30, 2010, and the USEPA is still processing the application. Fort Carson is operating under an administrative extension of the permit by the USEPA and expects the renewal in the near future. CDPHE allows Fort Carson to discharge only 3.02 million gallons per day (mgd) into Clover Ditch (DPW, 2010b).

The sanitary sewage treatment plant has a peak historical flow of 2.6 mgd. Recent upgrades to the plant have been completed and approved by CDHPE to increase the capacity to 4.0 mgd with the new capacity operational by the first quarter of 2011. The current wastewater load for the entire system is 1.1 mgd and even less during the warmer months when a portion of the effluent is used to irrigate the Fort Carson golf course (DPW, 2010b).

Based on a review of the current permit limits for Fort Carson, it has been concluded that the facility is in compliance with the current ammonia effluent limits (USEPA ammonia discharge standards (EA-823-F-F-99-024)). The annual average total ammonia concentration in the effluent is approximately 0.50 mg/L. Under proposed regulations, if future ammonia standards require facility upgrade, Fort Carson would have until calendar year 2012 to accomplish implementation.

An industrial wastewater treatment plant (IWTP) is located directly north of the sanitary sewage plant, near Gate 20. The IWTP was designed and constructed to treat petroleum-contaminated water from the motor pools in the cantonment area. IWTP effluent is combined with the sanitary sewage water entering the sewage plant. Treated IWTP effluent is discharged directly into B-Ditch, I-Ditch (Clover Ditch), or U-Ditch (Unnamed Ditch), Fort Carson's three main ditches.

3.11.1.3 Energy Sources

Fort Carson purchases natural gas and electricity from CSU. The installation obtains 2.3 percent of its energy needs from solar panels and is currently researching other sources of renewable energy for future use.

Electrical services are provided through two aerial 34.5-kilovolt, three-phase supply lines, which terminate at three power substations in the cantonment area. The peak historical electrical demand at Fort Carson is 27.9 mega-volt amperes (MVA), while the total capacity of transmission lines available to the installation is 57.4 MVA, and the total capacity of transformers is 37.9 MVA.

Fort Carson receives natural gas from CSU via two feeds at the north end of the installation and an additional gas line along State Highway 115. The natural gas is metered and piped through a series of gas mains and distribution lines to Fort Carson's four central heating plants, BAAF, and the family housing areas. The peak historical daily consumption of natural gas at Fort Carson is 9,329 million cubic feet per day (DPW, 2007). CSU's maximum delivery capacity to the installation is 24,000 million cubic feet per day (DPW, 2007).

3.11.1.4 Solid Waste

The *Integrated Solid Waste Management Plan* (ISWMP) (DECAM, 2004a) contains details of the Solid Waste Management Program at Fort Carson. Fort Carson intends to achieve a 50 percent annual reduction/diversion rate of solid waste through recycling, reuse, and reduction (based on a 1992 baseline generation rate), while ensuring that integrated non-hazardous solid waste management programs provide an economic benefit when compared with disposal using landfills and incineration alone. Refuse, construction-related solid waste, and recyclable materials are all managed by the DPW.

All solid waste from Fort Carson is hauled to offsite landfills, including the Midway Landfill in Fountain, Colorado by a licensed contractor. Midway Landfill and the other landfills are permitted Subtitle D landfills. Fort Carson operates a recycling center near Gate 3. In addition to the recycling center, there are two additional large drop-off facilities at the Post Exchange and at Building 155.

3.11.2 Environmental Consequences

3.11.2.1 Proposed Action

The Proposed Action would have minor short-term adverse impacts on utilities. Short-term, construction wastes generated by the R&G Club implementation would be disposed of in a designated off-post landfill. Long-term, no appreciable impacts on utilities are anticipated because sufficient capacities exist in the utility systems serving the installation to sustain the proposed R&G Club,

3.11.2.1.1 Potable Water

There would be no adverse impact on potable water. The estimated demands of the new R&G Club would be within the capacities of CSU, which supplies potable water to Fort Carson, and the unused maximum amount that CSU is contractually obligated to provide Fort Carson.

3.11.2.1.2 Wastewater

The existing sanitary sewer and wastewater treatment system has the capacity to accommodate the estimated amount of wastewater to be generated by implementing the Proposed Action. The design capacity of the plant that services the cantonment area is 4.0 mgd, while the maximum peak historical flow to the treatment plant is 2.6 mgd. (DPW, 2009)

3.11.2.1.3 Energy Sources

There would be no adverse impact on energy sources. An increase in use of natural gas and electricity would occur. This increased electrical demand would be within CSU's ability to provide energy and Fort Carson's ability to transmit. The 25-Year Sustainability Goals are to sustain all facility and mobility systems from renewable sources by 2027. Use of the installation's sustainability goals would minimize impacts to energy sources.

3.11.2.1.4 Solid Waste

Minor short-term impacts would be expected on solid waste management as a result of the generation of construction debris. Debris that is not recycled would be disposed of in accordance with the *Integrated Solid Waste Management Plan* (DECAM 2004a). Minor long-term impacts are anticipated with the increase of solid waste from operation of the R&G Club. Adequate landfill space is available in the region to absorb the potential increase in solid waste

generation. Recycling programs would be incorporated into the R&G Clubs program to minimize generation of solid waste. Spent munitions casings, if not removed by the patrons, would be recycled per DoD policy and would be a source of revenue for the facility.

3.11.2.2 No Action Alternative

Under the No Action Alternative, there would be no impacts to utilities.

3.12 HAZARDOUS AND TOXIC SUBSTANCES

3.12.1 Affected Environment

For the purpose of this EA, the terms hazardous waste, hazardous materials, and toxic substances include those substances defined as hazardous by the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the Resource Conservation and Recovery Act (RCRA), or the Toxic Substances Control Act (TSCA). In general, they include substances that, because of their quantity, concentration, or physical, chemical, or toxic characteristics, may present substantial danger to public health or welfare or the environment when released.

Fort Carson is a large-quantity generator, as defined under RCRA. Waste streams originate from training, aircraft, vehicles, and maintenance and generally consist of petroleum, oil, lubricants, solvents, paints, and adhesives (DECAM, 2004b). DPW – Environmental Division oversees the management of hazardous wastes at Fort Carson in accordance with the *Hazardous Waste Management Plan* (HWMP) (DECAM, 2007a).

Hazardous waste generated by Fort Carson is stored at an approved storage facility. There are no solid waste management units (SWMU) within the proposed project site. The proposed project site is classified as undeveloped with natural vegetation and is, therefore, not routinely treated with pesticides and herbicides. Only one small concrete block building (Range 29 Building B) is located in the proposed project site, and no other signs of previous development on the site were noted. No power lines are located on the proposed project site, and there is no evidence of polychlorinated biphenyl transformers or contamination.

The project area is not currently a SWMU under the Installation Restoration Program. There are no known contaminants of concern in the R&G Club area related to any other SWMU under the Installation Restoration Program. However, since the area was formerly a small arms range, there could be contaminants of concern in soil related to previous range operations. If soils from the site are proposed for disposal or to be moved to an area other than the range it will need to be tested for contaminants of concern and approved by CDPHE prior to being moved and all movement would comply with Installation Restoration Program guidelines.

Currently, projectiles that land in the Small-Arms Impact Area are left in place and Fort Carson monitors for lead and other potential pollutant migration through a series of water wells located throughout the installation. During use of the shooting ranges, lead would accumulate in back berms and shot-fall areas. The USEPA recommends that reclamation of lead periodically occur in order to avoid lead accumulation. Under the RCRA Subtitle C hazardous waste management regulations, lead shot is considered a scrap metal, which is exempt from hazardous waste regulations if it is recycled (see 40 CFR 261.6(a)(3)(ii)). To ensure that lead is not considered ~~d~~discarded" or ~~a~~bandoned" on a range within the meaning of RCRA statutes (i.e., a hazardous waste), periodic lead removal activities should be planned for and conducted (USEPA, 2005).

3.12.2 Environmental Consequences

3.12.2.1 Proposed Action

Overall, short-term minor adverse impacts are expected to result from implementing the Proposed Action.

Minor short-term adverse impacts would be caused by construction activities. Heavy machinery requires maintenance and fuel. Although maintenance would occur off-site and within an authorized service shop, the use of construction machinery could potentially result in the release of small quantities of solvents, cleaning agents, greases, oils, hydraulic fluids, and fuel (e.g., gasoline and diesel). Paints and adhesives would also be used on the site during construction. All hazardous materials would be stored and disposed of in accordance with all local, state, and federal laws and regulations, the HWMP, and the *Spill Prevention, Control, and Countermeasure Core Plan* (DECAM, 2007a and DECAM, 2009, respectively). It is not anticipated that large quantities of hazardous materials would be used during the operational phase of the Proposed Action. Most hazardous materials used would be small quantities and considered household hazardous materials (e.g., cleaning solutions, paints). Basic Fort Carson spill prevention control and countermeasure (SPCC) requirements delineate measures and practices that should be implemented to prevent and/or minimize spill/release from the storage and handling of hazardous materials to protect soil and water resources. Basic BMPs for pollution prevention include monitoring storage areas, secondary containment and loading/unloading areas to ensure that products are not spilled during construction and operation. Compliance with federal laws and regulations, the HWMP, and the SPCC Plan would minimize adverse effects.

The projectiles from the use of the R&G Club would fall in an area already designated for small arms training, would be left in place and monitored for lead migration. If warranted, berms or other areas may be cleaned if they become heavily concentrated with lead either to avoid lead migration or for safety reasons (e.g., ricochets). If lead cleanup occurs, it would include removal and screening of soils and all lead would be recycled. The lead shot from the trap and skeet fields would be periodically cleaned from the shotfall area and recycled as scrap metal as permitted under the RCRA. The lead shotfall area would be monitored for chemical decomposition and migration. Spent munitions casings, if not removed by the patrons, would be recycled per Department of Defense (DoD) policy and would be a source of revenue for the facility.

During construction, no excavated soils would be removed from the site. If soil removal is required, it would be managed or disposed of in accordance with the requirements of the Installation Restoration Office and the CDPHE.

To minimize hazardous waste disposal, Fort Carson maximizes recovery of waste for reuse and recycles applicable materials according to the *Installation Recycling Plan*, *Pollution Prevention Plan (P2), Fort Carson, Colorado* (also known as *the Waste Minimization Plan*), and the ISWMP*,* (DECAM, 2004a, 2004b, 2008b).

Construction and operation of facilities under the Proposed Action would result in a potential increased risk in the exposure of naturally occurring radon. All parties would continue to implement the *Radon Management Plan* (DECAM, 2004c) in all new facilities and would comply with indoor air monitoring and radon remediation technology.

3.12.2.2 No Action Alternative

Under the No Action Alternative, there would be no change in hazardous and toxic substances.

3.13 SUSTAINABILITY AT FORT CARSON

3.13.1 Affected Environment

The Fort Carson sustainability initiatives derive from Fort Carson's adoption of *25-Year Sustainability Goals* in 2002 and the *Army Strategy for the Environment*, which emphasizes a triple-bottom-line-plus of mission, environment, community, plus economic benefit. The Army Strategy recognized the obligation ~~to~~ ensure that our Soldiers today- and the Soldiers of the future- have land, water, and air resources they need to train; a healthy environment in which to live; and the support of local communities and the American people," (U.S. Department of the Army, 2011).

Fort Carson is pursuing Net Zero Energy, Net Zero Water and Net Zero Waste by 2020 under the Army's Net Zero initiative.

Fort Carson's initiatives represent a sustainable development approach for both current operations and future planning. The goals that are relevant to the R&G Club consist of the following:

- Energy and Water: Sustain all facility and mobility systems from renewable sources and reduce total water purchased from outside sources by 75% by 2027;
- Sustainable Transportation: Reduce automobile dependence and provide balanced land use and transportation systems;
- Air Quality: Reduce installation GHG (scope 1, 2 and 3) and other air pollutants to the lowest achievable emission rates;
- Sustainable Development: Create a community that encourages social, civic and physical activity while protecting the environment;
- Sustainable Procurement: All DoD and Fort Carson procurement actions support sustainability;
- Zero Waste: Total weight of solid and hazardous waste disposed of is reduced to zero by 2027, and every year thereafter;
- Sustainable Training Lands: Training ranges; maneuver lands; and associated air space capable of supporting current and future military training to standard while maintaining and sustaining training resources.

3.13.2 Proposed Action

This section describes the environmental consequences of the Proposed Action in relation to applicable sustainability goals listed in Section 3.13.1.

3.13.2.1 Energy and Water

The long-term goal for this 25-Year Plan is to sustain all facility and mobility systems from renewable sources by 2027 and reduce the total water purchased from outside sources by 75% from the 2001 baseline by 2027. The desired end states are: secure sustainable energy sources; alleviation of dependence on fossil fuels and adverse air emissions; funding for life cycle costs; reduction of reliance on petroleum imports and vulnerability; water conservation through efficient consumption, reduce treated wastewater effluent, increase in the quantity of

water re-use and development of sustainable water source solutions. Achievement of this goal supports Installation and force security.

Upon meeting the requirements from USACE Engineering & Construction Bulletin No 2010-14 (USACE, 2010), energy and water needed for the R&G Club would slightly increase the demand for services provided by CSU. Therefore, the Proposed Action would have a minor adverse impact on energy and water use.

3.13.2.2 Sustainable Transportation

Desired end states related to sustainable transportation and land use from the September 2002 conference are as follows:

- Increased use of mass transit with clean fuels.
- Schedules that reduce vehicle emissions.
- Innovative materials and placement that provides sustainable transportation systems.
- Reduction of average daily commute miles.
- Regional partnerships for alternative and multiple occupancy vehicles.
- Reduce the amount of vehicles on the roadway to reduce congestion.
- Control urban expansion and zone to discourage vehicle use.

Emissions would increase as a result of the Proposed Action, from construction, operations and maintenance activities, and automobile use by patrons and employees. The increase in vehicle trips per day caused by the usage of the R&G Club would increase HAPs on the installation. Since there is no similar facility available in or near El Paso County, the Proposed Action should reduce vehicle mileage for patrons who travel to current facilities elsewhere. The proposed project site has been optimally placed to minimize HAP generation.

3.13.2.3 Air Quality

The long-term goal for this plan is to reduce installation GHG and other air pollutants to the lowest achievable emissions rates by 2027. The goals to improve regional air quality and achieve reductions of absolute emissions is dependent on the overall success of several other sustainability teams, top down Garrison Management support, and successful implementation and appropriate balance of all team initiatives by all advocates and Fort Carson personnel.

3.13.2.4 Sustainable Development

Sustainable Development maximizes land use, resource efficiency, health, safety and productivity. The long-term goal is to fully integrate sustainable planning and operation into all Master Planning for land use, Military Construction Army programs, and third-party construction on Fort Carson. The desired end state is an installation that is developed and managed in accordance with sustainable principles. New development is coordinated with key installation stakeholders and partners. Projects complement each other and site work is coordinated to provide walkable areas that are linked to pedestrian and alternative vehicle corridors. Parking and access for traditional vehicles is provided in an attractive and functional way that emphasizes shared use and flexibility. An integrated approach to stormwater management onsite is taken, and opportunities for regional Low Impact Development and stormwater treatment are implemented. New buildings are constructed to a LEED Platinum standard, and the goal of NetZero Installation is realized in multiple facilities and complexes. Building renovations and additions are constructed to a LEED standard, and the best ideas for energy efficiency and compliance are incorporated into the designs and operation of these facilities. The goal of mixed-use development is advanced through legislation and guidance retooled to

allow and promote such sustainable development. Education of Fort Carson residents and guests is deliberate and dynamic, with the goal to ensure that facilities and infrastructure are operated in a sustainable manner. Fort Carson continues to develop into a more livable, functional, sustainable installation, capable of supporting all military missions while taking care of Families and serving the community.

Upon meeting the requirements of EO 13514, and optimizing the use of the land with multiple uses, such as permeable parking lots, the goal for sustainable development will be met for the R&G Club.

3.13.2.5 Sustainable Procurement

Sustainable procurement is the end result of a path begun by the federal government and the DoD through executive orders and policies of the past 20 years. This goal supports all other goals especially zero waste, sustainable development and transportation.

3.13.2.6 Zero Waste

The long-term goal for this 25-Year Plan is to ensure that the total weight of solid and hazardous waste disposed of is reduced to zero by 2027, and every year thereafter. The desired end state is to eliminate or dramatically reduce the amount of waste generated and to effectively use, reuse or recycle all materials. The R&G Club would be operated by Fort Carson's DFWMR. This organization would implement Fort Carson's recycling program to minimize solid waste. In addition, Fort Carson can conveniently purchase non-hazardous cleaning products from a contractor already located on Fort Carson.

The construction of the R&G Club would create some construction waste, which would cause minor short-term impacts on attainment of Zero Waste.

The projectiles from the use of the R&G Club would fall in an area already designated for small arms training and this designation would be left in place. The lead shot from the trap and skeet fields would be periodically cleaned from the shotfall area and recycled as scrap metal as permitted under the RCRA. Therefore, the munitions from the proposed R&G Club would have no impact on the solid and hazardous waste sustainability goals.

3.13.2.7 Sustainable Training Lands

The long-term goal is to ensure that training ranges; maneuver lands; and associated air space are capable of supporting current and future military training to standard while maintaining and sustaining training resources for current and future use. The desired end state is training to standard with no lost training capability due to environmental restrictions through proactive planning, monitoring, and sustaining of training resources through mitigation of archaeological sites, a stable or increasing land-condition trend rating, acceptable environmental and safety impacts, and minimal training restrictions due to physical and legal encroachment.

The Proposed Action would allow for Fort Carson to improve a training range for current and future military small arms training, which is in line with the installation's sustainability goal for training.

3.13.3 No Action Alternative

Under the No Action Alternative, there would be no change to Sustainability Goals on Fort Carson.

4.0 CUMULATIVE EFFECTS SUMMARY

CEQ regulations implementing NEPA define a ―cumulative impact" as follows:

> Cumulative impact is the impact on the human and natural environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertakes such other actions. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time (40 CFR 1508.7).

USEPA guidance to reviewers of cumulative impacts analyses further adds:

> …the concept of cumulative impacts takes into account all disturbances since cumulative impacts result in the compounding of the effects of all actions over time. Thus the cumulative impacts of an action can be viewed as the total effects on a resource, ecosystem, or human community of that action and all other activities affecting that resource no matter what entity (federal, non-federal or private) is taking the action (USEPA, 1999).

As required by CEQ regulations, preparation of this EA considered a wide range of past, present, and reasonably foreseeable future actions by researching existing literature and contacting local area planners and state and federal agencies to identify other projects in the region that could contribute to cumulative environmental impacts. Other past, present, or foreseeable future actions were considered, regardless of whether the actions are similar in nature to the Proposed Action or outside the jurisdiction of the Army.

Cumulative effects of anticipated projects on and around Fort Carson were analyzed extensively in the *Final Environmental Impact Statement for Implementation of Fort Carson Grow the Army Stationing Decisions* (DPW, 2009) completed in February 2009. The Proposed Action in the EIS was to implement the Fort Carson portions of the December 2007, Record of Decision (ROD) for the 2007 Programmatic EIS for Army Growth and Force Structure Realignment and the possible stationing of a Combat Aviation Brigade (CAB) at Fort Carson.

Additional cumulative impacts beyond those identified in the *Final Environmental Impact Statement for Implementation of Fort Carson Grow the Army Stationing Decisions* including changes or additions to the projects are identified in Table 4.0-1.

The additions and changes to the past, present, and reasonably foreseeable future cumulative impacts identified in Table 4.0-1 were considered with the cumulative impacts identified in the GTA EIS. The impacts of the proposed action, summary of impacts of past, present, and future foreseeable actions, proposed mitigation, and cumulative effects are presented in Table 4.0-2.

Table 4.0-1.
Additions and Changes to Cumulative Impacts identified in the GTA EIS.

Project or Activity	Time Frame
No longer foreseeable or valid projects	
Fort Carson Lifestyle Village	
Additional IBCT that would train at Fort Carson and PCMS (part of the GTA EIS Proposed Action)	
Future Projects at Fort Carson	
CAB associated construction including control tower, bulk fuel facility, and infrastructure	FY 15
Battle Command Training Center	FY12
Chapel at Fort Carson	TBD
Convoy Skill Trainer	FY12
Special Forces Tactical Unmanned Aerial Vehicle (TUAV) Facility	FY12-13
Child Development Center (2)	FY12 and FY14
Warriors in Transition Unit Complex (Barracks/Admin)	FY12
Iron Horse Park Development	FY12-13
Infantry Squad Battle Command Ranges (2)	FY11-12
Future Projects at Piñon Canyon Maneuver Site	
Vehicle Wash Facility	FY12
Current Projects at Fort Carson	
Soldiers Family Assistance Center	
Army and Air Force Exchange Service (AAFES) Tri-Foods	
AAFES Post Exchange (PX) expansion	
Commissary	
Banana Belt Redevelopment	Current-FY14
Physical Fitness Center	
Family Housing	
Current Projects off post	
Improvements to Drennan Rd and Academy Blvd	

Table 4.0-2 Summary of Cumulative Effects

Resource	Proposed Action	Past, Present, and Future Actions	Mitigation	Cumulative Effect
Land Use	Change of existing use from an undeveloped training range to developed. Land use designation to remain unchanged. Loss of natural aesthetic features.	Changes to land use within Fort Carson. Increasing development both within Fort Carson and along the Front Range. Loss of open space within the Front Range and potential encroachment/adjacency of incompatible land uses.	Facilities would be designed to be visually appealing and non-intrusive.	The Proposed Action would result in negligible adverse cumulative effects on land use.
Air Quality	Increase of fugitive dust and vehicle emissions during construction. Localized lead dust poses potential health risk to range operators and maintenance staff. Operations would result in minor increases in HAP and GHG emissions.	Operations, training, and construction-induced emissions beginning over 60 years ago that have affected air quality. Local Metropolitan Planning Organization monitors regional trends for criteria pollutants and all below National Ambient Air Quality Standards (NAAQS). Conformity applicability and Prevention of Significant Deterioration analysis performed for projects. Emissions increase anticipated during construction, operations, and military training of present and future actions. Emissions increase from other regional construction and operations, added primarily by vehicle travel.	Sustainability initiatives to reduce air pollutant emissions and increased use of renewable fuels and alternate forms of energy. Personal protective equipment and good hygiene would limit potential effects of lead dust on R&G Club staff.	The Proposed Action is not anticipated to result in violations of NAAQS. The Proposed Action would result in adverse, but mitigatable cumulative impacts to air quality.
Noise	Minor change to the existing noise contours. No increase beyond historic levels of noise. Potential increase in frequency of noise.	Noise contours would remain unchanged as a result of the past, present, and future actions. Other past, present, and future projects occur within or adjacent to existing training ranges, potentially causing an adverse cumulative increase of noise within areas adjacent to Fort Carson.	Development activities would be limited to normal business hours and range operation would be limited to daytime hours.	Minor change to existing noise contours. The Proposed Action would result in minor cumulative impacts to noise.

Table 4.0-2 Summary of Cumulative Effects

Resource	Proposed Action	Past, Present, and Future Actions	Mitigation	Cumulative Effect
Geology and Soils	Exposure of soils to wind and water erosion, compaction of soils, resulting in the loss of vegetative cover, increase impermeable surfaces, and required cut and fill activities.	The implementations of past, present, and future cantonment area construction and range construction/upgrades on Fort Carson have and will continue to have temporary impacts on soil erosion and loss of surface soils through erosion of disturbed construction sites, removal of vegetation, soil compacting, and reduced infiltration. Increase training frequencies and training activity/footprint would cause the potential for adverse soil erosion effects on Fort Carson/downrange area training lands.	Development and implementation of BMPs during and post-construction.	The Proposed Action would result in adverse, but mitigatable cumulative impacts to geology and soils.
Water Resources	Construction and operation of an access road bridge or culverts at the Clover Ditch crossing which is within the 100-year floodplain. Soil disturbance during construction could impact water resources from stormwater runoff. Chemical decomposition of lead shot and projectiles has a potential to be introduced into the groundwater. Reduction of permeable surface area which would increase stormwater runoff. Transportation and parking could generate automotive related petroleum drips and leaks.	Increased training activities under the present and future actions may increase groundwater use which would be accommodated through existing subsurface water rights. Past development of the cantonment area has led to over 55 percent of the cantonment area containing impervious surface and alteration of natural drainage patterns. Stormwater runoff has increased due to the increase of impervious surface area, erosion processes have become dominant in the southeastern-most stretches of the drainages, and both point and non-point source discharges are prevalent throughout the drainages. Fort Carson has begun proactive management of stormwater to address stormwater runoff impacts associated with construction activities.	Appropriate grading, design, and construction of the Clover Ditch crossing. Stormwater permitting, adherence to requirements, and use of BMPs. Monitor lead shot deposition for chemical decomposition and migration. Conduct periodic lead removal activities and recycling. The usage of biodegradable, non-toxic clay targets.	The Proposed Action would result in adverse, but mitigatable cumulative impacts to water resources.

Table 4.0-2 Summary of Cumulative Effects

Resource	Proposed Action	Past, Present, and Future Actions	Mitigation	Cumulative Effect
Biological Resources	Vegetation removal and replacement, potential introduction of noxious weeds, wildlife displacement, removal, or mortality, loss of habitat, and impacts to the waters of the U.S.	The past, present, and future actions would result in a variety of potential impacts, including mortality, disturbance or displacement, and loss of habitat or nesting or foraging territory. Increasing development both within Fort Carson and along the Front Range. Loss of vegetation and habitat within the Front Range from private and federal land development	Avoidance and mitigation for trees. Salvage of marketable wood. Preserve and protect vegetation from damage as practicable. Areas would be graded and reseeded with native species. Low-impact landscaping to be implemented. Coordinate with DPW wildlife, conduct surveys, and utilize BMPs to prevent impacts on fish, wildlife, and waters of the U.S.	The Proposed Action would result in adverse, but mitigatable cumulative impacts to biological resources.
Cultural Resources	No adverse effects.	The present and future actions may result in direct or indirect loss of cultural resources in the state of Colorado through training maneuvers or increased frequency of wildfires that military training could generate. Increasing private development along the Front Range has resulted in a loss of cultural resources. Development in Fort Carson and downrange training prior to Section 106 requirements and Integrated Cultural Resource Management Plan (ICRMP) procedures have impacted cultural resources.	Discovery of human remains would result in Native American Graves Protection and Repatriation Act (NAGPRA) consultation.	The Proposed Action would result in no cumulative effects.

Table 4.0-2 Summary of Cumulative Effects

Resource	Proposed Action	Past, Present, and Future Actions	Mitigation	Cumulative Effect
Socioeconomics	Short-term beneficial impacts on economy, temporary employment, and regional spending. No long-term changes in employment or population. Negligible adverse effects of the protection of children since the project site is not near any residential areas. Long-term beneficial improvement in the quality of life for Soldiers. Potential long-term beneficial impacts to local business, economy, and tax revenue for surrounding communities. Long-term economic impact to local business and loss of tax revenue for surrounding communities.	The past, present, and future actions would result in an increase in active duty military employment of approximately 6,700 Soldiers by 2012 and approximately 27 civilian jobs. EIFS modeling results indicate an increase in the on-post residential of approximately 3,100 persons and an increase in the on-post workforce population of 9,700 persons. Increasing development both within Fort Carson and along the Front Range resulting in an increase of population, jobs, and an overall growing economic trend. Increasing populations has caused the overall need for additional housing and public services.	Do not allow children or others not associated with the construction project into the construction area. Place barriers around construction sites to deter children and others from entering.	The Proposed Action would result in negligible adverse cumulative effects on protection of children. The Proposed Action would result in no cumulative effects on employment or population. The Proposed Action would result in beneficial and adverse, but mitigatable, cumulative effects on the economy.
Transportation	The proposed action would slightly increased traffic volumes from both construction and operation activities.	The addition of personnel and families to Fort Carson as described under the present and future actions would result in five types of transportation impacts: increasing on-post and regional traffic and altering traffic patterns, temporary construction disturbances, increased rail use related to training at PCMS, increased transit ridership, and potential increase in rail and aviation for deployment. Increasing population and economic development has decreased the level of service within Fort Carson and along adjacent roadways. Approximately $148 million in transportation projects are currently underway to accommodate current and future needs.	The use of biodiesel and/or biofuel for construction equipment will be encouraged or specified. Events would be planned during non-peak hours or weekends, as practicable.	The Proposed Action would result in adverse, but mitigatable cumulative impacts to transportation.

Table 4.0-2 Summary of Cumulative Effects

Resource	Proposed Action	Past, Present, and Future Actions	Mitigation	Cumulative Effect
Utilities	An increase in potable water, wastewater, and energy sources is anticipated as a result of the proposed action. However, all increases are within current capacities. Minor short-term increase of solid waste would occur during construction and disposed of in the regional landfill. Minor long-term increased solid waste generation.	The present and future actions would result in an increased demand for water, wastewater treatment, and electricity. Increasing population and development has increased utility usage within Fort Carson and the region.	Recycling and reduction of wastes during construction. LEED certification and standards to reduce utility requirements.	The Proposed Action would result in adverse, but mitigatable cumulative impacts to utilities.
Hazardous and Toxic Substances	Minor short-term increases in potential release of solvents, cleaning agents, paints, and petroleum products could occur during construction. Lead cleaning and recycling would allow it to be permitted as scrap metal under RCRA. Construction and operation would increase potential exposure to naturally occurring radon.	The present and future actions would result in an increase in the use of hazardous materials and petroleum and subsequent generation, handling, storage, and disposal of wastes from these materials. Past and present operations at Fort Carson have resulted in the use and generation of hazardous and toxic substances.	Compliance with federal laws and regulations, the HWMP, the SPCC Plan, and BMPs. Monitor lead shot deposition for chemical decomposition and migration. Conduct periodic lead removal activities and recycling. Implement the *Radon Management Plan* to minimized potential exposure.	The Proposed Action would result in adverse, but mitigatable cumulative impacts to hazardous and toxic substances.

Table 4.0-2 Summary of Cumulative Effects

Resource	Proposed Action	Past, Present, and Future Actions	Mitigation	Cumulative Effect
Sustainability	Increase of energy and water usage, construction waste generation, and emissions. *25-Year Sustainability Goals* would be implemented for: energy and water, sustainable transportation, air quality, sustainable development, sustainable procurement, zero waste, and sustainable training lands.	The present and future actions would result in an increased use of energy, water resources, and increased use of training lands. Past and present training at Fort Carson has resulted in the degradation of some of its lands and increased energy and water demand. Future training will likely continue to cause the potential for land degradation and result in increased use of energy and water demand. Increased population levels have resulted in increased energy and water demand. Fort Carson has adopted aggressive policies to promote a sustainable environment.	Implementation of *25-Year Sustainability Goals*.	The Proposed Action would result in adverse, but mitigatable cumulative impacts to sustainability.

5.0 MITIGATION SUMMARY

This chapter summarizes existing and potential mitigation measures, that include avoidance and minimization, which have the potential to reduce environmental impacts of the Proposed Action.

5.1 GENERAL MITIGATION MEASURES

The R&G Club would, to the extent practical, utilize the BMPs outlined in the *Army Small Arms Training Range Environmental Best Management Practices* (Army, 2005), the USEPA's *Best Management Practices for Lead at Outdoor Shooting Ranges* (USEPA, 2005), and Army design standards during their design of the Proposed Action.

5.1.1 Sustainability

5.1.1.1 25-Year Sustainability Goals

Fort Carson adopted *25-Year Sustainability Goals* in 2002 which are described in more detail in Section 3.13. Achievement of these goals, by nature, would mitigate current and future impacts of the Proposed Action.

5.1.1.2 Sustainability and Environmental Management System

Fort Carson adopted the International Organization for Standardization Environmental Management Standard 14001 (ISO 14001) in 2002 and declared conformance in November 2007. In accordance with ISO 14001, the installation maintains an Environmental Management System (EMS) that includes a multitude of plans, policies, and procedures that support continual improvement.

5.2 SPECIFIC MITIGATION MEASURES

Table 5.2-1 presents a summary of existing and potential mitigation opportunities for reducing or eliminating potential impacts of the Proposed Action. The table describes potential impacts, existing mitigation practices, and applicable potential mitigation measures. Mitigation measures that will be implemented are identified in the FNSI.

Table 5.2-1.
Summary of Mitigation Measures

General

- Comply with all federal, state and local environmental laws, orders and regulations. Prior to construction, instruct all supervisory construction personnel on the protection of resources and ensure adherence to requirements.
- Conduct construction operations to prevent any unnecessary destruction, scarring or defacing of natural surroundings in or adjacent to work areas. Repair damages to the natural landscape resulting from construction operations.
- Remove all construction materials, waste, and debris from the project area in a timely manner. Burning or burying of waste materials is not permitted. Divert at least 50% of construction waste from the landfill by reuse or recycling.
- Achieve LEED Silver certification or higher on construction.

Land Use

- Limit movement to minimize damage to the natural landscape and disruption of normal land use.
- Maintain all fences and gates into the project site during the construction period.
- Eliminate at the earliest opportunity, all construction ruts by leveling, filling and grading, and reseeding as weather or ground conditions permit. Correct damage to ditches, culverts, local roads and similar land use features. Restore the land as nearly as practicable to the original or better condition.
- Abide by seasonal restrictions to avoid and minimize impacts to the environment.

Air Quality

- Implement Fort Carson's *Fugitive Dust Control Plan* to all construction activities (DECAM, 2004d). Site-specific dust control plans are required for all projects greater than 25 acres or disturbed for 6 months or longer (state permit) and an El Paso County permit is required for disturbed land greater than one acre. Implementation of BMPs including dust suppression and establishment of speed limits in construction areas.
- Install low emissions hot water heaters.
- As available, practical, and affordable, use ultra low sulfur diesel or biodiesel fuels to further reduce sulfur oxides emissions in equipment engines.
- Install other renewable electric and heat energy options where applicable and practicable.
- Install low nitrogen oxide heating/cooling systems where applicable.

Noise

- Limit construction to normal business hours.
- Limit range operation to daytime hours.
- Maintain construction vehicles and equipment in proper operating condition and equip construction vehicles with the manufacturer's standard noise control devices or better (e.g. mufflers, engine enclosures)**.**
- Integrate, to the extent practical and affordable, noise mitigation techniques into construction of noise sensitive facilities (examples: brick/masonry construction, increased thermal insulation, sealing cracks, and spaces between wall layers). Noise mitigation techniques for construction are described in the *Installation Environmental Noise Management Plan* (USACHPPM, 2006).

Table 5.2-1.
Summary of Mitigation Measures

Geology and Soils

- Adhere to SWPPP and MS4 requirements, which include BMPs to maintain drainages and restore vegetative cover on the construction site as quickly as practicable.
- Reseed with Fort Carson's downrange seed mix.
- Utilize erosion control measures and structures.
- Use Low Impact Development Design.
- Minimize ground disturbance during construction.
- Stockpile top soil and spread back over disturbed areas prior to reseeding according to the Fort Carson Downrange Seeding guidance.

Water Resources

- Adhere to SWPPP and MS4 requirements, which include BMPs to maintain drainages and restore vegetative cover on the construction site as quickly as practicable.
- Reduce impacts associated with stormwater runoff during construction through enforcement of USEPA Construction General Permit and implementation of Fort Carson *Stormwater Management Plan* (DPW, 2010a).
- Evaluate the effects of constructing the Clover Ditch crossing to reduce impacts of a 100-year flood.
- Design structures to be elevated above the base flood level rather than filling in land.
- Adhere to waters of the U.S. permitting requirements, including, but not limited to, the following BMPs: utilize only clean, non-polluting fill material; discharge of dredged or fill material would be free of unsuitable material (e.g., trash, debris, car bodies, asphalt, etc.) and free from toxic pollutants in toxic amounts; take measures to prevent spilled fuels, lubricants, wet concrete (other than that placed in forms), or other toxic materials from entering the water course; seed all disturbed areas above the ordinary high water mark with native species; properly maintain activities authorized by regional general permits; and allow representatives from the USACE to inspect the authorized activities to ensure that they are being, or have been accomplished, in accordance with the terms and conditions of the permit.
- Coordinate with and provide the Fort Carson Wetland Program a complete description of the work including composition, source, and volume in cubic yards of all material to be discharged, project location including Section, Township, Range and Universal Transverse Mercator coordinates in North American Datum 83.
- Monitor lead shot deposition for chemical decomposition and migration. Conduct periodic lead removal activities and recycling.
- Ensure proper secondary containment for storage and fueling areas if fueling is allowed to occur on site. Contain and clean up fuel and chemical spills promptly.
- Limit rutting and compaction by heavy equipment when used in riparian or wetland areas. Use mat boards or other similar materials.
- Do not stockpile or deposit excavated soils or construction materials within 100 feet of stream banks or other water course perimeters.
- Perform construction activities by methods that prevent entrance or accidental spillage of solid matter, contaminants, debris and other objectionable pollutants and wastes into flowing streams or dry water courses, lakes, and underground water sources.
- Monitor all areas of disturbance for the presence of noxious/invasive weeds for a minimum of one growing season following the construction process.

Table 5.2-1.
Summary of Mitigation Measures

Biological Resources

- Minimize construction footprint.
- Adhere to SWPPP and MS4 requirements, which include BMPs to maintain drainages and restore vegetative cover on the construction site as quickly as practicable. Construction to adhere to the Installation Design Guide for landscaping and downrange seeding.
- Conduct tree removal activities between September and January to reduce opportunity for nesting bird impacts within the construction site. Trees removed for development to be replaced a ratio of 4 to 1 ratio and marketable wood from the trees to be disposed of as required by Installation Management Command guidance.
- Coordinate with DPW Wildlife Management Office Staff prior to ground disturbance to ensure no active nests are disturbed to avoid Migratory Bird Treaty Act violations.
- If prairie dog burrows are found to be active, relocate prairie dogs to a suitable area. If this is not feasible, remove the colony according to approved extermination measures in the winter time and grade shut the prairie dog holes. When temperatures are above 60 ºF, conduct a three-day clearing survey for burrowing owls that could use inactive burrows. If construction does not occur in the winter time, conduct another survey for burrowing owls prior to construction to ensure none have moved into the site.
- Preserve and protect vegetation from damage, except where clearing is required for structure placement or access road improvements, approved staging areas, or other authorized operations**.**
- Equip construction vehicles with government approved spark arresters.
- Abide by installation issued fire danger notices, requirements and prevention guidelines and maintain emergency response contact/communication methods.

Cultural Resources

- If subsurface cultural resources are discovered or disturbed during construction, implement Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials SOPs or NAGRPA SOPs and appropriate Section 106 consultation.

Environmental Justice

- Do not allow children or others not associated with the construction project into the construction area. Place barriers around construction sites to deter children and others from entering.

Transportation

- Use traffic control procedures, including flaggers and posted detours, to minimize impacts to traffic flow during construction.
- Minimize construction vehicle movement during peak rush hours and place construction staging areas to minimize traffic within administrative, housing, and school areas.
- Plan for events during non-peak hours or weekends, as practicable.

Table 5.2-1.
Summary of Mitigation Measures

Utilities • Implement water use reduction measures such as low-flow toilets and xeriscaping. • Consider recommendations as applicable in USACE Engineering & Construction Bulletin No 2010-14 (USACE, 2010). • Consider light-emitting diode (LED) lamps and timers to reduce unnecessary energy loss in lighting as practical and affordable. • Bury all new electric and gas lines and grade and reseed disturbed areas after construction to stabilize the soil.
Hazardous and Toxic Substances • As practical and affordable, incorporate design mitigation techniques in areas with elevated radon levels in accordance with the Fort Carson's *Radon Management Plan* (DECAM, 2004c). Test structures to confirm radon values are at an acceptable level post-construction.

6.0 FINDINGS AND CONCLUSION

Some adverse effects due to construction and operation of the R&G Club cannot be avoided if the Proposed Action is implemented. Disturbance of soils and vegetation and their effects on wildlife and habit would occur; these effects would be cumulative and long-term but less than significant.

The Proposed Action to construct and operate an R&G Club at Fort Carson was analyzed by comparing potential environmental consequences against existing conditions. Findings indicate that implementation of the Proposed Action would result in locally insignificant adverse environmental impacts on soils, vegetation, wildlife and its habitat, and transportation. However, the regional environment would not be significantly or adversely affected by the Proposed Action. No significant regional, cumulative effects would be expected.

With the proposed mitigation measures, implementation of the Proposed Action would have no significant negative regional environmental or socioeconomic effects. Minor economic benefit would occur through the expenditures for the construction of the project, and improvement of quality of life would occur through providing a recreational outlet not currently available. Satisfaction of the DFMWR need to provide an R&G Club and the need for a facility that can be used by local law enforcement personnel outweighs the localized minor adverse environmental impacts. The Proposed Action does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, preparation of an environmental impact statement is not required, and preparation of a FNSI is appropriate.

7.0 PERSONS CONSULTED

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9.0 ENVIRONMENTAL ASSESSMENT PREPARERS

This EA was prepared by Environmental Research Group, LLC, with support from DPW, and Gryphon Environmental, LLC, as well as individuals listed in Section 6, Persons Contacted. Below are backgrounds of personnel with Environmental Research Group, LLC, and Gryphon Environmental, LLC who either prepared or edited this assessment.

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M.A. Archaeology, University of Texas at Austin
B.A. Anthropology, University of Texas at Austin
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Jessica Frank, Environmental Research Group, LLC
B.S. Environmental Engineering, University of Illinois Urbana Champaign
Years of Experience: 6

10.0 ACRONYMS

BMPs	Best Management Practices
CDLE	Colorado Department of Labor and Employment
CDPHE	Colorado Department of Public Health and Environment
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO_2e	carbon dioxide equivalents
CSU	Colorado Springs Utilities
dBA	A-weighted Decibels
DECAM	Directorate of Environmental Compliance and Management
DFMWR	Directorate of Family, Morale, Welfare, and Recreation
DPW	Department of Public Works
EA	Environmental Assessment
EO	Executive Order
FNSI	Finding of No Significant Impact
GHG	Greenhouse gases
gpd	Gallons Per Day
gpm	Gallons Per Minute
HAPs	Hazardous Air Pollutants
HWMP	Hazardous Waste Management Plan
ICRMP	Integrated Cultural Resources Management Plan
ICUZ	Installation Compatible Use Zone
ISWMP	Integrated Solid Waste Management Plan
IWTP	Industrial Wastewater Treatment Plant
LEED	Leadership in Energy and Environmental Design
mgd	Million Gallons Per Day
MS4	Municipal Separate Storm Sewer Systems
MVA	Mega-Volt Amperes
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NOA	Notice of Availability
NOI	Notice of Intent
NPDES	National Pollution Discharge Elimination System
NSR	New Source Review
NZ	Noise Zone
PM_{10}	Particles of 10 micrometers or less
$PM_{2.5}$	Particles of 2.5 micrometers or less
POV	Privately Owned Vehicles
RCRA	Resource Conservation and Recovery Act
ROI	Region of Influence
SDZ	Surface Danger Zone
SHPO	State Historic Preservation Office
SOP	Standard Operating Procedure
SPCC	Spill Prevention Control and Countermeasures
SWAT	Specialized Weapons and Tactics
SWMP	Stormwater Management Plan
SWMU	Solid Waste Management Units
SWPPP	Stormwater Pollution Prevention Plans
TSCA	Toxic Substances Control Act

USACE	United States Army Corps of Engineers
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine
USAPHC	U.S. Army Public Health Command
USDA	United States Department of Agriculture
USEPA	United States Environmental Protection Agency
USFWS	United State Fish and Wildlife Service

APPENDIX A. Public Involvement

No comments were received.

AFFIDAVIT OF PUBLICATION

THE PUEBLO CHIEFTAIN

State of Colorado)

Pueblo Chieftain

LINDA ASHE
ENVIRONMENTAL RESEARCH GROUP
1208 W MAGNOLIA AVE STE 232
FORT WORTH TX 76104

REFERENCE: 811013
L43185 ROD AND GUN

AUTUMN ALCALA, being first duly sworn upon her oath says: That she is a representative of THE STAR-JOURNAL PUBLISHING CORPORATION, and has personal knowledge of the facts set forth herein; that said Corporation is a corporation organized under the laws of the State of Colorado and that its principal office and place of business is in the city of Pueblo, in the County of Pueblo, in the State of Colorado; that it is the proprietor, printer and publisher of THE PUEBLO CHIEFTAIN, which is, and at all times herein mentioned was a daily newspaper of general circulation printed and published in said City of Pueblo; that said newspaper is, and at all times herein mentioned was, published daily: has been admitted to the United States Mails as a second class matter under the provisions of the Act of Congress of March 3, 1879, and any amendments thereof, and is duly qualified for publishing legal notices and advertisements within the meaning of the laws of the state of Colorado of which is attached a true copy cut from said newspaper and was published on the following dates:

PUBLISHED ON: 04/13

FILED ON: 04/15/11

FORT CARSON
NOTICE TO THE PUBLIC
FORT CARSON ROD AND GUN (R&G) CLUB

Fort Carson has prepared an Environmental Assessment (EA) and draft Finding of No Significant Impact (FNSI) for the construction and operation of an R&G Club on Fort Carson to serve as a recreational shooting and training center. The proposed action includes five regulation trap and skeet fields, and six rifle and pistol ranges. The proposed R&G Club includes a 10,000 square foot clubhouse with parking to accommodate all of the functions associated with operating a full service sportsman club. The purpose of the EA and draft FNSI is to document environmentally-related findings and determine whether Fort Carson's proposed action to construct and operate an R&G Club would have a significant impact on the natural and human environment. Comments on this EA are invited and will be accepted for 30 days from the date this notice is published. Copies of the EA and draft FNSI may be reviewed at:

Colorado Springs: Penrose Public Library, 20 N. Cascade Avenue
Fort Carson: Grant Library, 1637 Flint Street, Bldg 1528
Fountain: Fountain Branch Library, 230 S. Main Street
Pueblo: Pueblo City-County Library, 100 E. Abriendo Ave.

The EA and draft FNSI are also available online at http://www.carson.army.mil/ (hover over the Directorate & Support button on left, then hover over the Public Works button to display available documents).

Written comments concerning this proposal should be directed to:
Fort Carson NEPA Program Manager
Directorate of Public Works, Environmental Division (IMWE-CAR-PWE)
1626 O'Connell Blvd., Bldg. 813,
Fort Carson, CO 80913.
Or submit by email to: carsdpwednepa@conus.army.mil

For media queries contact the Fort Carson Public Affairs Office Media Relations Office at (719) 526-7525.

L43185

In witness whereof, I have hereunto set my hand this 20th day of April A.D. 2011

Autumn Alcala

Subscribed and sworn to before me this 20th day of April A.D. 2011
My commission expires November 29, 2011.

Notary Diane C. Tafoya

DIANE C. TAFOYA
NOTARY PUBLIC
STATE OF COLORADO

FORT CARSON
NOTICE TO THE PUBLIC
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For media queries contact the Fort Carson Public Affairs Office Media Relations Office at (719) 526-7525.

Publication Date: April 16, 2011

AFFIDAVIT OF PUBLICATION

STATE OF COLORADO
COUNTY OF EL PASO

lr

Lora Ramirez duly sworn, deposes and says that she is the Legal Sales Representative of FREEDOM COLORADO INFORMATION, INC., a corporation, the publishers of a daily public newspaper, which is printed and published daily in whole at the city of Colorado Springs in the County of El Paso, and the State of Colorado, and which is called The Gazette; that a notice of which the annexed is an exact copy, cut from said newspaper, was published in the regular and entire editions of said newspaper **1 time(s) to wit April 13, 2011**
That said newspaper has been published continuously and uninterruptedly in said County of El Paso for a period of at least six consecutive months next prior to the first issue thereof containing this notice; that said newspaper has a general circulation and that it has been admitted to the United States mails as second-class matter under the provisions of the Act of March 3, 1879 and any amendment thereof, and is a newspaper duly qualified for the printing of legal notices and advertisement within the meaning of the laws of the State of Colorado.

Dolores Rich
Sales Representative

Subscribed and sworn to me this **13th day of March, 2011** at said City of Colorado Springs, El Paso County, Colorado.
My commission expires April 5, 2015.

Lora Ramirez

The Gazette

LORA RAMIREZ
NOTARY
PUBLIC
STATE OF COLORADO
My Commission Expires 04-05-2015

FORT CARSON
NOTICE TO THE PUBLIC
FORT CARSON ROD AND GUN (R&G) CLUB

Fort Carson has prepared an Environmental Assessment (EA) and draft Finding of No Significant Impact (FNSI) for the construction and operation of an R&G Club on Fort Carson to serve as a recreational shooting and training center. The proposed action includes five regulation trap and skeet fields, and six rifle and pistol ranges. The proposed R&G Club includes a 10,000 square foot clubhouse with parking to accommodate all of the functions associated with operating a full service sportsman club. The purpose of the EA and draft FNSI is to document environmentally-related findings and determine whether Fort Carson's proposed action to construct and operate an R&G Club would have a significant impact on the natural and human environment. Comments on this EA are invited and will be accepted for 30 days from the date this notice is published. Copies of the EA and draft FNSI may be reviewed at:

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Or submit by email to: carsdpwednepa@conus.army.mil

For media queries contact the Fort Carson Public Affairs Office Media Relations Office at (719) 526-7525.

Published in The Gazette on April 13, 2011.

APPENDIX B. Draft Record of Nonapplicability

GENERAL CONFORMITY – RECORD OF NON-APPLICABILITY

Project Name: Construction of a Rod and Gun Club, Fort Carson, Colorado

Location: Fort Carson Down Range Area (Small-Arms Impact Area)

Within the carbon monoxide (CO) Attainment Maintenance Area: No

Activity Type: Construction of Clubhouse and Shooting Ranges

Year of Project: Spring of 2011 with an anticipated completion during the Summer of 2013

Duration of Project: 28 Months

Information Source/POC: Mr. Rob Ford, Gryphon Environmental, LLC. Phone (719) 491-7012.

NEPA Documentation: Environmental Assessment

General Conformity under the Clean Air Act, Section 176, has been evaluated for the project described above according to the requirements of 40 CFR 93, Subpart B. The requirements of this rule are not applicable to this project/action because:

The Proposed Action Alternative is not located in the Carbon Monoxide (CO) Maintenance Area. Additionally, the total emissions from this project have been estimated to be below the conformity threshold value established at 40 CFR 93.153 (b) of 100 tons CO per year for a Carbon Monoxide Maintenance Area.

Signed:_____ Date: _____

CF: DPW-ED NEPA Program

APPENDIX C. Noise Supporting Documentation

DEPARTMENT OF THE ARMY
US ARMY INSTITUTE OF PUBLIC HEALTH
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MD 21010-5403

MCHB-IP-EON

02 MAY 2011

MEMORANDUM FOR Environmental Division (IMWE-CAR-PWE/Mr. Wayne Thomas), NEPA and Cultural Management, Directorate of Public Works, 1626 O'Connell Blvd, Fort Carson, CO 80913

SUBJECT: Operational Noise Consultation, No. 52-EN-0EKZ-11, Operational Noise Contours for Proposed Moral, Welfare, and Recreation Rod & Gun Club Range at Fort Carson, CO, 31 March 2011

1. We are enclosing a copy of the consultation.

2. Please contact us if this consultation or any of our services did not meet your needs or expectations.

3. The point of contact is Ms. Kristy Broska, Environmental Protection Specialist or Ms. Catherine Stewart, Program Manager, Operational Noise, Army Institute of Public Health, at DSN 584-3829, commercial (410) 436-3829, or email: kristy.broska@us.army.mil or catherine.stewart@us.army.mil.

FOR THE DIRECTOR:

William J. Bettin

WILLIAM J. BETTIN
LTC, MS
Portfolio Director, Environmental Health Engineering

Encl

CF:
AEC, (IMAE-TSP/Ms. Lindy McDowell)
PHCR-West (MCHB-AW-EH/MAJ Nack)

USAPHC
U.S. ARMY PUBLIC HEALTH COMMAND (Provisional)
5158 Blackhawk Road, Aberdeen Proving Ground, Maryland 21010-5403

OPERATIONAL NOISE CONSULTATION NO. 52-EN-0EKZ-11 OPERATIONAL NOISE CONTOURS PROPOSED MORAL, WELFARE, AND RECREATION ROD & GUN CLUB RANGE FORT CARSON, CO 31 MARCH 2011

Preventive Medicine Survey: 40-5f1

DEPARTMENT OF THE ARMY
US ARMY INSTITUTE OF PUBLIC HEALTH
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND, MD 21010-5403

MCHB-IP-EON

EXECUTIVE SUMMARY
OPERATIONAL NOISE CONSULTATION
NO. 52-EN-0EKZ-11
OPERATIONAL NOISE CONTOURS
PROPOSED MORAL, WELFARE, AND RECREATION
ROD & GUN CLUB RANGE
FORT CARSON, CO
31 MARCH 2011

1. PURPOSE. To provide Fort Carson noise contours for the proposed Moral, Welfare, and Recreation (MWR) Rod & Gun Club Range.

2. CONCLUSIONS AND RECOMMENDATIONS.

a. The existing small caliber weapon Zone II contour extends beyond the boundary. Within the Zone II are undeveloped, recreational, industrial and commercial land uses; with a small residential area near State Highway 16 and Interstate 25.

b. The addition of the proposed MWR Rod & Gun Club Range would slightly increase the size of the off-post Zone II. The additional activity would have a negligible effect on the overall noise environment.

c. Include the information from this consultation in the appropriate National Environmental Policy Act documentation.

TABLE OF CONTENTS

List of Figures

List of Tables

OPERATIONAL NOISE CONSULTATION
NO. 52-EN-0EKZ-11
OPERATIONAL NOISE CONTOURS
PROPOSED MORAL, WELFARE, AND RECREATION
ROD & GUN CLUB RANGE
FORT CARSON, CO
31 MARCH 2011

1. REFERENCES. A list of the references used in this consultation is in Appendix A. A glossary of terms and abbreviations used within this report is in Appendix B. Appendix C contains the Noise Zone Descriptions and Land Use Guidelines used in this consultation.

2. AUTHORITY. The Army Environmental Command, San Antonio, TX funded this consultation under Military Interdepartmental Purchase Request (MIPR) number MIPR10006555 to support Operational Noise Programs at multiple sites.

3. PURPOSE. To provide Fort Carson noise contours for the National Environmental Policy Act (NEPA) documentation of the proposed Moral, Welfare, and Recreation (MWR) Rod & Gun Club Range.

4. SMALL CALIBER NOISE CONTOURING PROCEDURES.

a. Per Army Regulation (AR) 200-1 (U.S. Army 2007), small caliber operations were analyzed using PK15(met). The analysis depicts the predicted peak levels for individual rounds (metric term is PK15(met)). Since the contours are based on peak levels rather than a cumulative or average level, the size of the contours will not change if the number of rounds fired increases or decreases.

b. Per AR 200-1, noise-sensitive land uses, such as housing, schools, and medical facilities are acceptable within the Noise Zone I, normally not recommended in Noise Zone II, and not recommended in Noise Zone III (U.S. Army 2007).

c. The noise simulation program used to assess small caliber weapons (.50 caliber and below) noise is the Small Arms Range Noise Assessment Model (SARNAM) (U.S. Army 2003). The SARNAM program requires operations data concerning types of weapons and range layouts. The SARNAM calculation algorithms assume wind directions that favor sound propagation.

d. Gunshots are impulsive in nature and occur over a very short period in time, only a few thousandths of a second. Noise contours should not be viewed as absolute demarcation lines. For example, meteorological conditions constantly influence noise

levels. Noise levels can vary by 40 dB over the course of a day. However, even more importantly, a receiver's perception of the source can influence the level of impact, with little dependence on noise level. *Noise contours do not clearly divide noise zones with one side of the line compatible and the other side incompatible.*

5. EXISTING SMALL CALIBER NOISE ENVIRONMENT.

a. The existing small caliber noise environment was addressed in a 2006 noise consultation (U.S. Army 2006). Table 1 lists the ammunition/weapons utilized on the existing ranges. All ammunition is assumed live unless stated otherwise.

TABLE 1. EXISTING SMALL CALIBER WEAPON UTILIZATION.

	PISTOL, 9 MM, LIVE	RIFLE, 5.56 MM, LIVE	MACHINE GUN, 7.62 MM, LIVE	SHOTGUN, 12 GAUGE, NONLETHAL
RANGE 3 - MILITARY POLICE QUALIFICATION COURSE	X			
RANGE 5 - COMBAT PISTOL QUALIFICATION COURSE	X			
RANGE 7A - KNOWN DISTANCE RANGE		X	X	
RANGE 9 - SF MUTLIPLE USE RANGE		X	X	
RANGE 13A - ZERO RANGE		X		
RANGE 15 - MACHINE GUN ZERO RANGE			X	
RANGE 29 - CLOSE QUARTERS COMBAT RANGE		X		
RANGE 37 - SCALED MORTAR RANGE				X
RANGE 43 - SF MULTIPLE USE RANGE		X		
RANGE 45 - KNOW DISTANCE RANGE			X	
RANGE 49 - AUTOMATED RECORD FIRE RANGE		X		
RANGE 51 - ZERO RANGE		X		
RANGE 55 - AUTOMATED FIELD FIRE RANGE		X		
RANGE 57 - AUTOMATED RECORD FIRE RANGE		X		
RANGE 63 - ZERO RANGE		X		
RANGE 65 - ZERO RANGE		X		
RANGE 69 - AUTOMATED RECORD FIRE		X		

b. Figure 1 contains the small caliber weapons noise contours for the existing activity. The Zone II [PK15(met) 87 dB] contour extends beyond the eastern boundary less than 700 meters. The Zone III [PK15(met) 104 dB] contour near Range 29 extends beyond the eastern boundary less than 100 meters, just crossing Interstate 25. There are no noise-sensitive land uses within the Zone III area. Within the Zone II area land use is primarily undeveloped, recreational, and industrial/commercial; with a small residential area near State Highway 16 and Interstate 25.

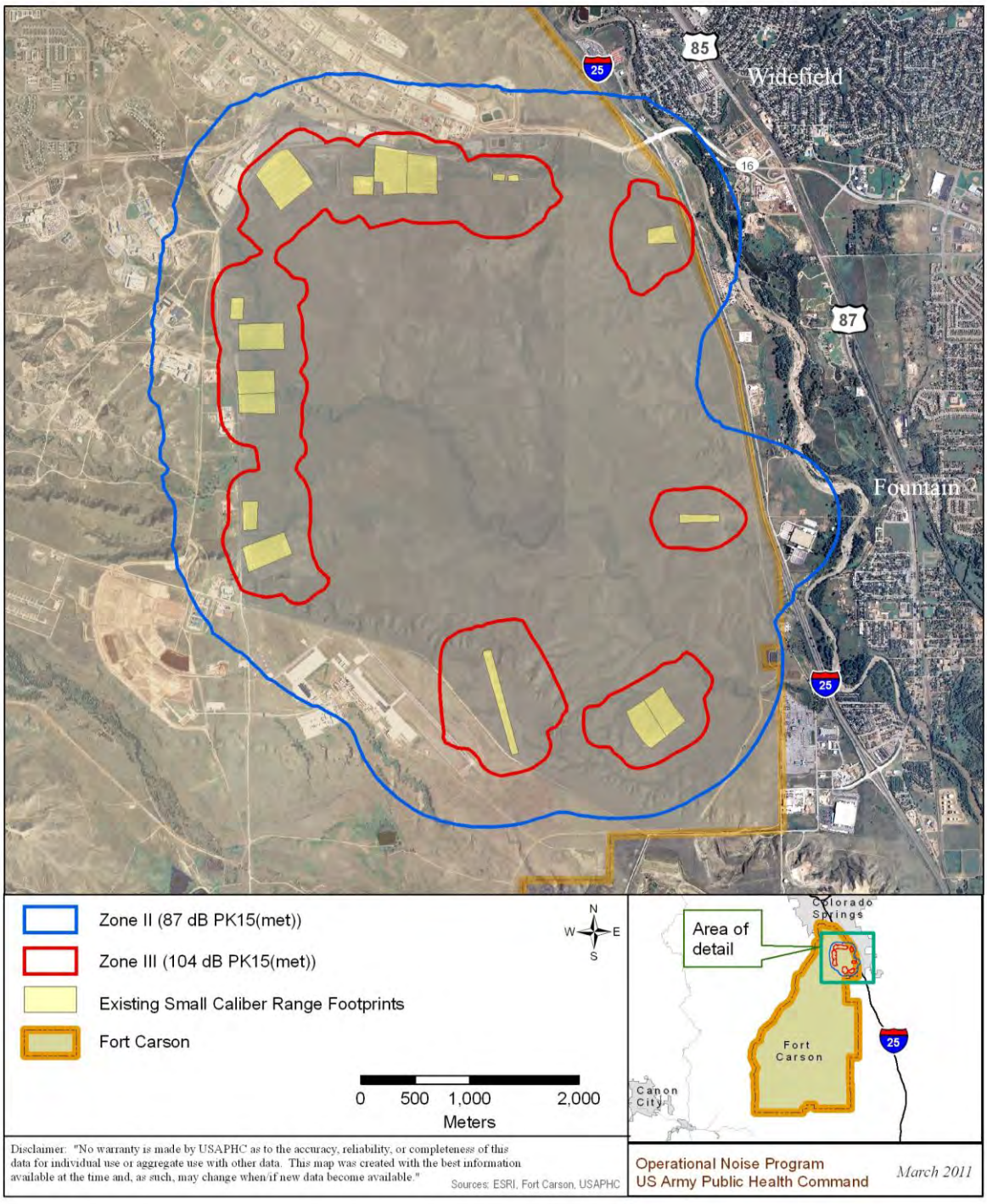

FIGURE 1. EXISTING SMALL CALIBER NOISE CONTOURS.

6. PROPOSED ROD & GUN CLUB RANGE ACTIVITY.

a. The proposed MWR Rod & Gun Club Range would be constructed over an existing small caliber range (Range 29) (Figure 2). The proposed facility would consist of multiple ranges including: a skeet/trap range; multiple pistol and rifle ranges. The range would be open to Department of Defense card holders for recreational use of privately owned weapons and would not be utilized for military training.

TABLE 2. PROPOSED ROD & GUN CLUB RANGE ACTIVITY.

Range	**Ammunition/Weapon**
Rod and Gun Club	Assorted Pistols, including: 9mm, .40 caliber, .45 caliber
	Assorted Rifles, including: 300 Winchester Magnum, .30-06 caliber, 7mm Short Magnum, Black Powder
	Shotgun, assorted gauges

b. As shown in Figure 3, the proposed Rod and Gun Club activity generates a Zone II that extends beyond the boundary, encompassing an area that is primarily used for commercial and industrial activities. The Noise Zone III extends beyond the boundary, but there are no noise-sensitive land uses within it.

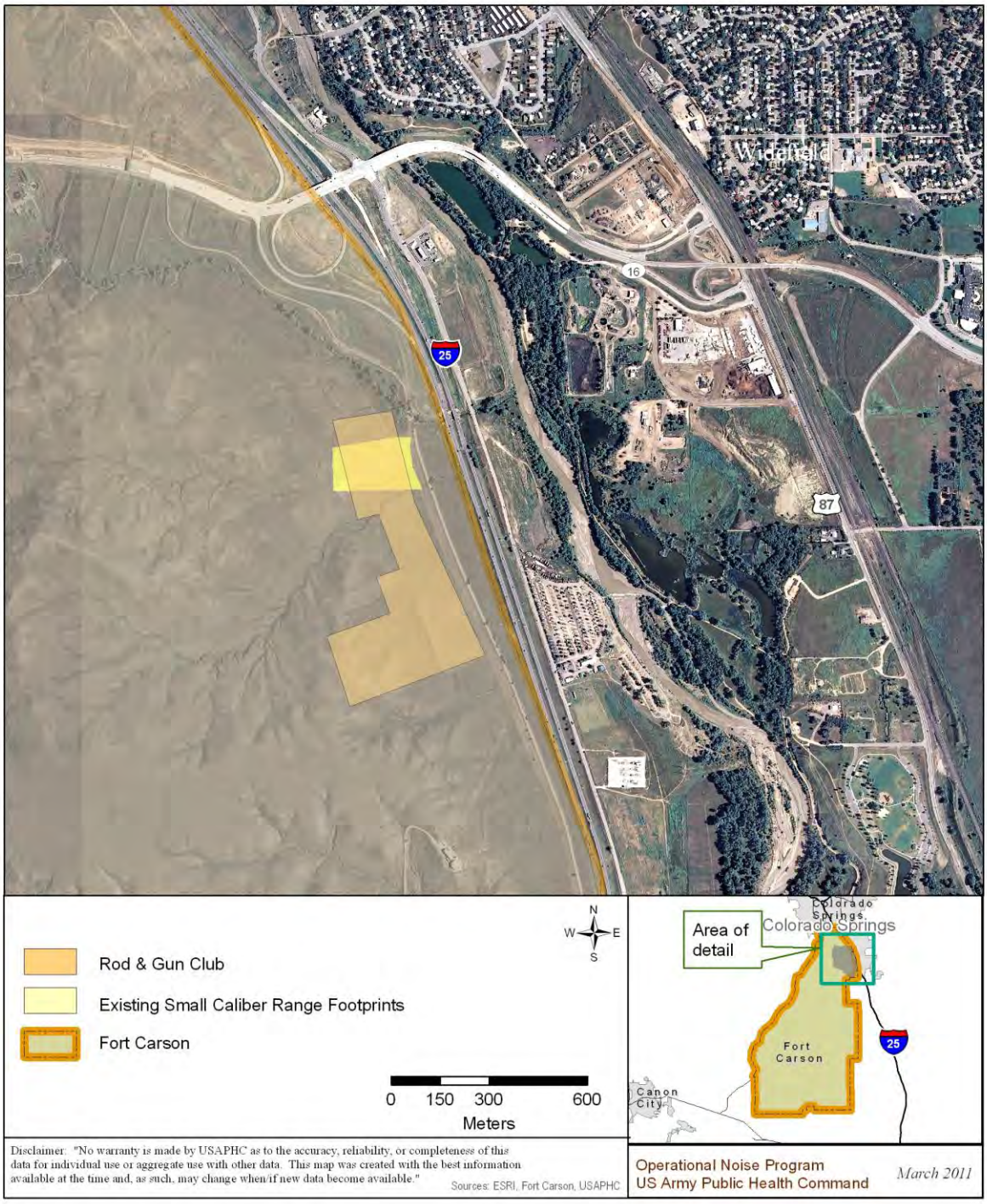

FIGURE 2. PROPOSED ROD & GUN CLUB RANGE LOCATION.

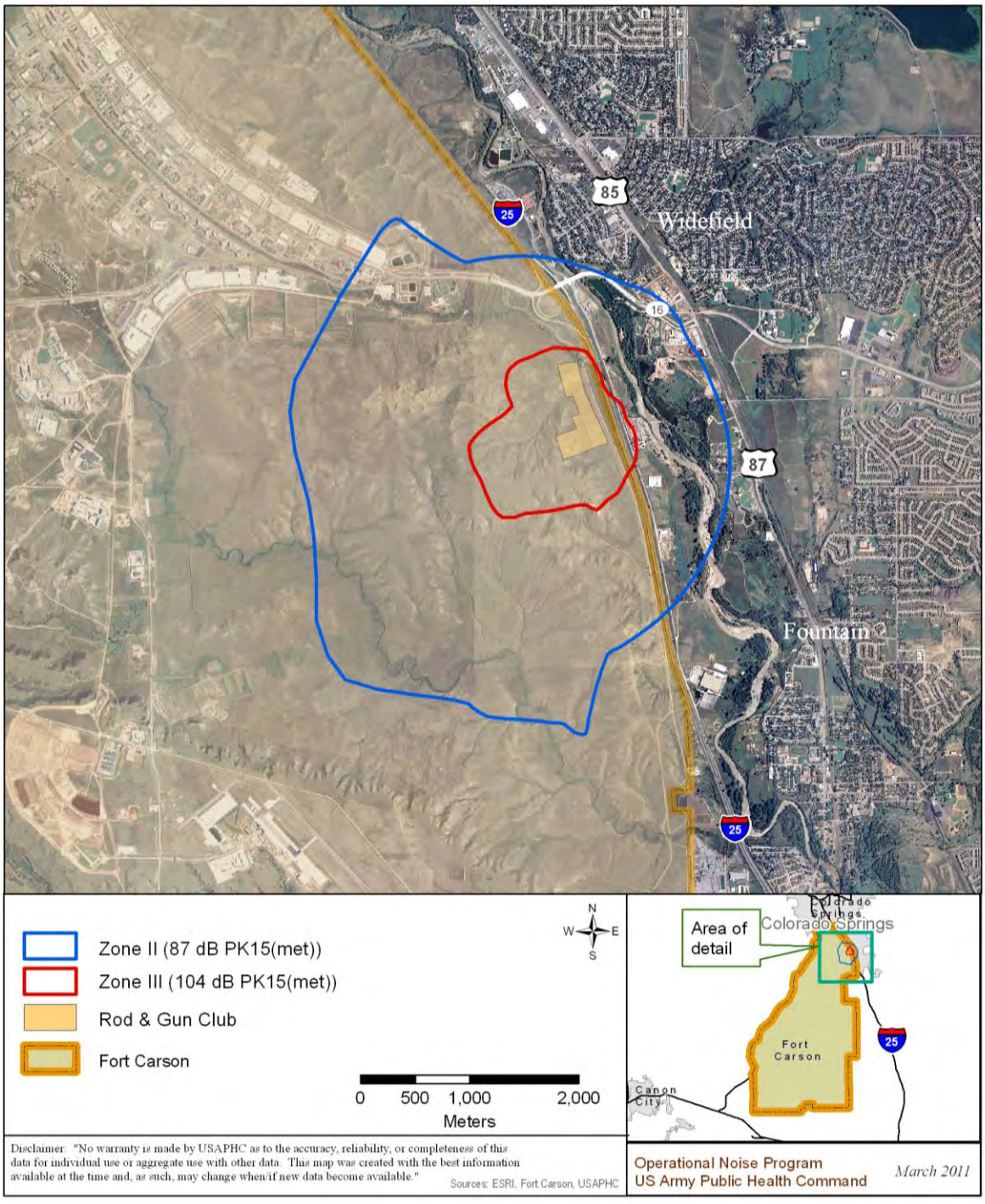

FIGURE 3. PROJECTED ROD & GUN CLUB
SMALL CALIBER NOISE CONTOURS.

7. CUMULATIVE PROJECTED RANGE ACTIVITY. Figure 4 depicts the cumulative noise exposure from existing and proposed activity (Tables 3). The addition of the proposed MWR Rod & Gun Club Range would slightly increase the size of the noise contours, but the overall effect on the noise environment would be negligible.

TABLE 3. CUMULATIVE PROJECTED SMALL CALIBER WEAPON UTILIZATION.

MILITARY TRAINING ACTIVITY	PISTOL, 9 MM, LIVE	RIFLE, 5.56 MM, LIVE	MACHINE GUN, 7.62 MM, LIVE	SHOTGUN, 12 GAUGE, NONLETHAL
RANGE 3 - MILITARY POLICE QUALIFICATION COURSE	X			
RANGE 5 - COMBAT PISTOL QUALIFICATION COURSE	X			
RANGE 7A - KNOWN DISTANCE RANGE		X	X	
RANGE 9 - SF MUTLIPLE USE RANGE		X	X	
RANGE 13A - ZERO RANGE		X		
RANGE 15 - MACHINE GUN ZERO RANGE			X	
RANGE 37 - SCALED MORTAR RANGE				X
RANGE 43 - SF MULTIPLE USE RANGE		X		
RANGE 45 - KNOW DISTANCE RANGE			X	
RANGE 49 - AUTOMATED RECORD FIRE RANGE		X		
RANGE 51 - ZERO RANGE		X		
RANGE 55 - AUTOMATED FIELD FIRE RANGE		X		
RANGE 57 - AUTOMATED RECORD FIRE RANGE		X		
RANGE 63 - ZERO RANGE		X		
RANGE 65 - ZERO RANGE		X		
RANGE 69 - AUTOMATED RECORD FIRE		X		

Privately Owned Weapon Activity	Ammunition/Weapon
Rod and Gun Club	Assorted Pistols, including: 9mm, .40 caliber, .45 caliber
	Assorted Rifles, including 300 Winchester Magnum, .30-06 caliber, 7mm Short Magnum, Black Powder
	Shotgun, assorted gauges

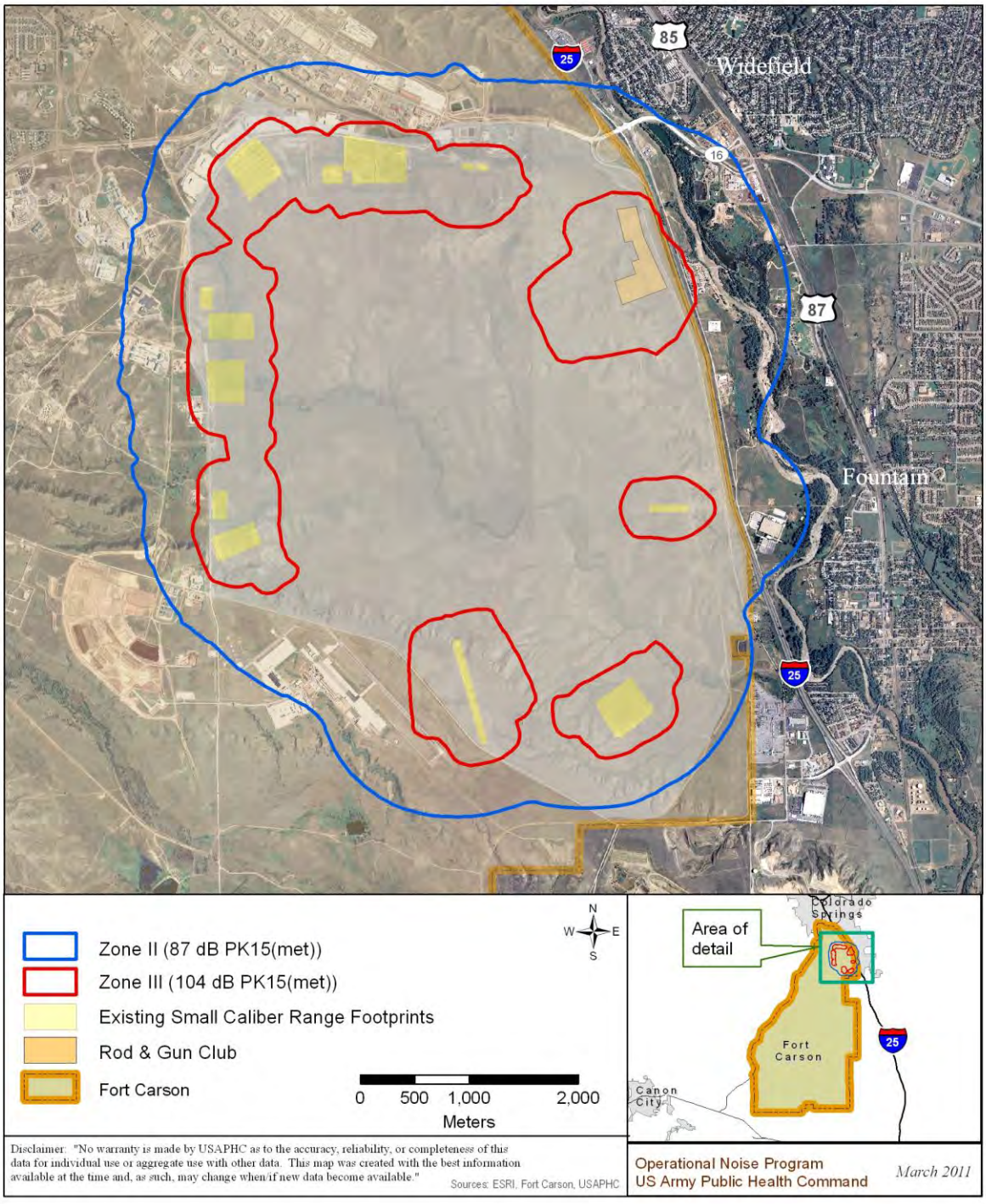

FIGURE 4. CUMULATIVE PROJECTED SMALL CALIBER NOISE CONTOURS.

8. CONCLUSIONS AND RECOMMENDATIONS.

a. The existing small caliber weapon Zone II contour extends beyond the boundary. Within the Zone II are undeveloped, recreational, industrial and commercial land uses; with a small residential area near State Highway 16 and Interstate 25.

b. The addition of the proposed MWR Rod & Gun Club Range would slightly increase the size of the noise contours. The Zone III would not contain noise-sensitive land uses. The additional Zone II area would contain commercial and industrial land uses. The overall effect on the noise environment would be negligible.

c. Include the information from this consultation in the appropriate NEPA documentation.

Kristy Broska

KRISTY BROSKA
Environmental Protection Specialist
Operational Noise

APPROVED:

Catherine Stewart

CATHERINE STEWART
Program Manager
Operational Noise

APPENDIX A

REFERENCES

1. U.S. Army, 2003, U.S. Army Construction Engineering Research Laboratories, SARNAM Computer Model, Version 2.6.2003-06-06.

2. U.S. Army, 2006, U.S. Army Center for Health Promotion and Preventive Medicine, Operational Noise Consultation 52-ON-046N-06, Operational Noise Contours for Fort Carson, CO, April 2006.

3. U.S. Army, 2007, Army Regulation 200-1, Environmental Protection and Enhancement, Chapter 14 Operational Noise.

APPENDIX B

GLOSSARY OF TERMS, ACRONYMS & ABBREVIATIONS

B-1. GLOSSARY OF TERMS.

Decibels (dB) – a logarithmic sound pressure unit of measure.

Noise – any sound without value.

PK15(met) – the maximum value of the instantaneous sound pressure for each unique sound source, and applying the 15 percentile rule accounting for meteorological variation.

B-2. GLOSSARY OF ACRONYMS AND ABBREVIATIONS.

dB	Decibels
PK15(met)	Unweighted Peak, 15% Metric
MIPR	Military Interdepartmental Purchase Request
MWR	Morale, Welfare, and Recreation
NEPA	National Environmental Policy Act
SARNAM	Small Arms Range Noise Assessment Model

APPENDIX C

NOISE ZONE DESCRIPTIONS

C-1. REFERENCE. U.S. Army, 2007, Army Regulation 200-1, Environmental Protection and Enhancement, Chapter 14 Operational Noise.

C-2. For a detailed explanation of Noise Zone Descriptions and Land Use Guidelines see Army Regulation 200-1, Chapter 14 (U.S. Army 2007).

C-3. LAND USE GUIDELINES.

a. The Noise Zone III consists of the area around the noise source in which the level is greater than 104 PK15(met) for small caliber weapons. Noise-sensitive land uses (such as housing, schools, and medical facilities) are not recommended within Noise Zone III.

b. The Noise Zone II consists of an area where the level is between 87 and 104 PK15(met) for small caliber weapons. Land within Noise Zone II should normally be limited to activities such as industrial, manufacturing, transportation, and resource production. However, if the community determines that land in Noise Zone II (attributable to small arms) areas must be used for residential purposes, then noise level reduction (NLR) features of 25 to 30 decibels should be incorporated into the design and construction of new buildings to mitigate noise levels. For large caliber weapons, NLR features cannot adequately mitigate the low-frequency component of large caliber weapons noise.

c. The Noise Zone I includes all areas around a noise source in which the day-night sound level is less than 87 PK15(met) for small arms weapons. This area is usually acceptable for all types of land use activities.

d. See Table C for land use guidelines.

TABLE C. LAND USE PLANNING GUIDELINES.

Noise Zones	Small Arms PK15(met)
I	<87
II	87-104
III	>104

APPENDIX D. Species Status Wildlife Species Observed on Fort Carson

Species	Scientific Name	Species Type
Arkansas River feverfew	*Bolophyta tetraneuris*	Plant
Brandegee wild buckwheat	*Eriogonum brandegei*	Plant
Degener penstemon	*Penstemon degeneri*	Plant
Dwarf milkweed	*Ascepias uncialis*	Plant
Golden blazing star	*Mentzelia chrysantha*	Plant
Pueblo goldenweed	*Onopsis puebloensis*	Plant
Round-leaf four o'clock	*Oxybaphus rotundifolius*	Plant
Twinevine	*Scarcoslema crispum*	Plant
Ute ladies' tresses	*Spiranthes diluvialis*	Plant
Northern leopard frog	*Rana pipiens*	Amphibian
Plains leopard frog	*Rana blairi*	Amphibian
Painted turtle	*Chrysemys picta*	Reptile
Triploid checkered whiptail	*Aspidoscelis neotessalatus*	Reptile
Short-horned lizard	*Phrynosoma douglassi*	Reptile
Black-tailed prairie dog	*Cynomys ludovicianus*	Mammal
Southern redbelly dace	*Phoxinus erythrogaster*	Fish
Flathead Chub	*Platygobio gracilis*	Fish
American Tree Sparrow	*Spizella arborea*	Bird
American white pelican	*Pelecanus erythrorhynchos*	Bird
Bald Eagle	*Haliaeetus leucocephalus*	Bird
Band-tailed Pigeon	*Patagioenas fasciata*	Bird
Black Swift	*Cypseloides niger*	Bird
Black-chinned Hummingbird	*Archilochus alexandri*	Bird
Black-necked Stilt	*Himantopus mexicanus*	Bird
Black-throated Gray Warbler	*Dendroica nigrescens*	Bird
Black-throated Green Warbler	*Dendroica virens*	Bird
Black-throated Sparrow	*Amphispiza bilineata*	Bird
Blue-headed Vireo	*Vireo solitarius*	Bird
Blue-winged Warbler	*Vermivora pinus*	Bird
Bobolink	*Dolichonyx oryzivorus*	Bird
Brewer's Sparrow	*Spizella breweri*	Bird
Brown Thrasher	*Toxostoma rufum*	Bird
Brown-capped Rosy Finch	*Leucocsticte australis*	Bird
Burrowing Owl	*Athene cunicularia*	Bird
Calliope Hummingbird	*Stellula calliope*	Bird
Canyon Towhee	*Spiza americana*	Bird
Carolina Wren	*Thyrothorus udovicianus*	Bird
Cassin's Finch	*Carpodacus cassinii*	Bird
Cassin's Kingbird	*Tyrannus vociferans*	Bird
Cassin's Sparrow	*Aimophila cassinii*	Bird

Species	Scientific Name	Species Type
Chestnut-collared Longspur	*Calcarius ornatus*	Bird
Clark's Nutcracker	*Nucifraga columbiana*	Bird
Common Poorwill	*Phalaenoptilus nuttallii*	Bird
Cordilleran Flycatcher	*Empidonax occidentalis*	Bird
Curve-billed Thrasher	*Toxostoma curvirostre*	Bird
Dicksissel	*Spiza americana*	Bird
Dusky Flycatcher	*Empidonax oberholseri*	Bird
Ferruginous Hawk	*Buteo regalis*	Bird
Forester's Tern	*Sterna forsteri*	Bird
Fox Sparow	*Passerella iliaca*	Bird
Golden Eagle	*Aquila chrysaetos*	Bird
Golden-winged warbler	*Vermivora chrysoptera*	Bird
Grace's Warbler	*Dendroica graciae*	Bird
Grasshopper Sparrow	*Ammodramus savannarum*	Bird
Gray Flycatcher	*Empidonax wrightii*	Bird
Green-tailed Towhee	*Pipilo chlorurus*	Bird
Harris' Sparrow	*Zonotrichia querula*	Bird
Hooded Warbler	*Wilsonia citrina*	Bird
Indigo Bunting	*Passerina cyanea*	Bird
Juniper Titmouse	*Baeolophus ridgwayi*	Bird
Lapland Longspur	*Calcarius lapponicus*	Bird
Lark Bunting	*Calamospiza melanocorys*	Bird
Lazuli Bunting	*Passerina amoena*	Bird
Lewis's Woodpecker	*Melanerpes lewis*	Bird
Lincoln's Sparrow	*Melospiza lincolnii*	Bird
Loggerhead Shrike	*Lanius ludovicianus*	Bird
Long-billed Curlew	*Numenius americanus*	Bird
MacGillivray's Warbler	*Oporornis tolmiei*	Bird
McCown's Longspur	*Calcarius mccownii*	Bird
Mississippi Kite	*Ictinia misisippiensis*	Bird
Mexican Spotted Owl	*Strix occidentalis*	Bird
Mountain Bluebird	*Sialia currucoides*	Bird
Mountain Plover	*Charadrius montanus*	Bird
Northern Goshawk	*Accipiter gentilis*	Bird
Northern Harrier	*Circus cyaneus*	Bird
Northern Pygmy Owl	*Glaucidium gnoma*	Bird
Northern Shrike	*Lanius excubitor*	Bird
Olive-sided Flycatcher	*Contopus cooperii*	Bird
Peregrine Falcon	*Falco peregrinus*	Bird
Pinyon Jay	*Gymnorhinus cyanocephalus*	Bird
Prairie Falcon	*Falco mexicanus*	Bird
Red-headed Woodpecker	*Melanerpes erythrocephalus*	Bird

Species	Scientific Name	Species Type
Rough-legged Hawk	*Buteo lagopus*	Bird
Rufous Hummingbird	*Selasphorus rufus*	Bird
Rufous-crowned Sparrow	*Aimophila ruficeps*	Bird
Scaled Quail	*Callipepla squamate*	Bird
Short-eared Owl	*Asio flammeus*	Bird
Snowy Egret	*Egretta thula*	Bird
Solitary Sandpiper	*Tringa solitaria*	Bird
Swainson's Hawk	*Buteo swainsoni*	Bird
Veery	*Catharus fuscescens*	Bird
Virginia's Warbler	*Vermivora virginiae*	Bird
Western Bluebird	*Sialia mexicana*	Bird
Western Kingbird	*Tyrannus verticalis*	Bird
Western-scrub Jay	*Aphelocoma californica*	Bird
Wilson's Phalarope	*Phalaropus tricolor*	Bird
White-eyed Vireo	*Vireo griseus*	Bird
White-faced Ibis	*Plegadis chihi*	Bird
White-throated Sparrow	*Zonotrichia albicollis*	Bird
White-throated Swift	*Aeronautes saxatalis*	Bird
Willet	*Catoptrophorus semipalmatus*	Bird
Williamson's Sapsucker	*Sphyrapicus thyroideus*	Bird
Willow Flycatcher	*Empidonax trailii*	Bird
Worm-eating Warbler	*Helmitheros vermivorus*	Bird
Yellow-bellied Sapsucker	*Sphyrapicus varius*	Bird
Yellow-billed Cuckoo	*Coccyzus americanus*	Bird

Source: DPW, 2009 and DPW, 2010c.

APPENDIX E. Cultural Resources Supporting Documentation

OFFICE *of* ARCHAEOLOGY *and* HISTORIC PRESERVATION

08 JUN REC'D

June 1, 2010

Carlos Rivero-deAguilar
Chief, Environmental Division
1626 O'Connell Street, Building 813
Fort Carson, Colorado 80913

Re: Section 106 Consultation on Proposed Construction of a Rod and Gun Club within Existing Range 29 on the Fort Carson Military Reservation (CHS #57087)

Dear Mr. Rivero-deAguilar:

Thank you for your recent correspondence dated May 2, 2010 (received by our office on May 7, 2010) and the documentation regarding the subject project.

Following our review of the documentation provided, we concur with your determination that a finding of **no adverse effect** is appropriate for the proposed project.

Should unidentified archaeological resources be discovered in the course of the projects, work must be interrupted until the resources have been evaluated in terms of the National Register of Historic Places eligibility criteria (36 CFR 60.4) in consultation with our office.

Thank you for the opportunity to comment. If we may be of further assistance, please contact Shina duVall, Section 106 Compliance Manager, at (303) 866-4674 or shina.duvall@chs.state.co.us.

Sincerely,

Edward C. Nichols
State Historic Preservation Officer
ECN/SAD

COLORADO HISTORICAL SOCIETY
1300 BROADWAY DENVER COLORADO 80203 TEL 303/866-3395 FAX 303/866-2711 *www.coloradohistory-oahp.org*

ADMINISTRATION
&
MANAGEMENT

CHEYENNE AND ARAPAHO TRIBES OF OKLAHOMA

P.O. Box 38
Concho, Oklahoma 73022
(405) 262-0345

June 16, 2010

Depart. of the Army
Headquarters, U.S Army Garrison, Ft Carson
1626 Ellis Street, Ste 200
Fort Carson, CO 80913

RE: TCNS # /Project No. Construction of a Rod & Gun Club w/in existing Range 29 on Ft Carson Military Reservation

To Whom It May Concern:

On behalf the Cheyenne and Arapaho Tribes, greetings and thank you for notice of the referenced project. I have reviewed your Consultation Request under section 106 of the National Historic Preservation Act regarding the project proposal and commented as followed.

☐ _____ The Cheyenne and Arapaho Tribes have no interest in this area geographically. There is no likelihood of eligible properties of religious and cultural significant to the Cheyenne and Arapaho Tribes in the proposed project site.

☐ _____ The Cheyenne and Arapaho Tribes have an objection or request additional project information. The Cheyenne and Arapaho Tribes require the following addition information in order to provide a finding of effect this proposed undertaking:

_____

_____

☒ _____ No objections. However, if human skeletal remains and/or any objects falling under NAGPRA are uncovered during construction, please stop immediately and notify the Cheyenne and Arapaho Tribes.

☐ _____ No Adverse effect. The Cheyenne and Arapaho Tribes have identified properties of cultural and religious significance within the area of effect that are believed to be eligible for listing in the National Register, for which there would be no adverse effect as a result of the proposed project.

☐ _____ Adverse effect. The Cheyenne and Arapaho Tribes have identified properties of cultural and religious significance within the area potential effect that are eligible for listing in the National Register. The Cheyenne and Arapaho Tribes believe that the proposed project would cause an adverse effect on these properties.

Best Regards,

Lgray

Lynnette Gray
Tribal Historic Preservation Officer (Acting)
Planning and Development
Cheyenne and Arapaho Tribes of Oklahoma
100 Red Moon Circle, Box 38
Concho, Oklahoma 73022
v. (405) 422-7622
f. (405) 422-1199
e. lgray@c-a-tribes.org

APACHE BUSINESS COMMITTEE
Louis Maynahonah Sr.- Chairman
Gloria Redbird - Vice-Chairperson
Marquita Carattini - Secretary/Treasurer
Telephone: 405-247-9493

Apache Tribe of Oklahoma

511 East Colorado
Post Office Box 1330
ANADARKO, OKLAHOMA 73005

APACHE BUSINESS COMMITTEE
Karen Heminokeky - Committee Member
Richard Banderas- Committee Member
Bobby Jay - Tribal Administrator
Fax: 405-247-2686

May 26, 2010

Carlos Rivero-deAguilar
1626 O'Connell Street
Building 813
Fort Carson, Colorado 80913

RE: Proposed Construction of a Rod and Gun Club within Existing Range 29 on the Fort Carson Military Reservation

Dear Sir or Madam:

This is in reference to you letter dated May 02, 2010, concerning your proposed project complying with Section 106 of the National Historic Preservation Act. Your proposed construction of a Rod and Gun Club at Fort Carson Military Reservation is not listed as one of our tribal historical sites and not known to be culturally and of religious significance to the Apache Tribe of Oklahoma. At this time we do not objection to the proposed improvements.

Please, notify the Apache Tribe if the project uncovers any human remains, artifacts, unassociated funerary objects, associated funerary objects, sacred objects, and objects of cultural patrimony. To allow us determine whether the object(s) that were uncovered can be identified as belonging to the Apache Tribe of Oklahoma.

If further information is required please, contact Chairman Louis Maynahonah, his telephone number is 405-247-9493 or the fax number is (405) 247-2686.

Regards,

Louis Maynahonah, Chairman
Apache Tribe of Oklahoma

APPENDIX F. Standard Operating Procedure for Inadvertent Discovery of Archaeological Resources or Burials

Purpose
This SOP outlines procedures to be followed in the event of inadvertent discovery of archeological resources or burial sites during military training or other Army-sanctioned activities, including recreational activities.

Authorities
ARPA of 1979; NAGPRA; NHPA of 1966, as amended; 36 CFR 800, DoD Instruction 4715; AR 200-4

6.3.1 Who is Responsible for Inadvertent Discovery
Implementation of this SOP is the responsibility of field troops, unit commanders, civilian personnel, recreational users, Range Division, and the CRM, who will contact other parties as appropriate.

6.3.2 Procedures

Step 1. Upon discovery of archeological materials or human remains, field troops, 7th ID and Fort Carson personnel, or any other applicable users (*e.g.*, recreational users) will immediately cease any ground-disturbing operations and report the finding to Range Division (Soldiers will report to their unit commander, who will report the finding to Range Division). If the discovery is during facilities maintenance operations in the cantonment area, then DPW will be notified in lieu of Range Division. In the case of ongoing operations (*e.g.*, military training, facilities maintenance operations), a buffer zone (100-meter) may be established around the find, outside which ground-disturbing operations may continue.

Step 2. Range Division or DPW, as appropriate, will contact the CRM at:

Cultural Resources Manager
Building 813
1626 O'Connell Street
Fort Carson, CO 80913
(719) 524-0532
Pamela.cowen1@us.army.mil

Step 3. The CRM will inspect the area.

Contingency 1: Human Remains Present
If human remains are present, the CRM will determine whether they may be associated with a crime scene. If there may be a crime scene, the CRM will notify the Provost Marshals Office (PMO) and the Criminal Investigation Division (CID). PMO and CID will assume custody of the area. If the remains are not associated with a crime scene, the CRM will immediately proceed with the NAGPRA SOP (Section 6.4).

Contingency 2: Cultural Materials Found
If cultural materials (*i.e.*, artifacts, features, etc.) are found without a burial, the preferred alternative will be to move ground-disturbing operations to another location and include the area in future archeological inventory, as described in Section 5.2.1. If operations cannot be moved

to avoid the site (or if operations are likely to occur in the area in the near future), the CRM will proceed to Step 4.

Contingency 3: Only Natural Formations
If the CRM is able to determine that the finding represents merely natural formations, the CRM will inform Range Division and prepare a written Memorandum For Record detailing the finding. Operations may proceed unimpeded.

Step 4 (if necessary):
The CRM will initiate the Section 106 process (Section 6.2, *SOP: The Section 106 Process*) in the case of an archeological site or NAGPRA consultation (Section 6.4, *SOP: Native American Graves Protection and Repatriation Act Standard Operating Procedures (Interim)*) in the case of a burial. Operations may proceed following completion of the appropriate review processes and pursuant to any resulting agreement documents.