

**FORT CARSON
NOTICE TO THE PUBLIC
FORT CARSON Environmental Assessment for the Construction and
Operation of Two Infantry Squad Battle Course Ranges**

Fort Carson has prepared an Environmental Assessment (EA) and draft Finding of No Significant Impact (FNSI) for the construction and operation of two Infantry Squad Battle Course (ISBC) Ranges at Fort Carson, CO. The proposed action includes six different objective areas and a total of 20 stationary infantry targets (SITs), six stationary armor targets (SATs), one moving armor target (MAT), six moving infantry targets (MITs), two trench obstacles, and five machinegun/observation bunkers with sound effects simulators for each ISBC. 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 two ISBCs 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.

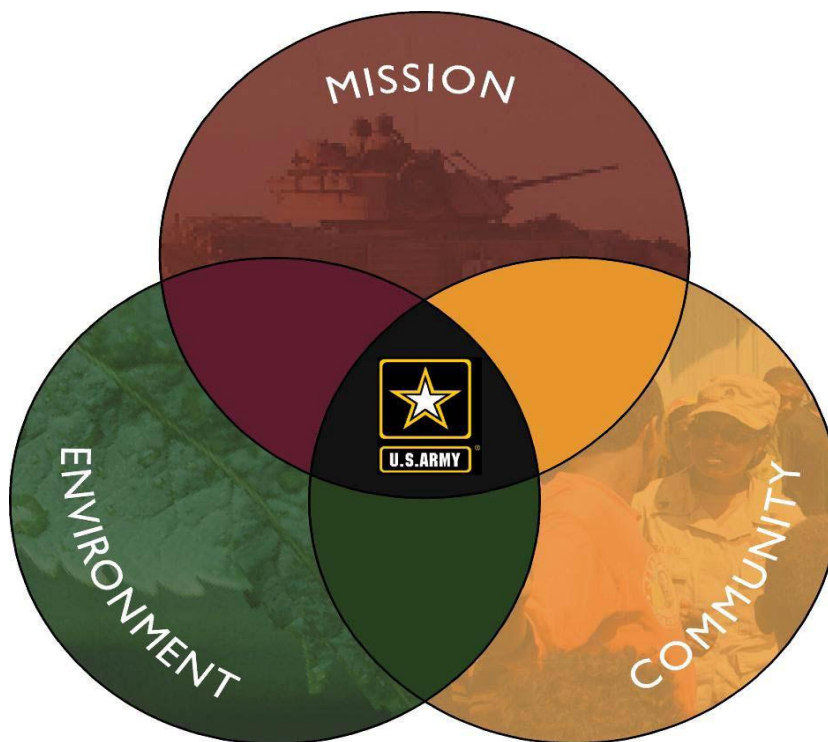
The EA and draft FNSI are also available online at <http://www.carson.army.mil/> (hover over the Directorate & Support button on left, then hover over the Public Works button to display available documents).

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: usarmy.carson.imcom-central.list.dpw-ed-nepa@mail.mil

For media queries contact the Fort Carson Public Affairs Office Media Relations Office at (719) 526-4143.



**Environmental Assessment
Construction and Operation of Two Infantry Squad Battle Course
Ranges
Fort Carson, CO. November 2011**



**Fort Carson
Directorate of Public Works, Environmental Division**

ENVIRONMENTAL ASSESSMENT

Construction and Operation of Two Infantry Squad Battle Course Ranges Fort Carson, Colorado

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ENVIRONMENTAL ASSESSMENT

Construction and Operation of Two Infantry Squad Battle Course Ranges Fort Carson, Colorado

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ENVIRONMENTAL ASSESSMENT

Construction and Operation of Two Infantry Squad Battle Course Ranges Fort Carson, Colorado

1.0 PURPOSE, NEED, AND SCOPE

1.1 Introduction

This Environmental Assessment (EA) was prepared to evaluate the potential impacts of the Army's proposal to construct and operate two standard live-fire Infantry Squad Battle Course (ISBC) ranges, on Fort Carson, Colorado. The Proposed Action will serve to provide adequate training facilities to conduct its military mission to meet evolving Army training standards. 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 identifies other relevant documents and actions.

The United States military services maintain and enhance a strong and adaptive fighting force to achieve operational success. To this end, the U.S. Army (Army) relies critically on the training of individuals, crews, squads, platoons, and companies; this training is predicated on the capacity and availability of live-fire ranges and maneuver areas. Operational ranges and training areas are used to test and evaluate weapons systems and to instruct military personnel. The continued improvement of live-fire ranges and facilities is crucial to the development of combat skills in support of the Army Forces Generation (ARFORGEN) Cycles for Full Spectrum Operations.

ARFORGEN is a three-step process that moves a unit from a postdeployment to an available to conduct missions status. This involves

- 1) Reset - the reintegration with family and community, educational opportunities, equipment refurbished, personnel transition to other installations, and unit troop strengths get reconstituted;
- 2) Train – personnel and unit conduct individual through collective training to prepare for readiness; and
- 3) Available/Deploy – unit is ready and available for deployment.

Full Spectrum Operations is applying combat power through simultaneous and continuous combinations of four elements: offense, defense, stability, and civil support. This means being ready and able to perform any mission, anywhere in the world, and at any time.

1.2 Purpose and Need for Proposed Action

The purpose for the Proposed Action is to provide new facilities for comprehensive and realistic live-fire training at Fort Carson. The ranges would be used primarily by the infantry squads of the Infantry, Heavy Brigade Combat Teams and Special Forces stationed at Fort Carson, Colorado. In addition, these ranges would support the live-fire training of Army Reserve units and National Guard units that continuously train on the installation.

The proposed facilities would be used to train and sustain proficiency in combat skills necessary to conduct tactical movement techniques, detect, identify, engage, and defeat stationary and moving infantry and armor targets in a tactical array. The ISBC ranges enable infantry squads to train collective tasks in a live-fire mode as outlined in Standards in Training Commission (STRAC) live-fire tasks. The ranges would train the infantry squads to meet mission-essential live-fire training tasks while simultaneously providing the best possible training for current threats the Army encounters during combat operations in the contemporary operating environment. Realism in training is enhanced when it includes diverse and challenging terrain features.

Units that use Fort Carson for training must be well trained in techniques and tactics of live-fire combat operations to ensure mission accomplishment and survivability. The ISBC ranges have been designed to support the live-fire collective training needs of United States Army Forces Command (FORSCOM), United States Army, Special Operations Command (USASOC), Reserve and National Guard infantry units. There is currently only one ISBC at Fort Carson to support the live-fire training of infantry squads assigned to active component units stationed or those that continually train on the installation. This existing range (Range 131a), is outdated and does not meet the current standard requirements of target systems capabilities, presentation, and feedback.

Without proper training facilities, essential skills for live-fire combat operations would not be adequately provided to Soldiers training on Fort Carson. Training on the proposed ISBCs would prepare infantry units for combat operations with the best possible training for the threats the Army expects to encounter during Full Spectrum Operations. These ranges are required to provide extended breadth and depth of infantry squad live-fire engagements against a wide variety of targetry on challenging terrain. These ranges provide the Army a capability to safely and effectively train to control lethal fires of the infantry squad.

1.3 Scope of Analysis

This EA analyzes effects of construction and operation of two standard live-fire ISBCs on Fort Carson to provide adequate training facilities to conduct its military mission to meet evolving Army training standards.

This EA considers direct, indirect, and cumulative effects of the Proposed Action and alternatives, including the No Action Alternative. It was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 USC 4321 *et seq.*), Council on Environmental Quality Regulations (40 CFR Parts 1500-1508), and 32 CFR Part 651 (Army Regulation 200-2), *Environmental Analysis of Army Actions*. A specific requirement for this environmental assessment is an appraisal of effects of the proposed construction and operation of these training ranges, including a determination of whether or not a Finding of No Significant Impact is appropriate or whether a Notice of Intent to prepare an Environmental Impact Statement is required.

The Proposed Action and its alternatives were evaluated with respect to their potential effects, both positive and negative, on mission, soils, surface waters, biological resources, cultural resources, and socio-economic conditions at Fort Carson and the surrounding area. A brief analysis of the issues eliminated from further analysis can be found in Section 4.1, *Issues Not Addressed*.

1.4 Preliminary Considerations

General areas of consideration were identified during installation planning sessions to analyze the proposed construction of two ISBCs at Fort Carson.

The identified areas were:

- Potential for increased fugitive dust associated with construction activities
- Potential impacts to natural and cultural resources (Land disturbance during construction (e.g., water quality, soil erosion, etc.) and potential archaeological sites
- Potential impacts to wildlife, including threatened and endangered or sensitive species such as the Mexican Spotted Owl near the project area
- Potential discovery/increased Unexploded Ordnance (UXO) due to the historic and planned use of the area

These general items, and others, were examined in detail during the preparation of this EA. Specific analysis was performed throughout the process and recorded accordingly within this document.

1.5 Decisions to Be Made

The decision to be made is whether the Proposed Action could cause significant impacts to the human or natural environment. A decision on whether to proceed with the Proposed Action rests on numerous factors such as mission requirements, schedule, safety, availability of funding and environmental considerations. The Garrison Commander, Fort Carson will make this decision.

1.6 Agency and Public Participation

Public participation opportunities with respect to this EA and decision-making on the Proposed Action are guided by the National Environmental Policy Act and 32 CFR 651 [AR 200-1]. 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 EA.

Upon completion, the EA will be available to the public for 30 days, starting from the first day of publication, along with a Draft Finding of No Significant Impact (FNSI), if applicable. 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, EA, or Draft FNSI. A Notice of Availability (NOA) will be announced in local media, and the documents themselves will be available at the following locations:

- Penrose Public Library, located at 20 North Cascade Avenue, Colorado Springs, Colorado;
- Pueblo West Library, located at 298 South Joe Martinez Boulevard, Pueblo, Colorado;
- Fountain Branch Library, located at 230 South Main Street; and
- Grant Library, 1637 Flint Street, Building 1528, Fort Carson, Colorado.

Anyone wishing to comment on the Proposed Action or request additional information must write to the Fort Carson NEPA Program Manager, Directorate of Public Works, Environmental Division, Building 813 Room 222, Fort Carson, Colorado 80913-4000, or call (719) 526-4666. Comments may also be submitted via email to:

usarmy.carson.imcom-central.list.dpw-ed-nepa@mail.mil

All comments received and responses to comments will be shown in Appendix A.

1.7 Legal Framework

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;
- Bald and Golden Eagle Protection Act;
- Migratory Bird Treaty Act;
- National Historic Preservation Act;
- Archaeological Resources Act;
- Resource Conservation and Recovery Act;
- Toxic Substances Control Act;
- EO 11988, Floodplain Management;
- EO 11990, Protection of Wetlands;
- EO 12088, Federal Compliance with Pollution Control Standards;
- EO 12580, Superfund Implementation;
- 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 PROPOSED ACTION

2.1 Construction and Operation of Infantry Squad Battle Course (ISBC) Ranges

The Proposed Action is to construct and operate two ISBC ranges to support the infantry squad live-fire collective training at Fort Carson. The two ISBC ranges would be designated as Range 163 and Range 167, respectively and would be sited in Training Areas 32 and 38, (Figure 2.0) on Fort Carson, Colorado. The site is a training area where current activities such as dismounted training, heavy vehicle maneuver training, parachute training and aviation training routinely occur. The ISBCs would be reconfigurable live fire ranges. The reconfigurable nature of the range provides the ability to emplace the range or change the layout with minimal re-occurring ground disturbance, because the majority of the target mechanisms and objectives will be built above ground. The proposed action also includes thermal targets, night illumination devices, and visual flash simulators to produce a realistic training environment.

The complex would be used to conduct tactical movement techniques, detect, identify, engage, and defeat an enemy doctrinal tactical array of stationary and moving infantry and armor targets. In addition to live-fire, this range would also be used for training with blank ammunition, simulated munitions, sub-caliber munitions and/or eye-safe laser training devices. All targets would be fully automated and the event specific target scenarios would be computer driven. Exercises would be scored from the range operations computer on the range. This range operating system would be fully capable of providing immediate performance feedback to the using units. Each ISBC would include 6 different objective areas and would contain a total of 20 stationary infantry targets (SITs), 6 stationary armor targets (SATs), 1 moving armor target (MAT), 6 moving infantry targets (MITs), 2 trench obstacles, and 5 machinegun/observation bunkers with sound effects simulators.

A small 60'X80' crushed rock vehicle parking area would be constructed to support the range facility. Range equipment would be stored and secured within a re-locatable storage container when the range is not scheduled for training use. A range sign and safety flagpole would be installed on the range facility to identify the range and indicate when the range is being used. Portable latrines would be located at each range. No permanent facility support structures are planned to be constructed at this time.

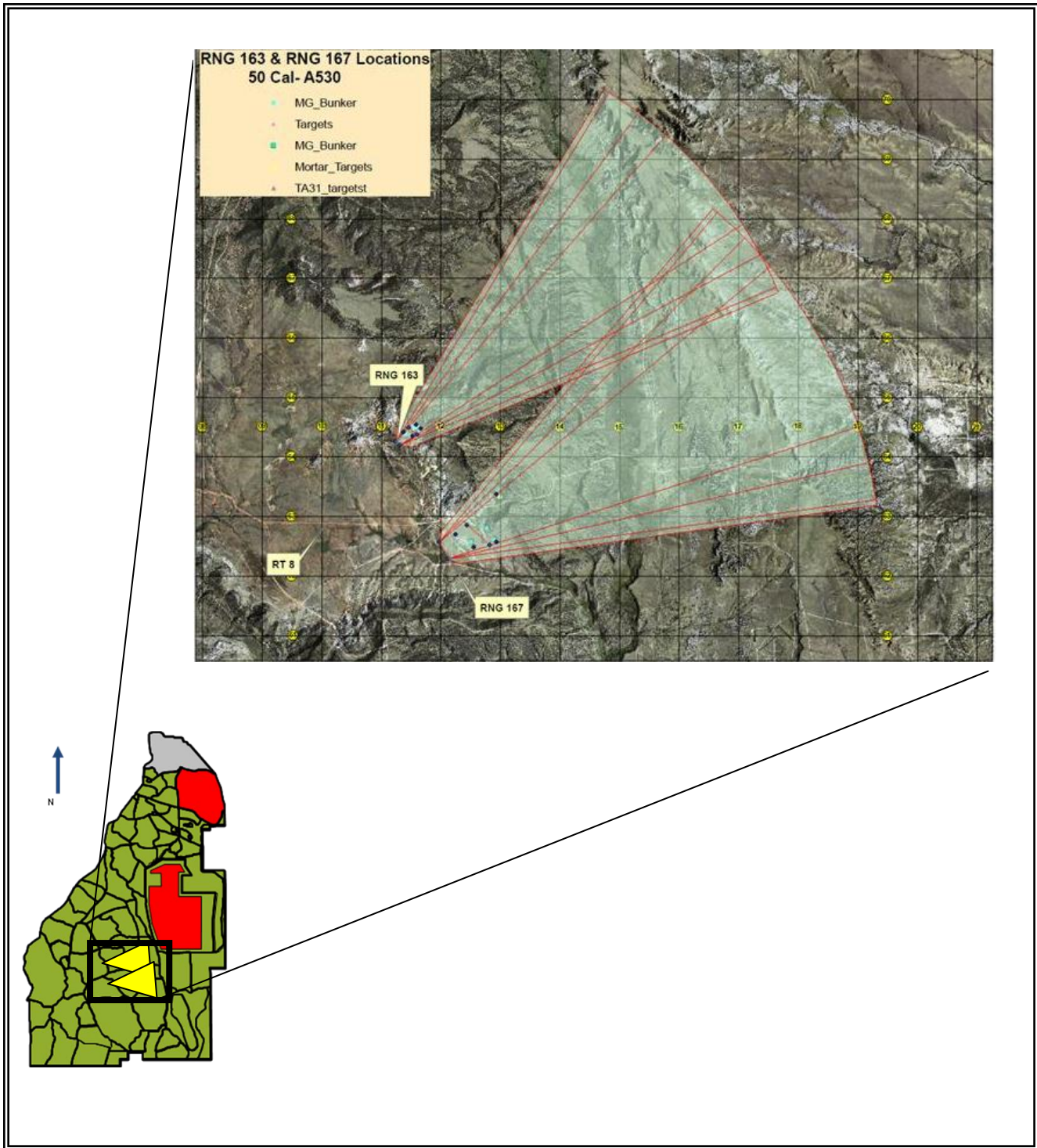


Figure 2.0. Location and Topography of Proposed Facilities

2.2 Description of the Target Emplacements and Objectives

This section describes the scope and dimensions of the individual target emplacements and objectives that comprise the Infantry Squad Battle Course ranges. To minimize the impacts from ground disturbance, the majority of the target types would be constructed above grade or ground level.

2.2.1 Stationary Armor Targets (SATs):

The SAT emplacements (6 at each proposed location) would be constructed by utilizing 2'X2'X6' solid concrete blocks, commonly referred to as "Ecology blocks". The blocks would be stacked (2) to create a retaining wall on three sides and then a protective earthen berm would be emplaced on the outside of the blocks. [Note: fill material from old EC ponds could be utilized.] The SAT emplacement, retaining wall and dirt berm are required to provide protection and concealment to the target lifting mechanism and associated hardware from the projectiles fired at the target silhouettes (see Figure 2.2.1).

Low rounds are usually captured by the compacted earthen berm. The floor of the emplacement would consist of crushed rock surrounding a 4'X4'X4" concrete pad. The target raising mechanism would be anchored to the concrete slab. Normally, SATs can be placed above- or below- grade but in an effort to minimize ground disturbance and associated impacts, target emplacements would be constructed above grade.

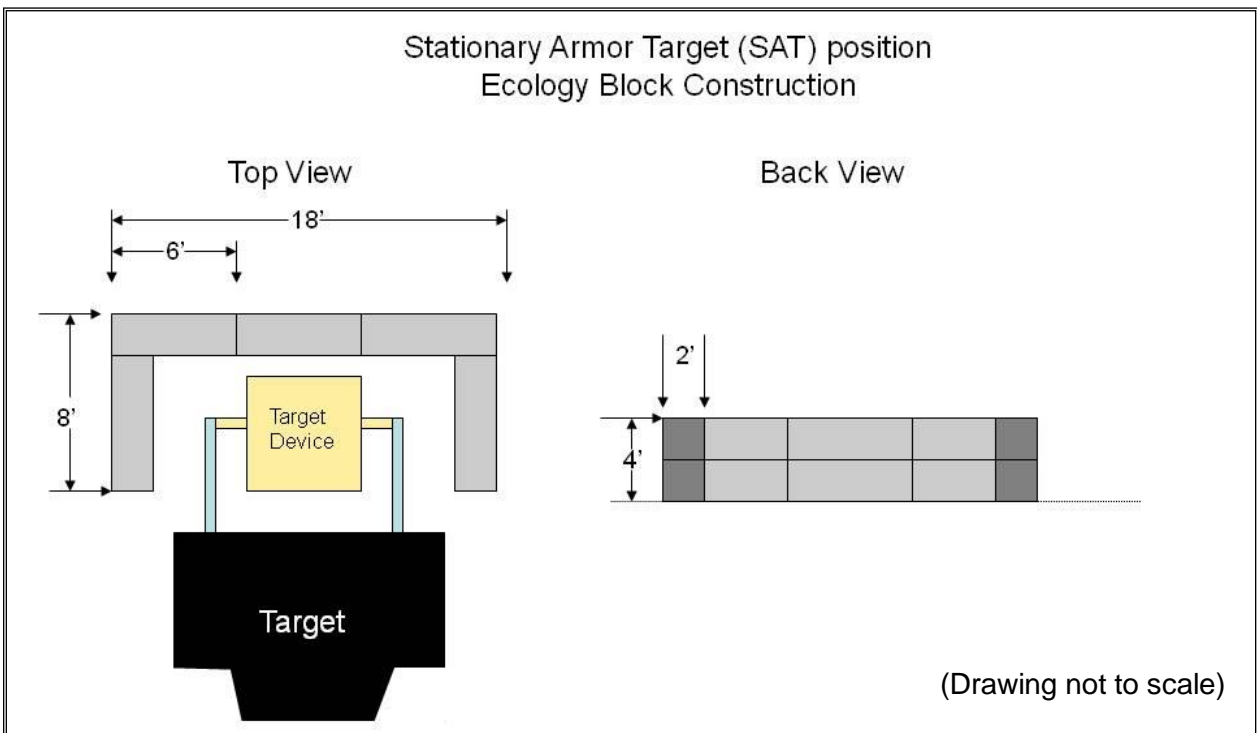


Figure 2.2.1 Representative SAT Emplacement Elevation Drawing

2.2.2 Moving Armor Targets (MAT):

There would be one MAT emplacement constructed on the proposed Range 167 by utilizing 2'X2'X6' Ecology blocks. Ecology blocks are large concrete blocks with a groove in the bottom face and a tongue on the top face to eliminate slippage when they are stacked. The blocks would be stacked (3) to create a retaining wall on three sides and then a protective earthen berm would be emplaced on the outside of the blocks. The MAT emplacement, retaining wall and dirt berm are required to provide protection and concealment to the target lifting mechanism, target carrier, target track and associated hardware from the projectiles fired at the target silhouettes (See Figure 2.2.2).

Low rounds are usually captured by the compacted earthen berm. The floor of the emplacement would consist of crushed rock and a steel track assembly that will provide guided movement of the target carrier and lifting mechanism. The track assembly would be anchored to the ground using 3 foot steel stakes. Normally, MATs can be placed above- or below- grade but in an effort to minimize ground disturbance and associated impacts, the MAT would be constructed above grade. Only minimal leveling of the site would be required.

Due to the steepness of terrain at Range 163, a MAT would not be constructed at this location.

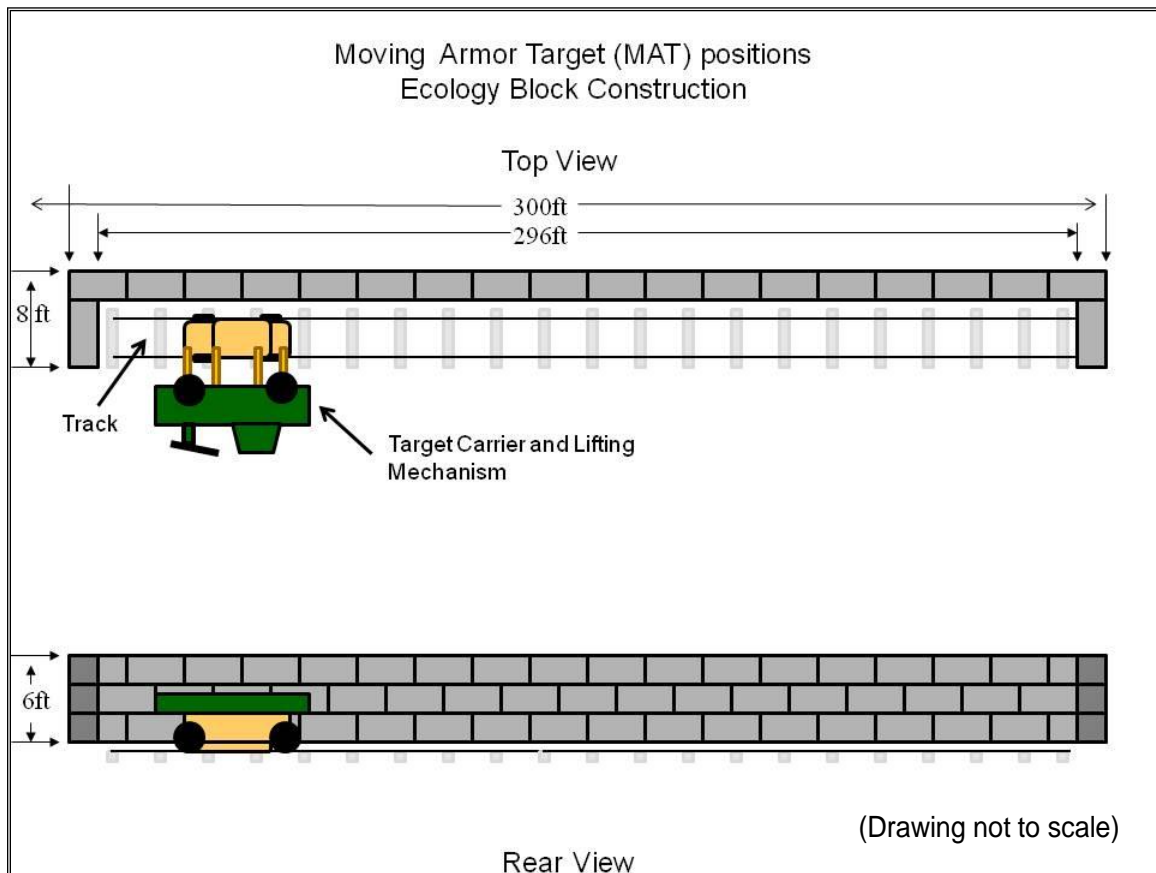


Figure 2.2.2 Representative MAT Emplacement Elevation Drawing

2.2.3 Stationary Infantry Targets (SITs):

The SIT emplacements (20 at each proposed location) would utilize a 3-sided, Abrasion Resistant 500 steel manufactured protective housing and a protective earthen berm. Construction of the SIT emplacements would require only minimal leveling of the ground where each individual target would be placed above grade. The 3-sided protective housing is constructed of hardened steel and is designed to protect the infantry target lifting mechanism from projectiles fired at the target silhouette. The SIT emplacement housing would have dirt placed in front and to the sides (See Figure 2.2.3).

Low rounds are usually captured by the compacted earthen berm. The floor of the emplacement would not require any work, as the target raising mechanism would be placed directly on top of the ground. Normally, SITs can be placed above- or below- grade but in an effort to minimize ground disturbance and associated impacts, target emplacements would be constructed above grade.

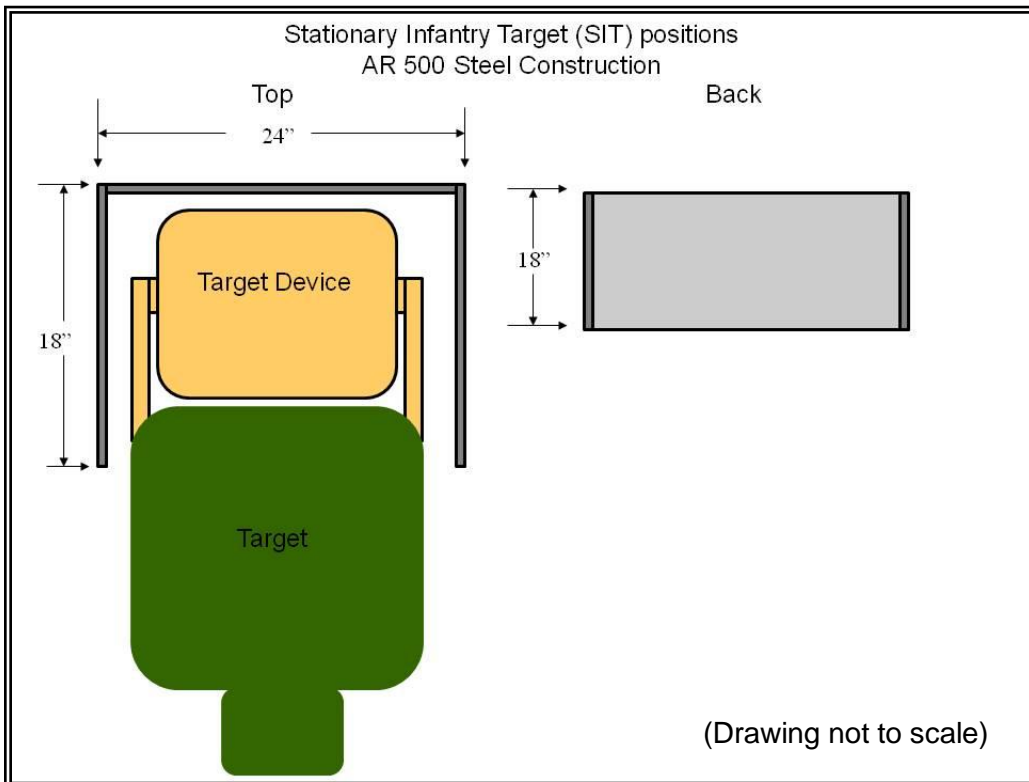


Figure 2.2.3 Representative SIT Emplacement Elevation Drawing

2.2.4 Moving Infantry Targets (MITs):

The MIT emplacements would be constructed by utilizing 2'X2'X6' Ecology blocks. The blocks would be laid end to end to create a retaining wall on three sides and then a protective earthen berm would be emplaced on the outside of the blocks (Figure 2.2.4). The MIT emplacement, retaining wall and dirt berm are required to provide protection and concealment to the target moving and lifting mechanism and associated hardware from the projectiles fired at the target silhouettes.

Low rounds are usually captured by the compacted earthen berm. The floor of the emplacement would consist of crushed rock and a steel track assembly that will provide guided movement of the target carrier and lifting mechanism. The track assembly would be anchored to the ground using 3-foot steel stakes. Normally, MITs can be placed above- or below- grade but in an effort to minimize ground disturbance and associated impacts, target emplacements would be constructed above grade.

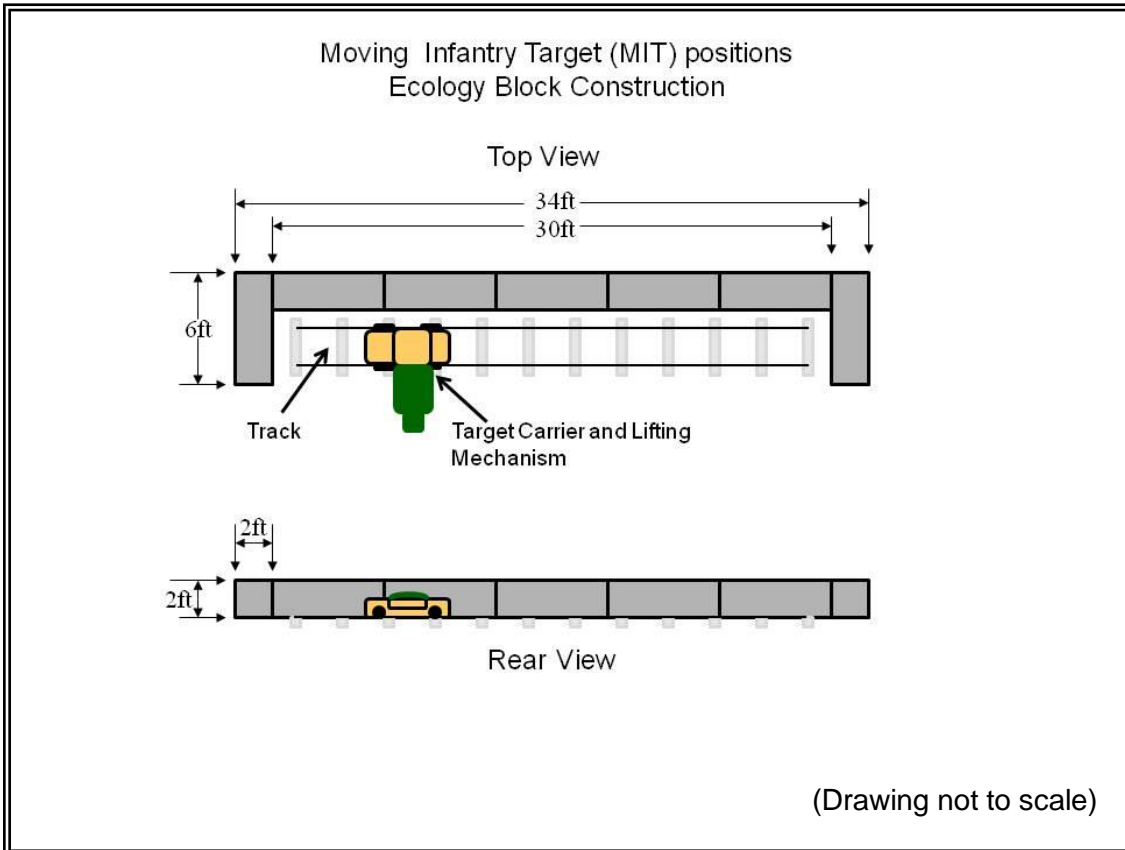


Figure 2.2.4 Representative MIT Emplacement Elevation Drawing

2.2.5 Machine Gun/Observation Bunkers:

The earth-covered and sand-bagged bunker simulates a typical enemy defensive machinegun bunker. The proposed ranges would each contain 2 actual bunkers 6'X6' and 3 simulated "mock" bunkers (wooden boxes that resemble a bunker).

Each machinegun bunker would be accompanied by one SIT, one night muzzle flash simulator (NMFS), and one infantry hostile fire simulator (IHFS). A night muzzle flash simulator is a simulator that uses Light Emitting Diodes (LEDs) to replicate the flash of enemy machine gun fire. The IHFS is a simulator that replicates the sound of enemy machine gun fire. The SIT, NMFS, and IHFS would be positioned in a manner that will draw attention to the bunker. To accommodate the standard design, the SIT, NMFS, and IHFS must be located outside of the bunker (See Figure 2.2.5).

The 2 actual bunkers would be constructed of wood above ground.

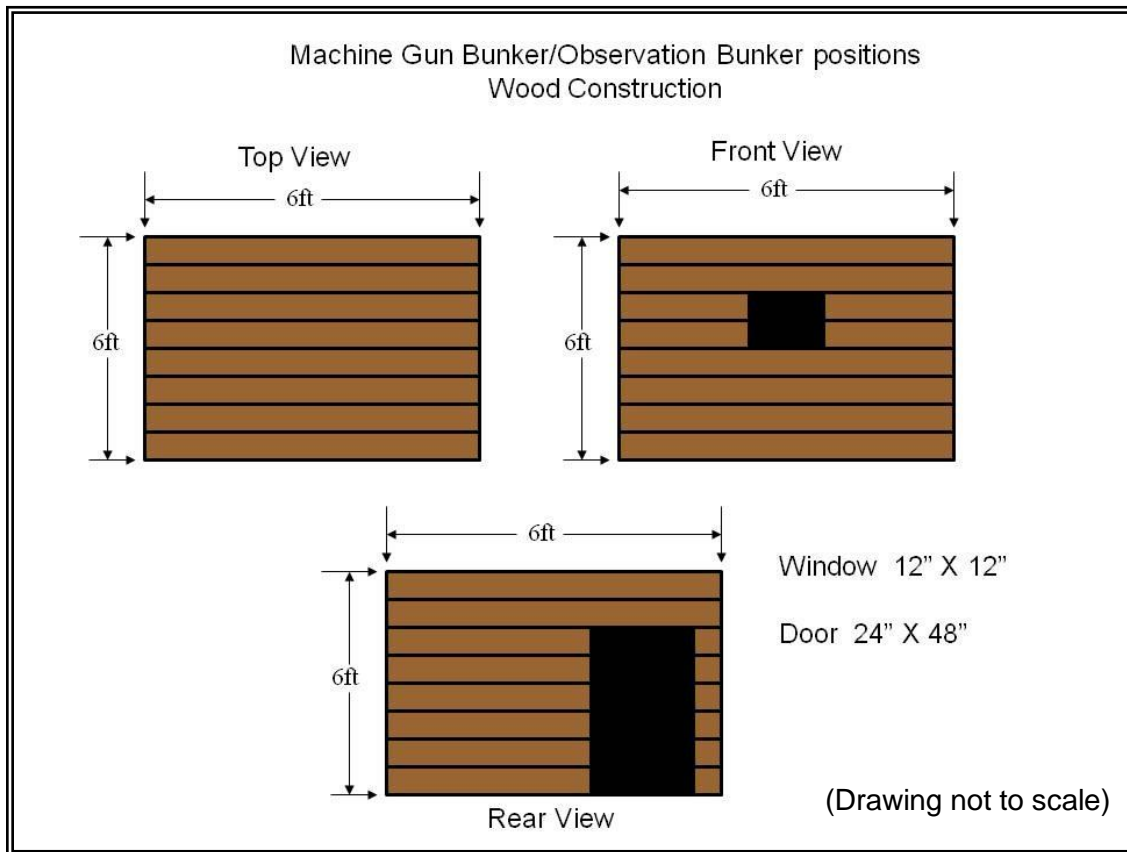


Figure 2.2.5 Representative Machine Gun / Observation Bunker Elevation Drawing

3.0 ALTERNATIVES CONSIDERED

This section describes 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.

3.1 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 two ISBC ranges. Implementing the No Action Alternative would deny unit commanders and the individual Soldiers the opportunity to conduct the required tactical movement techniques, detect, identify, engage, and defeat stationary and moving infantry and armor enemy targets in a realistic and relevant tactical array. Military units that train at Fort Carson would continue to fall short of meeting their assigned Mission Essential Task List (METL) prior to deployment into harms' way or in order to maintain proficiency levels. Fort Carson does not possess adequate quantities of this specific type of training range. Thus, units that train at Fort Carson would not have the opportunity to train on this type of range if the No Action Alternative was implemented. This alternative will only be considered in the environmental consequences analysis to provide a baseline for environmental conditions.

3.2 Alternative Sites Eliminated from Further Consideration

Alternatives to construct and operate two ISBC ranges on other sites on Fort Carson were evaluated and screened based on the following criteria:

These criteria must be achieved to meet mission as well as cost requirements for the proposed ISBC ranges:

- minimization of effects on the other military missions at Fort Carson (e.g., other small arms training, large weapon systems training, maneuver training, restricted airspace);
- minimization of significant environmental effects (e.g., avoidance of National Register of Historic Places-eligible cultural resources sites and Native American sacred sites; avoidance of effects to federal-listed species, special interest areas, and wetlands);
- minimization of safety, health, and nuisance issues, particularly with the general public (i.e., avoiding areas with existing or likely future housing, minimizing noise consideration; minimizing range ordnance risks [using existing impact areas]);
- securing a reliable and cost-effective source of power for ranges;

The Proposed Action was the only site that met these requirements. There were no other alternative sites that met all the above siting criteria. Other environmental issues (vegetation effects, potential erosion) could be reduced with mitigation.

A comprehensive alternative analysis matrix of other locations considered is in Appendix B.

4.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION

This section discloses potential environmental effects of each alternative and provides a basis for evaluating these effects in context relative to effects of other actions. Effects can be direct, indirect, or cumulative. Direct effects occur at the same place and time as the actions that cause them, while indirect effects may be geographically removed or delayed in time. Council on Environmental Quality (CEQ) guidance states that a cumulative impact is an effect on the environment that results from the incremental effect of the action when added to other past, present, and reasonably foreseeable future actions, regardless of what agency or person undertakes such other actions. Cumulative effects can result from individually minor, but collectively significant, actions taking place locally or regionally over a period of time.

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

- Air Quality
- Soils
- Water Resources
- Biological Resources
- Cultural Resources

Areas with no discernible concerns or known effects, as identified in the issue elimination process (Section 4.1, *Issues Not Addressed*), are not included in 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. General mitigation that affects many of these environmental areas of concern is identified in Section 4.11, *General Mitigation*. A summary of environmental consequences is provided in Chapter 5.

4.1 Issues Not Addressed

Initial issue analyses resulted in the elimination of some potential issues because they were not of concern or were not relevant to the Proposed Action and alternatives. Brief discussions of the rationale for these decisions are below.

Environmental Health and Safety Risks for Children

Executive Order No. 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, (62 Federal Regulation No. 78) was issued in April 1997. This Executive Order directs each federal agency to “ensure that its policies, programs, activities, and standards address disproportionate risks to children that result from environmental health or safety risks”. Sensitive areas for exposure to children are schools and family housing areas. Environmental health and safety risks are attributable to products that a child might come in contact with or ingest as well as safety around construction areas and areas of buildings that pose safety hazards.

Neither the Proposed Action nor its alternatives would change environmental health or safety risks to children since the area is well within the boundaries of Fort Carson in an area designated for training (the nearest boundary to the site is over 5 miles, and the nearest Fort Carson Family Housing is about 13 miles). Neither the Proposed Action nor its alternatives

would have significant or disproportionate adverse effects on children or pose health or safety risks.

Environmental Justice

Executive Order No. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 Federal Regulation No. 32), issued in February 1994, provides that “each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations”.

Neither the Proposed Action nor its alternative would change any existing impacts with regard to minority and low-income populations.

Geology and Topography

Neither the Proposed Action nor its alternatives would have any measurable effects on geologic resources or topography.

Land Use

Neither the Proposed Action nor its alternatives would change existing land use on any lands other than at Fort Carson. Lands affected by the Proposed Action on Fort Carson would continue to be used primarily for military training. However, when the proposed ISBC ranges would be used, lands within their surface danger zone would not be available for military maneuvers or other uses.

Air Space Use

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

Noise Environment

Neither the Proposed Action nor its alternatives would change noise environment conditions. Noise generated at these facilities would be compatible with surrounding land use, primarily military training. The level of noise produced by small arms is minimal compared to large caliber weapons firing and will not be heard past the installation boundary (at least 5 miles from the proposed ISBC ranges site).

Hazardous Waste/Materials

Neither the Proposed Action nor its alternatives would generate additional hazardous wastes or use additional hazardous materials. The likelihood to encounter contamination on proposed project site is remote. Any discovery of hazardous material contamination would require appropriate regulatory coordination and compliance. If contamination is encountered, appropriate measures would be taken to remediate the site.

Facility operation would not use hazardous substances or generate hazardous wastes that are different from those already occurring on Fort Carson range areas due to military operations. Any spills would be cleaned up in accordance with the Fort Carson Spill Prevention, Control, and Countermeasures Plan and Fort Carson Regulation 200-1 (Chapter 9). No storage tanks would be required as all power would be electric. An Environmental Protection Plan would be prepared for the project. This plan would include provisions from other Fort Carson plans, such as the Spill Control Plan, Recycling and Waste Minimization Plan, Contaminant Prevention Plan, and others.

Transportation

Neither the Proposed Action nor alternatives would impact traffic patterns on Fort Carson or surrounding communities.

Socioeconomics

There may be a slight beneficial economic impact resulting from the construction of the Proposed Action, however this would be short-term and temporary.

Visual and Aesthetic Resources

Neither the Proposed Action nor alternatives would impact visual or aesthetic resources.

Sustainability

Neither the Proposed Action nor alternatives would impact sustainability.

Utilities

Neither the Proposed Action nor alternatives would impact utilities as there is no requirement for external power, water, and/or fiber. In conjunction with Fort Carson's sustainability initiatives, these two new ranges would utilize renewable energy to operate the target devices and power the precautionary safety markings. More specifically, the individual targets would incorporate a 55-watt Photovoltaic solar panel to recharge the device and the safety markings (firing limit markers & flag pole) would operate from solar rechargeable hazard lights. Another initiative involved in these two ranges relates to sustainable construction; the intended method of establishing the target emplacements and objectives involves above grade construction for the majority of the range footprint. Through above grade construction and the use of renewable energy, there would be minimal requirement for ground disturbance (excavation and trenching) which would result in reduced ground disturbance, the reduced likelihood of inadvertent impact to natural and cultural resources, and no increased demand on commercial power. Lastly, the largest component of the construction materials would be ecology blocks, 2ft X 2ft X 6ft solid concrete blocks. The ecology blocks would provide a sustainable resource that could be used again in the future when deemed necessary to reconfigure the layout of the range or provide the flexibility to remove them from the range if/when doctrinal training standards change in the future.

4.2 General Information – Location and Surrounding Land Uses

As seen in Figure 4.2a, 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 (Figure 4.2b). Downtown Colorado Springs and Denver lie approximately 8 miles and 75 miles, respectively, to the north, while the City of Pueblo is located approximately 35 miles south of the main post area (commonly referred to as 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 main post 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.

4.2.1 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 average daily maximum temperature of 84.4° Fahrenheit, and January is the coldest with an average 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, with about 80 percent falling between April and September. 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.

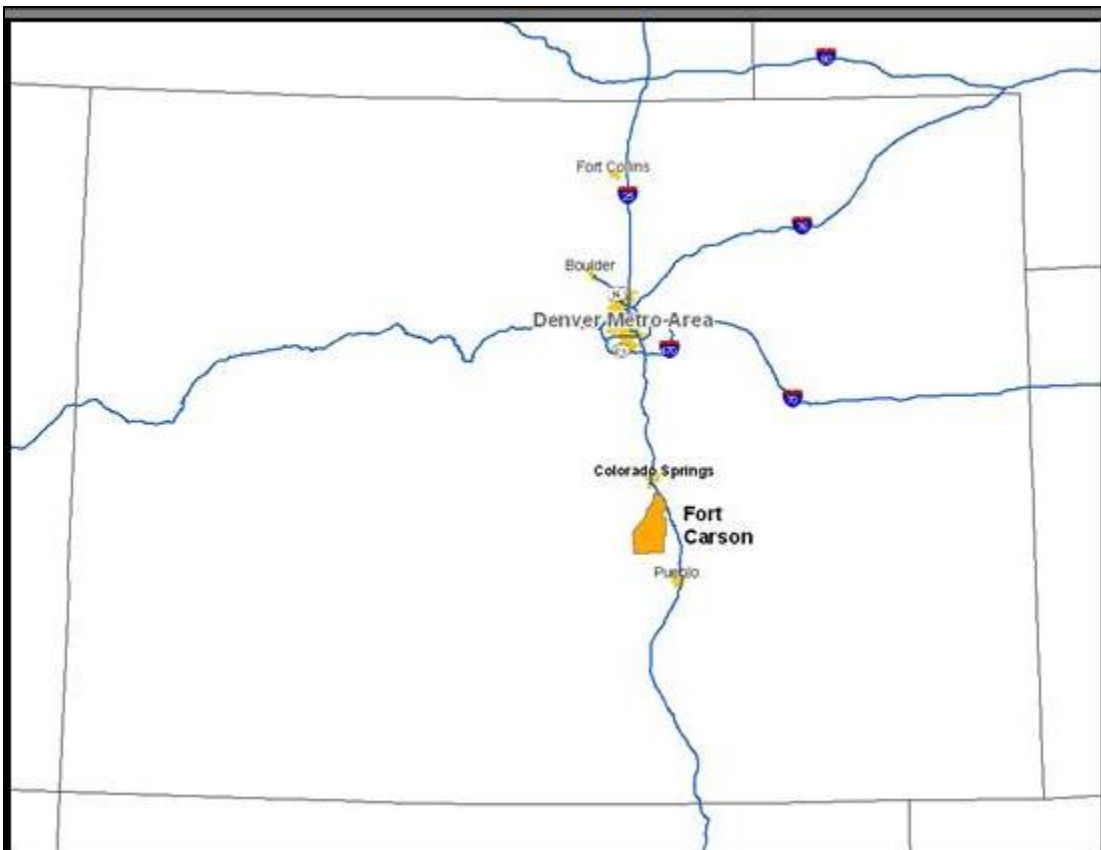


Figure 4.2a. Location of Fort Carson, Colorado

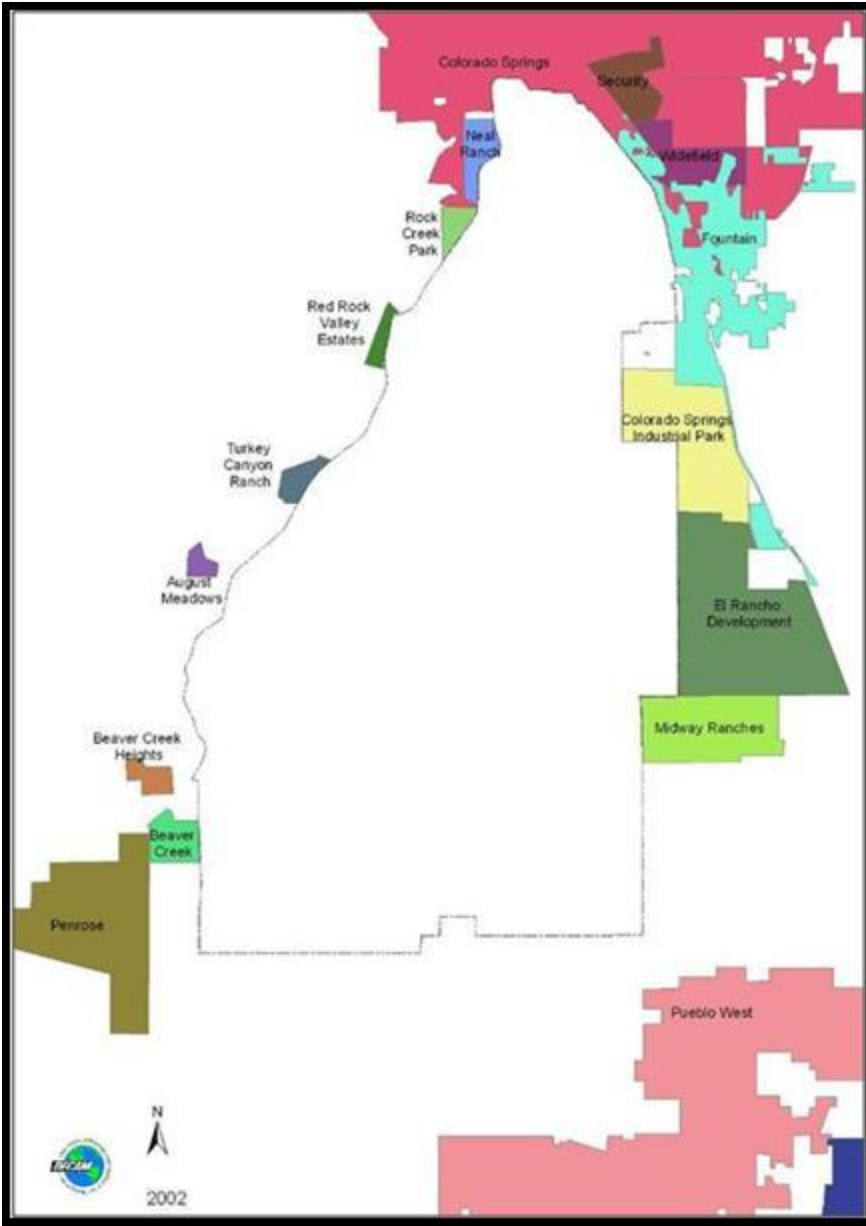


Figure 4.2b Lands Neighboring Fort Carson, Colorado

4.3 Air Quality

4.3.1 Existing Conditions

The Clean Air Act authorizes the United States Environmental Protection Agency (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, 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 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. 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, 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 whose emissions are greater than the established permitting thresholds or who meet other applicable criteria are required to obtain an operating permit (USEPA, 2010). 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, 2010a), or National Emissions Standards for Hazardous Air Pollutants (USEPA, 2010b).

4.3.1.1 Ambient Air Quality Conditions

Fort Carson is in an attainment area for all criteria pollutants, with the exception of carbon monoxide (CO) for which part of the base 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.

4.3.1.2 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 carbon monoxide, nitrogen oxides, sulfur dioxide, and particulate matter (both as PM10 and PM2.5). Lesser contributions of emissions come from coating activities, gasoline filling stations, chemical usage, 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 hazardous air pollutants. 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, carbon monoxide, 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.

4.3.1.3 Greenhouse Gases

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 (CO₂e), 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 Green House Gas 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 to help 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.

4.3.2 Environmental Consequences

4.3.2.1 Proposed Action

The Proposed Action would not change regional air quality conditions. Construction under the Proposed Action would have short-term minor adverse impacts on air quality due to 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 minor long-term adverse impacts on air quality due to a minor increase in firing activity and use of smoke grenades on the installation. The firing of weapons produces smoke and lead dust. In an outdoor setting, the effect on air quality is not significant.

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 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.

The Proposed Action is outside of the carbon monoxide maintenance area and is not subject to NSR and minor NSR requirements. Additionally, the Proposed Action is not 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. The Proposed Action is not anticipated to result in violations of NAAQS

4.3.2.2 No Action Alternative

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

4.3.3 Cumulative Effects

Environmental effects from past and current Army actions, when added to the anticipated environmental effects of the Proposed Action, would not result in any significant long-term effects to air quality because operations are within construction permit and fugitive dust permit requirements. These requirements are designed to ensure that emissions do not significantly affect air quality. Therefore, there would be no significant cumulative effect from the combined environmental effects of the Proposed Action and those of past, present and reasonable foreseeable future actions.

4.3.4 Site-specific Mitigation

Fort Carson personnel using smoke (smoke grenades) would obtain meteorological condition data prior to and during such operations. Wind direction and speed would be monitored to ensure that visible smoke emissions would not be transported across the Installation boundary, per the Fort Carson Smoke and Obscurant Compliance Plan.

The contractor and Omaha District, U.S. Army Corps of Engineers would submit any required construction and/or land development construction permit applications. Applications would include a fugitive dust control plan and would include all land disturbance associated with this project. Short-term air quality degradation would occur during the construction phase but would be mitigated by a variety of fugitive dust control measures.

Appropriate emission control devices on vehicles and equipment used for construction would minimize effects to air quality. Heating and air conditioning equipment would be regularly maintained to minimize the risk of above-normal emissions from these units

4.4 Soils

4.4.1 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.

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 and soil descriptions of the proposed range sites were collected from the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (USDA, 2011). The soil types that would be potentially affected by the Proposed Action are Badland, Neville Fine Sandy Loam, Neville Sandy Loam, and Stroupe-Travessilla-Rock outcrop complex.

Badland, which has 1 to 10 percent slopes and depth to restrictive feature is 0 to 3 inches to paralithic bedrock. The typical profile is 0 to 60 inches of weathered bedrock and available water capacity is very low (0 inches).

Neville Fine Sandy Loam has 3 to 9 percent slopes and depth to restrictive feature is more than 80 inches. The soil is well-drained and available water capacity is high (about 9.2 inches). The typical profile is 0 to 10 inches fine sandy loam and 10 to 60 inches loam.

Neville Sandy Loam has 3 to 9 percent slopes and depth to restrictive feature of more than 80 inches. The soil is well-drained and available water capacity is high (about 9.4 inches). The typical profile is 0 to 4 inches sandy loam, 4 to 9 inches sandy clay loam, and 9 to 60 inches loam.

Stroupe-Travessilla-Rock outcrop complex has 9 to 90 percent slopes and depth to restrictive feature of 20 to 40 inches to lithic bedrock. The soil is well-drained and available water capacity is very low (about 2.7 inches). The typical profile is 0 to 8 inches stony loam, 8 to 16 inches very stony clay loam, 16 to 35 inches extremely stony clay loam, and 35 to 39 inches unweathered bedrock.

4.4.2 Environmental Consequences

4.4.2.1 Proposed Action

All four soil types are categorized as moderately or highly susceptible to erosion. However, several factors minimize or eliminate these concerns. First, the construction disturbance footprint would be minimal. Second, since these ranges are for dismantled training only, vehicle traffic would be confined to roads and trails, to deliver troops to the range. If necessary, best management practices (BMPs) such as turnouts, sediment traps, hardening, etc. could be applied. Third, there are existing erosion control dams in line between these ranges and Turkey Creek. They would collect any sediment that might escape the footprints of the proposed ranges. The water holding capacity of these existing dams can be increased by removing material from the basins. That material could then be used to build or re-build the earthen berms that help to protect the target mechanisms.

Overall, the effects of construction under the Proposed Action would be minor, and easily controlled by standard BMPs. Effects of operations under the Proposed Action would be minimal, due to the dismantled nature of the training.

4.4.2.2 No Action Alternative

Under the No action alternative, there would be no impacts to soils.

4.4.3 Cumulative Effects

Cumulative, long term effects on soils would be slightly greater, considering the other ranges built recently in the vicinity, along with the usual mechanized maneuver in that area. However, the impacts would be minor, and could be easily mitigated by use of BMPs to catch potential sediment, if monitoring determined the need.

4.4.4 Site-specific Mitigation

Periodic visual monitoring for erosion.

4.5 Water Resources

4.5.1 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, Natural Resources Conservation Service, U.S. Fish and Wildlife Service, 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* (DPW 2010) 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.

4.5.1.1 Surface Water

4.5.1.2 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. These controls are implemented via the National Pollution Discharge Elimination System (NPDES) General Construction General Permit form Large and Small Construction Activities, and Fort Carson's Municipal Separate Storm Sewer Systems (MS4s).

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.

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. Fort Carson's MS4 permit number is COR042001 and the permit expires April 29, 2014.

Fort Carson manages NPDES MS4 stormwater permit requirements in accordance with its MS4 permit (USEPA, 2009) and *Stormwater Management Plan (SWMP), Fort Carson, Colorado*. Within this plan, baseline hydrologic models have been completed for the main post area watersheds, but none of the downrange areas.

4.5.1.3 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, G.J., 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, G.J., 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.

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, 2007). 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.

4.5.1.4 Floodplains

Executive Order (EO) 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 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 base flood level rather than filling in land.

4.5.2 Environmental Consequences

4.5.2.1 Proposed Action

The Proposed Action area is located in the Turkey Creek sub-watershed. The stormwater from the Turkey Creek sub-watershed drains into Turkey Creek, which is a tributary of the Arkansas River between Pueblo Reservoir and the Colorado Canal head gate. Therefore, Turkey Creek is included in the State of Colorado's segment COARUA14b, Tributaries to the Arkansas River, from Pueblo Reservoir to Colorado Canal Headgate. This segment appears on the Colorado Department of Public Health and Environment's Monitoring and Evaluation List for aquatic life use (Hg and Fish Consumption Advisory).

The Proposed Action would not significantly impact the aquatic life use in Turkey Creek because the impervious area of the target and bunker is too small and too far away

(conservatively 800 feet at the closest point) from Turkey Creek to significantly concentrate the mercury in the stormwater runoff. The 60' x 80' parking lot will be made of gravel, and therefore, pervious. A pervious parking should not significantly concentrate stormwater runoff.

Construction under the Proposed Action could possibly have short-term minor adverse impacts on water quality. Construction would include some minor increases in sediment runoff caused by excavated areas should a storm event occur during that period. Construction activity under the Proposed Action is not expected to require permit coverage under the NPDES General Construction Permit because the disturbed area will likely be less than one acre.

Although a floodplain map does not exist for the Turkey Creek sub-watershed, it is unlikely that the proposed action is located within a floodplain. The proposed parking area is located at an elevation approximately 15 feet above Turkey Creek and the targets and bunkers discussed in the Proposed Action are located 30 feet or more above Turkey Creek.

4.5.2.2 No Action

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

4.5.3 Cumulative Effects

4.5.4 Site-specific Mitigation

The execution of the Proposed Action should include temporary construction site best management practices (BMPs) to prevent sediment and other contaminants from leaving the project area and discharging into Turkey Creek.

4.6 Biological Resources

4.6.1 Existing Conditions

Biological resources on Fort Carson exist primarily on the training ranges.

4.6.2 Vegetation

The *Fort Carson Integrated Natural Resource Management Plan* (DECAM, 2007a) contains detailed descriptions of the vegetation communities on Fort Carson and a listing of scientific names of plant species known to occur.

The proposed site is composed primarily of pinon-juniper woodland, mountain mahogany-skunkbush shrubland, and foothills blue grama grassland. The woodland is traversed by a north-south ridgeline of woodland barrens habitat. Smaller areas of cottonwood riparian, Frankenia shrub-barrens, and winefat-blue grama and needle and thread grasslands are found in the area.

4.6.2.1 Noxious Weeds (General)

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 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, 2008). The plan addresses noxious weed management strategies for Fort Carson through 2012 and is reviewed and updated if necessary each year.

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.

4.6.3 Wildlife

4.6.3.1 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 propose them as endangered or threatened, but for which is precluded by other higher priority listing activities. Table 3.7 presents federally-listed endangered, threatened, and candidate species for counties in which Fort Carson is located (El Paso, Pueblo, and Fremont counties). Critical habitat for these species does not occur on Fort Carson.

Table 4.6 Federally-Listed Endangered, Threatened, and Candidate Species of Potential Occurrence at Fort Carson¹

Species	Scientific Name	Species Type	Status	Distribution on Fort Carson
Arkansas Darter ²	<i>Etheostoma cragini</i>	Fish	C	Introduced multiple sites on Fort Carson
Greenback cutthroat trout ²	<i>Oncorhynchus clarki stomias</i>	Fish	T	Not known to occur
Black-footed ferret	<i>Mustela nigripes</i>	Mammal	E	Not known to occur
Preble's meadow jumping mouse	<i>Zapus hudsonius preblei</i>	Mammal	T	Not known to occur
Mexican spotted owl	<i>Strix occidentalis</i>	Bird	T	Rare winter resident Booth Mountain
Orchid	<i>Spiranthes diluvialis</i>	Plant	T	Not known to occur

Source: DPW, 2009

Legend: ¹Species for which no reasonably suitable habitat exists on Fort Carson are not included

²Species occurring on Fort Carson are also state-listed.

C- Candidate

E- Endangered

T- Threatened

Mexican Spotted Owl – Threatened Species

The Mexican Spotted Owl nests in rugged forested canyons west of Fort Carson. It is a rare winter resident on Fort Carson and known to have occurred only on and adjacent to Booth Mountain south of the proposed range safety fan. It is not known if the species is present annually. A radio tagged owl present on Fort Carson in the winter of 1995-1996 did not return in subsequent years. 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, 2002).

Arkansas Darter

The Arkansas darter is a federal candidate for listing as a threatened species. The darter is found at a few sites on the installation. It is not known to occur within the project area.

State Listed Species and Species of Concern and Army Species at Risk

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, and the US Army. State threatened and endangered wildlife species are protected by Colorado state law. Avian Species of Concern are protected by Colorado state law, the Migratory Bird Treaty Act, and the Eagle protection Act. Sensitive species of plants are not protected by state or federal laws.

Species of special concern that are either known or potentially occur on Fort Carson include Ferruginous Hawk (*Buteo regalis*), American Peregrine Falcon (*Falco peregrinus anatum*), Mountain Plover (*Charadrius montanus*), Northern Leopard Frog (*Rana pipiens*), Black Tailed Prairie Dog (*Cynomys ludovicianus*), and Triploid Checkered Whiptail (*Cnemidophorus neotesselatus*).. Those species that are Federally-listed were discussed previously 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, 2007).

Black-tailed Prairie Dog

Four black-tailed prairie dog colonies, totaling approximately 180 acres, are found in the proposed project site. 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 the CNHP. 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. Prairie dogs are managed on Fort Carson according to prescriptions detailed in the installation's management plan for the black-tailed prairie dog. 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 during the breeding season (DECAM 2002a). Surveys for this species are conducted annually and it is not known to occur in or near the project area.

Burrowing Owl

The burrowing owl is a small, burrow-dwelling owl nesting underground in unoccupied prairie dog burrows. The burrowing owl is not abundant on Fort Carson and the number of prairie dog colonies annually occupied by this species is low (DPW, 2009). Although sylvatic plague does not directly influence nesting burrowing owls, they generally do not nest in colonies where all prairie dogs have been killed by plague. This species is known to nest within the Surface Danger Zone (SDZ) of the project area.

Golden Eagle

An historical eyrie is located within the SDZ of proposed Range 163. The eyrie is one of three active eyries known to occur on the installation.

Shale Barrens Endemic Plants

Barrens habitat supporting three species of endemic plants classified as Army Species at Risk occur on Fort Carson. This habitat is characterized by exposed outcrops of sparsely vegetated limestones and shales of the Niobrara Formation. A north-south ridgeline of barrens traverses the project area. Surveys for these plants have not been conducted, but one species, *Oxybaphus rotundifolius*, occurs on the periphery of the proposed range.

4.6.4 Wetlands

In 2008, the U.S. Army Corps of Engineers (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., streams) or small and isolated.

4.6.5 Environmental Consequences

4.6.5.1 Proposed Action

Vegetation

Construction of the Proposed Action would have a minor, temporary impact on the vegetation, due to the minimal footprint of the targets, etc. Operation of the Proposed Action would have only a minor effect on the vegetation, since both ranges are for training of dismounted Soldiers.

Wildlife

Mexican Spotted Owl

Three roost trees which were once used by a Mexican Spotted Owl in February 1996 are found within the project area. The trees are located along the south boundary of the Range 167 SDZ, approximately 1,880 m (1.2 miles) southeast of the nearest targets. The trees are not designated critical habitat for the species. There is similar potential habitat nearby. The trees are separated from the targets by two wooded ridgelines. Range operations increase the possibility of wildland fire near this area, however during periods of high fire danger, Fort Carson prohibits the use of flame producing ammunition and pyrotechnics as a precautionary measure.

Black-tailed Prairie Dog

This species occurs within the project area, but its distribution is limited due to suitable habitat. It occurs only near the eastern boundary of the range SDZ. Operation of ranges 163 and 167 will have a positive effect on the species because dismounted and off-road vehicle training will be excluded during range operation.

Mountain Plover

The Mountain Plover is known to occur only in prairie dog colonies on Fort Carson and is known to occur only at two locations on the installation. Although suitable habitat is found within the proposed site, it is not expected to occur. If the species were to nest within the range SDZ, operation of the ranges would have a positive effect because dismounted and off-road vehicle training will be excluded during range operation.

Burrowing Owl

The prairie dog colony supporting Burrowing Owls is located at the eastern boundary of Range 163 safety fan. Both range SDZ have suitable burrowing owl habitat near their eastern boundary. Operation of ranges 163 and 167 will have a positive effect on the owls because dismounted and off-road vehicle training will be excluded during range operation.

Golden Eagle

The Rule Canyon Golden Eagle eyrie is located within Range 163 SDZ, 2,150 m (1.3 miles) east of the targets. Operation of ranges 163 and 167 will likely have a positive effect on eagles nesting in Rule Canyon because dismounted and off-road vehicle training will be excluded during range operation.

Shale Barrens Endemic Plants

Army SAR endemic plants are not known to occur within the project area, but habitat for these species is located within the site. *Oenopsis puebloensis*, an endemic plant often associated with the SAR, does occur. Operation of ranges 163 and 167 will have a positive effect on the shale barrens habitat because off-road vehicle training will be excluded during range operation.

Wetlands

U.S. Jurisdictional waters occur within the area for the proposed project and may be impacted by the proposed action. If the project disturbs any jurisdictional waters, it must meet the regulatory requirements of the Clean Water Act (CWA) Section 404. Any disturbance to US jurisdictional waters (e.g., soil or vegetation disturbance or removal) may require a Section 404 permit. Jurisdictional waterways encompass the drainage area up to the ordinary high water mark and water does not have to be present to be a US jurisdictional waterway.

4.6.5.2 No Action

Vegetation

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

Wildlife

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

Wetlands

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

4.6.6 Cumulative Effects

Vegetation

Cumulative, long term impacts would possibly be more noticeable than the present, very limited use of these two footprints, but would still be classified as minor. Any decline in vegetation noted by periodic visual monitoring could be mitigated by reseeding native perennial grasses.

Wildlife

The proposed action results in a variety of potential impacts, including mortality, disturbance or displacement, and loss of habitat or nesting or foraging territory. The proposed action includes continuation of a number of management measures, such as described in the INRMP and mitigations to avoid and minimize these impacts.

Wetlands

Cumulative impacts for the proposed action in combination with other present and planned future actions are and would continue to occur at Fort Carson and in the region. Fort Carson will continue to play a key role in sustaining wetlands through its land management and natural resources programs to minimize these impacts.

4.6.7 Site-specific Mitigation

Vegetation

The execution of the Proposed Action should include best management practices (BMPs) during removal of pinon-juniper woodlands. Refrain from damaging residual pinon pines to avoid attracting bark beetle.

Wildlife

Mexican Spotted Owl

During periods of high fire danger, Fort Carson prohibits the use of flame producing ammunition and pyrotechnics as a precautionary measure. In addition, training units are required to have assigned firefighting equipment on hand during live fire training and would serve as first responders to control the fire as soon as smoke is observed. Fort Carson regulations require immediate notification of fires that are started on ranges. Any fires at the proposed ranges would be suppressed on a high priority basis.

Golden Eagle

Support nesting eagles by reducing the incidence of plague at selected prairie dog colonies in the vicinity of the eyrie (DECAM 2007).

Wetlands

If there is any question to whether a drainage/waterway is "jurisdictional", the Ft. Carson Watershed Program POC would be contacted. Any work potentially impacting US jurisdictional waters would be coordinated and submission of Section 404 permit requests made through Ft. Carson Watershed Program POC.

4.7 Cultural Resources

4.7.1 Existing Conditions

Cultural resources management on Fort Carson encompasses conservation of resources of significance to the history or prehistory of the United States or of traditional, religious, or cultural importance to Native Americans. These resources consist of the material manifestations of the knowledge, beliefs, art, morals, laws, and customs particular to a people or society. Fort Carson manages cultural resources associated with all major prehistoric and historic cultural periods recognized on the southern Great Plains and Rocky Mountains. Federally-funded archaeological and historical studies have been conducted on the land encompassed by Fort Carson since the 1980s. Prehistoric, historic, and multi-component sites occur throughout the installation, many of which have been determined to meet the criteria of eligibility for inclusion in the National Register of Historic Places (National Register).

Approximately 94,376 acres of Fort Carson have been inventoried for historic properties, with approximately 24,825 acres un-surveyed (this figure does not include the un-surveyed areas within the two impact areas, totaling approximately 18,212 acres). Over 1,200 archaeological sites (excluding isolated finds) have been identified. Currently, Fort Carson considers 130 of these sites eligible for inclusion in the National Register of Historic Places (NRHP), with an additional 52 sites requiring further evaluation for a determination of eligibility.

4.8.2 Environmental Consequences

The Fort Carson Cultural Resources Manager (CRM) has determined that the Proposed Action constitutes an undertaking as defined in 36 CFR 800.16(y) of the National Historic Preservation Act (NHPA).

4.8.2.1 Proposed Action

The CRM conducted an initial review of the actions required for the construction and operation of the two ISBC ranges, and determined that there was a potential for adverse effects to historic properties as defined in 36 CFR 800.5. Section 106 of the NHPA was conducted in accordance with 36 CFR 800.3-6 with the Colorado State Historic Preservation Officer (SHPO) and Native American Tribes with a cultural affiliation to Fort Carson lands (See Section 4.8.4 below).

4.8.2.2 No Action Alternative

There is no additional potential for adverse effects to historic properties under the No Action Alternative.

4.8.3 Cumulative Effects

The cumulative impact to cultural resources consists of past, present, and reasonably foreseeable future actions which affect archeological resources, historic resources, or their viewsheds on and near Fort Carson. As is true of cultural and historic resources world-wide, impacts to such places are tied to land use; i.e., a particular culture's view of the landscape it occupies and the societal functions that the land fulfills for that group. Each subsequent population or activity that occupies a landscape produces an impact to past land use practices and cultural remains. The foundation of archaeological and anthropological investigation was formed within these tenets of human progress in order to understand the past, present, and future. Landscapes with repeated use tend to contain high site densities, as human populations are drawn to natural resources, such as water, arable land, minerals, and climates hospitable for game and crops. Repeated land use also means re-use of both natural and man-made materials, such as is seen in the remnants of numerous stone structures scattered throughout Colorado.

The implementation of the Proposed Action 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. It is anticipated that the Proposed Action would not result in significant adverse cumulative impacts with the Cultural Resource Management Program and other policies in place to preserve Fort Carson's historic and archaeological resources. These include, but are not limited to the on-going identification and evaluation of archaeological resources, utilization of cultural landscape analysis, the "mitigation by design" approach used in the planning process for all Fort Carson activities, continued stakeholder and Tribal involvement, and the retention of qualified professionals who meet or exceed the Secretary of the Interiors Standards and Guidelines for Archaeology and Historic Preservation.

4.8.4 Site-specific Mitigation

It must be noted that under the NHPA, the Native American Graves Protection and Repatriation Act (NAGPRA), the Archaeological Resources Protection Act (ARPA), and all other cultural resources laws and regulations, the term *mitigation* generally refers to total data recovery of an archaeological site. This term under NEPA is used to discuss the measures employed to avoid or minimize potential effects to historic properties. It is rare that Fort Carson cultural resources personnel recommend extensive sub-surface excavation work.

In accordance with the NHPA, consultation under Section 106 of the NHPA was initiated in accordance with 36 CFR 800.3-6 with the Colorado State Historic Preservation Officer (SHPO) and Native American Tribes with a cultural affiliation to Fort Carson lands, to quantify the potential for adverse effects to historic properties and work toward resolution of those effects, as necessary. This consultation included discussion regarding the un-surveyed areas, identification and evaluation of unknown archaeological resources, and documentation or mitigation measures associated with sites within the Proposed Action that are eligible for inclusion in the National Register. Fort Carson initiated Section 106 consultation for the Proposed Action in September 2011. The SHPO supported the finding that no historic properties are affected due to the range construction (Appendix D). Military training activities associated with operation of these ranges is the subject of continuing consultation efforts initiated July 2011.

5.0 SUMMARY OF EFFECTS AND CONCLUSIONS

5.1 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 would be no effects to federal- or state-listed species. Noise effects of the live fire, maneuver range operation would not be significant off the installation. There is a minimal potential for the generation or discovery of hazardous waste or materials; such waste or materials would be disposed of or remediated according to compliance requirements.

Table 5.1 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 5.1. Summary of Potential Environmental Consequences

Resource Area	Environmental Consequence ¹	
	No Action Alternative	Proposed Action
Air Quality	No effect	Slightly negative during construction, undetectable effects during operation
Soils	No effect	Slightly negative, but mitigatable using BMPs, reseeded, etc.
Water Resources	No effect	No effect
Biological Resources	No effect	No effect
Wetlands	No effect	No effect
Cultural Resources	No effect	No effect

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

Negative: Actions have apparent negative effects

5.2 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.

5.3 Conclusions

The Proposed Action to construct and operate two Infantry Squad Battle Courses at 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.

Based on this environmental assessment, implementation of the Proposed Action (*i.e.*, construct and operate two ISBCs) would have no significant negative environmental or socioeconomic effects. Satisfaction of the Army's significant need to provide up-to-date and realistic training at Fort Carson is considered to outweigh the relatively minor environmental impacts, and significant damage mitigation would occur before and during range operation. 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.

6.0 PERSONS CONTACTED

Dawn Beall – Forester, Directorate of Public Works (DPW)

James D Benford – Chief of Training, Directorate of Plans, Training, Mobilization, and Safety (DPTMS)

Richard Bunn – Wildlife Office Program Manager, DPW

Chris Caris – Noxious Weeds Program Manager, DPW

Bert Davis – Range Control Officer, DPTMS

Jessica Frank – Stormwater Program Manager, DPW

Brian Goss – Natural Resources Specialist, DPW

Dan Gray – Forester, DPW

Bill Hennessy – Attorney, HQ, 4th Infantry Division (M) & Fort Carson Office of the Staff Judge Advocate

Jeffrey Linn – Natural Resources and Forestry Section, Conservation Branch Chief, DPW

Harold Noonan – Wastewater Program Manager, DPW

Pamela Miller – Cultural Resources Program Manager, DPW

Stephanie Smith – Wildlife Biologist and CWA Section 404 Coordinator, DPW

Wayne Thomas – NEPA and Cultural Management Branch Chief, DPW

7.0 EXTERNAL AGENCY COORDINATION

Colorado State Historic Preservation Office

Apache Tribe of Oklahoma

Cheyenne and Arapaho Tribes of Oklahoma

Comanche Nation of Oklahoma

Jicarilla Apache Nation

Kiowa Nation of Oklahoma

Northern Arapaho Tribe

Northern Cheyenne Tribe

Northern Ute Tribe

Oglala Sioux Tribe of the Pine Ridge Reservation

Shoshone Tribe (Eastern Band)

Southern Ute Tribe

Ute Mountain Ute Tribe

Wichita and Affiliated Tribes

8.0 REFERENCES

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9.0 ACRONYMS

AR – Army Regulation

ARFORGEN – Army Forces Generation

ARPA – Archaeological Resources Protection Act

BMPs – Best Management Practices

CDOW – Colorado Division of Wildlife

CDPHE – Colorado Department of Public Health and Environment

CEQ – Council on Environmental Quality

CFR – Code of Federal Regulations

CNHP – Colorado Natural Heritage Program

CO – Carbon Monoxide

CO_{2e} – Carbon Dioxide equivalents

CRM – Cultural Resources Manager

DECAM – Directorate of Environmental Compliance and Management (DECAM is now under the Directorate of Public Works, Environmental Division).
EA – Environmental Assessment
EO – Executive Order
FNSI – Finding of No Significant Impact
FORSCOM – United States Army Forces Command
GHG – Green House Gases
IHFS – Infantry Hostile Fire Simulator
ISBC – Infantry Squad Battle Course
LED – Light Emitting Diodes
MAT – Moving Armor Target
METL – Mission Essential Task List
MIT – Moving Infantry Targets
MS4 – Municipal Separate Storm Sewer Systems
NAAQS – National Ambient Air Quality Standards
NAGPRA – Native American Graves Protection and Repatriation Act
NHPA – National Historic Preservation Act
NMFS – Night Muzzle Flash Simulator
NOA – Notice of Availability
NOI – Notice of Intent
NPDES – National Pollution Discharge Elimination System
NRCS – Natural Resources Conservation Service
NRHP – National Register of Historic Places
NSR – New Source Review
OCO – Overseas Contingency Operations
POVs – Privately Owned Vehicles
RNG – Range
SDZ – Surface Danger Zone
SHPO – State Historic Preservation Office
SIT – Stationary Infantry Targets
STRAC – Standards in Training Commission
SWMP – Storm Water Management Plan
SWPPP – Storm Water Pollution Prevention Plan
USACE – United States Army Corp of Engineers
USASOC – United States Army, Special Operations Command
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 Service
UXO – Unexploded Ordnance

APPENDIX A – Comments Received and Responses

APPENDIX B – Alternatives Analyses

Mortar Point 24 Alternative 1

#	Question	Answer			
		Yes	No	Yes but constrained	Explanation
1	Does this alternative meet the mission requirements of units that train on the installation?			X	Terrain type does not meet the urgent needs of unit commanders.
2	Can the Army standard design in TC 25-8 for this range be accommodated under this alternative within allowable waivers or modifications?	X			
3	Can the SDZ for this range be accommodated without infringing on adjacent training facilities, ranges, or areas outside the installation boundary?			X	Surface Danger Zone will prevent the simultaneous use of Mortar Point 24
4	Will all dud producing munitions from this alternative be contained within existing dudded impact area?				Not Applicable
5	Has the range been sited to maximize use of the installation range complex for future range requirements by leaving the maximum amount of suitable contiguous land mass available for future ranges?	X			
6	Does the installation have sufficient airspace (SUA, MOA, SARSA) and an Approval Letter from a FAA Controlling Authority. A copy is provided in the GIS file area.	X			Restricted airspace R2601
7	Can this range be sited on another existing or to be constructed range and the two meet annual training requirements?		X		Anticipated utilization rate of this range will prevent dual use potential
8	Provide other mission impact factors:				Fort Carson unit commanders have requested that these 2 ISBC ranges be located in challenging terrain that is similar to conditions encountered in the contemporary operating environment.
9	Provide mission summary:				This complex is used to train and test infantry squads, either mounted or

					dismounted, on the skills necessary to conduct tactical movement techniques, detect, identify, engage and defeat stationary and moving infantry and armor targets in a tactical array
10	Will less than 10,000 feet of electrical power line be required for this alternative?				Not Applicable
11	Will less than 10,000 feet of fiber optic cable be required for this alternative?				Not Applicable
12	There is no requirement for water lines, a well, or leech field to be constructed for this alternative.	X			
13	Has a UXO survey been conducted on this site?	X			
14	Does this alternative minimize construction costs for the range?	X			
15	Has a line of sight analysis (GIS Preliminary) of this site been conducted?	X			
16	Does this alternative impact any federally listed T & E species or T & E species habitat?		X		
17	Does this alternative impact any candidate species, species specially managed by the installation, or state listed species which the installation manages for?		X		
18	Does this alternative impact any cultural sites (including historic structures, buildings, archeological sites or properties of traditional, religious or cultural significance)?		X		
19	Does this alternative impact on any Native American treaty rights or agreements?		X		
20	Does this alternative impact any jurisdictional water of the US to include jurisdictional wetlands?	X			Young Hollow Watershed
21	Does this alternative have an impact on surface water quality?		X		
22	Will this alternative have noise impacts on the civilian sector outside the installation boundary?		X		

23	Will this alternative potentially have noise impacts on military housing or other sensitive on post facilities (hospital, childcare facility, on post school)?		X		
24	Do noxious weeds/invasive species impact this alternative?		X		
25	Is the installation in a non-attainment or maintenance area for clean air?	X			
26	Provide other environmental impact factors:				Stormwater runoff, Migratory Bird Treaty Act

COMMENTS/ CONSIDERATIONS:

This alternative will not provide the challenging terrain that was requested by Unit Commanders. It also contains known Unexploded Ordnance (UXO). For these 2 primary reasons, this alternative is no longer considered viable.

Range 131 (current ISBC upgrade) Alternative 2

#	Question	Answer			
		Yes	No	Yes but constrained	Explanation
1	Does this alternative meet the mission requirements of units that train on the installation?			X	Range 131 is the only existing ISBC on Fort Carson. As such, the use of Range 131 is critical in supporting the required training of units and closing the range for upgrade without a viable back up would lead to mission failure.
2	Can the Army standard design in TC 25-8 for this range be accommodated under this alternative within allowable waivers or modifications?	X			
3	Can the SDZ for this range be accommodated without infringing on adjacent training facilities, ranges, or areas outside the installation boundary?			X	Range 131b cannot be utilized while Range 131 is actively used for training.
4	Will all dud producing munitions from this alternative be contained within existing dudded impact area?				Not Applicable No dud producing munitions will be used.
5	Has the range been sited to maximize use of the installation range complex for future range requirements by leaving the maximum amount of suitable contiguous land mass available for future ranges?	X			
6	Does the installation have sufficient airspace (SUA, MOA, SARSA) and an Approval Letter from a FAA Controlling Authority. A copy is provided in the GIS file area.	X			Restricted airspace R2601
7	Can this range be sited on another existing or to be constructed range and the two meet annual training requirements?		X		Anticipated utilization rate of this range will prevent dual use potential
8	Provide other mission impact factors:				Fort Carson unit commanders have requested that these 2 ISBC ranges be located in challenging terrain that is similar to conditions encountered in the contemporary operating environment.
9	Provide mission summary:				This complex is used to train and test infantry squads, either mounted or

					dismounted, on the skills necessary to conduct tactical movement techniques, detect, identify, engage and defeat stationary and moving infantry and armor targets in a tactical array
10	Will less than 10,000 feet of electrical power line be required for this alternative?	X			
11	Will less than 10,000 feet of fiber optic cable be required for this alternative?				Not Applicable No fiber optic cable is required
12	There is no requirement for water lines, a well, or leech field to be constructed for this alternative.	X			Latrines are already on site
13	Has a UXO survey been conducted on this site?	X			
14	Does this alternative minimize construction costs for the range?	X			
15	Has a line of sight analysis (GIS Preliminary) of this site been conducted?	X			Dense trees will prevent line of sight
16	Does this alternative impact any federally listed T & E species or T & E species habitat?		X		
17	Does this alternative impact any candidate species, species specially managed by the installation, or state listed species which the installation manages for?		X		
18	Does this alternative impact any cultural sites (including historic structures, buildings, archeological sites or properties of traditional, religious or cultural significance)?				Unknown
19	Does this alternative impact on any Native American treaty rights or agreements?		X		
20	Does this alternative impact any jurisdictional water of the US to include jurisdictional wetlands?	X			Young Hollow Watershed
21	Does this alternative have an impact on surface water quality?		X		
22	Will this alternative have noise impacts on the civilian sector outside the installation boundary?		X		

23	Will this alternative potentially have noise impacts on military housing or other sensitive on post facilities (hospital, childcare facility, on post school)?		X		
24	Do noxious weeds/invasive species impact this alternative?		X		
25	Is the installation in a non-attainment or maintenance area for clean air?	X			
26	Provide other environmental impact factors:				Stormwater runoff, Migratory Bird Treaty Act

COMMENTS/ CONSIDERATIONS:

This alternative would prevent the use of the only existing Infantry Squad Battle Course on Fort Carson. Therefore, to prevent mission failure, this alternative is no longer considered viable.

Range 149 (Timber Mountain) Alternative 3

#	Question	Answer			
		Yes	No	Yes but constrained	Explanation
1	Does this alternative meet the mission requirements of units that train on the installation?			X	Terrain type meets the urgent needs of unit commanders but dense trees will limit the safety precautionary use of signs and markers.
2	Can the Army standard design in TC 25-8 for this range be accommodated under this alternative within allowable waivers or modifications?			X	Due to the steepness of the terrain, modification of the Army Standard design will be required.
3	Can the SDZ for this range be accommodated without infringing on adjacent training facilities, ranges, or areas outside the installation boundary?			X	Surface Danger Zone will prevent the simultaneous use of Range 127.
4	Will all dud producing munitions from this alternative be contained within existing duded impact area?				Not Applicable No dud producing munitions will be used.
5	Has the range been sited to maximize use of the installation range complex for future range requirements by leaving the maximum amount of suitable contiguous land mass available for future ranges?	X			
6	Does the installation have sufficient airspace (SUA, MOA, SARSA) and an Approval Letter from a FAA Controlling Authority. A copy is provided in the GIS file area.	X			Restricted airspace R2601
7	Can this range be sited on another existing or to be constructed range and the two meet annual training requirements?		X		Anticipated utilization rate of this range will prevent dual use potential
8	Provide other mission impact factors:				Fort Carson unit commanders have requested that these 2 ISBC ranges be located in challenging terrain that is similar to conditions encountered in the contemporary operating environment.
9	Provide mission summary:				This complex is used to train and test infantry squads, either mounted or dismounted, on the skills necessary to conduct tactical movement

					techniques, detect, identify, engage and defeat stationary and moving infantry and armor targets in a tactical array
10	Will less than 10,000 feet of electrical power line be required for this alternative?				Not Applicable No permanent power will be used
11	Will less than 10,000 feet of fiber optic cable be required for this alternative?				Not Applicable No fiber optic cable is required
12	There is no requirement for water lines, a well, or leech field to be constructed for this alternative.	X			No water service is required
13	Has a UXO survey been conducted on this site?	X			
14	Does this alternative minimize construction costs for the range?	X			
15	Has a line of sight analysis (GIS Preliminary) of this site been conducted?	X			Dense trees will prevent line of sight
16	Does this alternative impact any federally listed T & E species or T & E species habitat?		X		
17	Does this alternative impact any candidate species, species specially managed by the installation, or state listed species which the installation manages for?		X		
18	Does this alternative impact any cultural sites (including historic structures, buildings, archeological sites or properties of traditional, religious or cultural significance)?				Unknown
19	Does this alternative impact on any Native American treaty rights or agreements?		X		
20	Does this alternative impact any jurisdictional water of the US to include jurisdictional wetlands?		X		
21	Does this alternative have an impact on surface water quality?		X		
22	Will this alternative have noise impacts on the civilian sector outside the installation boundary?		X		
23	Will this alternative potentially have noise impacts on		X		

	military housing or other sensitive on post facilities (hospital, childcare facility, on post school)?				
24	Do noxious weeds/invasive species impact this alternative?		X		
25	Is the installation in a non-attainment or maintenance area for clean air?	X			
26	Provide other environmental impact factors:				Stormwater runoff, Migratory Bird Treaty Act

COMMENTS/ CONSIDERATIONS:

This alternative will provide the challenging terrain that was requested by Unit Commanders. Dense tree canopy issues will limit the effectiveness of safety precautionary signs and markers. The dense tree canopy will also significantly increase the likelihood of a large wildfire and presents a great risk to the Soldiers utilizing the range and the community. For these reasons, this alternative is no longer being considered.

Training Area 32 – Alternative 4 (Preferred Alternative)

#	Question	Answer			
		Yes	No	Yes but constrained	Explanation
1	Does this alternative meet the mission requirements of units that train on the installation?	X			This alternative would provide the terrain challenges requested by unit commanders.
2	Can the Army standard design in TC 25-8 for this range be accommodated under this alternative within allowable waivers or modifications?	X			
3	Can the SDZ for this range be accommodated without infringing on adjacent training facilities, ranges, or areas outside the installation boundary?			X	This alternative would prevent the use of maneuver training areas that are frequently shut down for large caliber training on other ranges.
4	Will all dud producing munitions from this alternative be contained within existing duded impact area?				Not Applicable No dud producing munitions will be used.
5	Has the range been sited to maximize use of the installation range complex for future range requirements by leaving the maximum amount of suitable contiguous land mass available for future ranges?	X			
6	Does the installation have sufficient airspace (SUA, MOA, SARSA) and an Approval Letter from a FAA Controlling Authority. A copy is provided in the GIS file area.	X			Restricted airspace R2601
7	Can this range be sited on another existing or to be constructed range and the two meet annual training requirements?		X		Anticipated utilization rate of this range will prevent dual use potential
8	Provide other mission impact factors:				Fort Carson unit commanders have requested that these 2 ISBC ranges be located in challenging terrain that is similar to conditions encountered in the contemporary operating environment.
9	Provide mission summary:				This complex is used to train and test infantry squads, either mounted or dismounted, on the skills necessary to conduct tactical movement techniques, detect, identify, engage

					and defeat stationary and moving infantry and armor targets in a tactical array
10	Will less than 10,000 feet of electrical power line be required for this alternative?		X		No power is required
11	Will less than 10,000 feet of fiber optic cable be required for this alternative?				Not Applicable No fiber optic cable is required
12	There is no requirement for water lines, a well, or leech field to be constructed for this alternative.		X		
13	Has a UXO survey been conducted on this site?	X			
14	Does this alternative minimize construction costs for the range?	X			
15	Has a line of sight analysis (GIS Preliminary) of this site been conducted?	X			Dense trees will prevent line of sight
16	Does this alternative impact any federally listed T & E species or T & E species habitat?		X		
17	Does this alternative impact any candidate species, species specially managed by the installation, or state listed species which the installation manages for?		X		
18	Does this alternative impact any cultural sites (including historic structures, buildings, archeological sites or properties of traditional, religious or cultural significance)?				Unknown
19	Does this alternative impact on any Native American treaty rights or agreements?		X		
20	Does this alternative impact any jurisdictional water of the US to include jurisdictional wetlands?	X			Turkey Creek watershed
21	Does this alternative have an impact on surface water quality?		X		
22	Will this alternative have noise impacts on the civilian sector outside the installation boundary?		X		
23	Will this alternative potentially have noise impacts on military housing or other		X		

	sensitive on post facilities (hospital, childcare facility, on post school)?				
24	Do noxious weeds/invasive species impact this alternative?		X		
25	Is the installation in a non-attainment or maintenance area for clean air?	X			
26	Provide other environmental impact factors:				Stormwater runoff, Migratory Bird Treaty Act

COMMENTS/ CONSIDERATIONS:

This alternative is one of two preferred alternatives. This alternative provides ideal terrain that was requested by unit commanders, is neither heavily treed or without cover, and will have no impact on natural/cultural resources, waterways and other training facility utilization.

Training Area 38 - Alternative 5 (Preferred Alternative)

#	Question	Answer			
		Yes	No	Yes but constrained	Explanation
1	Does this alternative meet the mission requirements of units that train on the installation?	X			This alternative would provide the terrain challenges requested by unit commanders.
2	Can the Army standard design in TC 25-8 for this range be accommodated under this alternative within allowable waivers or modifications?	X			
3	Can the SDZ for this range be accommodated without infringing on adjacent training facilities, ranges, or areas outside the installation boundary?			X	This alternative would prevent the use of maneuver training areas that are frequently shut down for large caliber training on other ranges.
4	Will all dud producing munitions from this alternative be contained within existing duded impact area?				Not Applicable No dud producing munitions will be used.
5	Has the range been sited to maximize use of the installation range complex for future range requirements by leaving the maximum amount of suitable contiguous land mass available for future ranges?	X			
6	Does the installation have sufficient airspace (SUA, MOA, SARSA) and an Approval Letter from a FAA Controlling Authority. A copy is provided in the GIS file area.	X			Restricted airspace R2601
7	Can this range be sited on another existing or to be constructed range and the two meet annual training requirements?		X		Anticipated utilization rate of this range will prevent dual use potential
8	Provide other mission impact factors:				Fort Carson unit commanders have requested that these 2 ISBC ranges be located in challenging terrain that is similar to conditions encountered in the contemporary operating environment.
9	Provide mission summary:				This complex is used to train and test infantry squads, either mounted or dismounted, on the skills necessary to conduct tactical movement techniques, detect, identify, engage

					and defeat stationary and moving infantry and armor targets in a tactical array
10	Will less than 10,000 feet of electrical power line be required for this alternative?		X		No power is required
11	Will less than 10,000 feet of fiber optic cable be required for this alternative?				Not Applicable No fiber optic cable is required
12	There is no requirement for water lines, a well, or leech field to be constructed for this alternative.		X		
13	Has a UXO survey been conducted on this site?	X			
14	Does this alternative minimize construction costs for the range?	X			
15	Has a line of sight analysis (GIS Preliminary) of this site been conducted?	X			Dense trees will prevent line of sight
16	Does this alternative impact any federally listed T & E species or T & E species habitat?		X		
17	Does this alternative impact any candidate species, species specially managed by the installation, or state listed species which the installation manages for?		X		
18	Does this alternative impact any cultural sites (including historic structures, buildings, archeological sites or properties of traditional, religious or cultural significance)?				Unknown
19	Does this alternative impact on any Native American treaty rights or agreements?		X		
20	Does this alternative impact any jurisdictional water of the US to include jurisdictional wetlands?	X			Turkey Creek watershed
21	Does this alternative have an impact on surface water quality?		X		
22	Will this alternative have noise impacts on the civilian sector outside the installation boundary?		X		
23	Will this alternative potentially have noise impacts on military housing or other		X		

	sensitive on post facilities (hospital, childcare facility, on post school)?				
24	Do noxious weeds/invasive species impact this alternative?		X		
25	Is the installation in a non-attainment or maintenance area for clean air?	X			
26	Provide other environmental impact factors:				Stormwater runoff, Migratory Bird Treaty Act

COMMENTS/ CONSIDERATIONS:

This alternative is one of two preferred alternatives. This alternative provides ideal terrain that was requested by unit commanders, is not heavily treed nor without cover, and will have no impact on natural/cultural resources, waterways and other training facility utilization.

APPENDIX C – State Historic Preservation Office Response



RECEIVED OCT 21 2011

A handwritten signature in black ink, appearing to be "M. B. [unclear]".

October 19, 2011

Carlos Rivero-deAguilar
Chief, Environmental Division
Department of the Army
Directorate of Public Works
1626 O'Connell Street, Building 813
Fort Carson, Colorado 80913

Re: Section 106 Consultation on the Construction of New Range 163 and New Range 167
Reconfigurable Infantry Squad Battle Courses (ISBC) on Fort Carson (CHS #60446)

Dear Mr. Rivero-deAguilar:

Thank you for your recent correspondence dated September 22, 2011 (received by our office on September 27, 2011) and the documentation including the following two survey reports and associated cultural resource survey forms that had not been submitted to our office for review:

1. Memorandum for Record: Cultural Resource Inventory Survey, Combined Arms Combined Training Facility/Urban Assault Training (Pamela Cowen and Michael Chidley, 2004).
2. A Cultural Resource Inventory of Unit 99-1 (CF1999-054), Fort Carson, Colorado (Randy Korgel, 1999).

Following our review of the documentation provided, we offer the following comments:

- We concur with your determination that the following sites are **not eligible** for the National Register of Historic Places (NRHP): 5EP4492, 5EP5841, 5EP5843, 5EP5844, 5PE3119, 5PE3120, and 5PE3121.
- We concur with your determination that the following isolated finds are **not eligible** for the NRHP: 5EP1426, 5EP1428, 5EP4489, 5EP4490, 5EP4491, 5EP4685, 5EP4686, 5EP4687, 5EP5845, 5EP5846, 5EP5847, 5PE3122, 5PE3123, 5PE3124, 5PE3125, 5PE3126, 5PE3127, and 5PE3128.
- We are unable to concur with your determination that 5EP5842 is *not eligible* for the NRHP. While we agree that recent Army visitation of this rock shelter has compromised the site's surficial data potential as is evinced by the recently constructed fire enclosure and wind deflection wall from nearby sandstone block (including a slab metate) we do not agree with the Army's conclusion that no material is present as the subsurface component was not assessed other than pin flag probing for relative soil depth. The Army states that the recent "disturbance has been confined to the modern ground surface" and that only "limited cultural assemblage" was noted on the surface, however we believe that intact features and cultural bearing deposits containing datable material may be present within the remnant and untested

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soil profile. As such, we recommend that a finding of **need data** is appropriate until these questions can be adequately addressed.

- Photo documentation is missing for the following sites: 5EP5841, 5EP5842, 5EP5843, and 5EP5844. We would greatly appreciate receiving this information as it greatly enhances our database and best documents the condition of the resource at the time of site visitation.

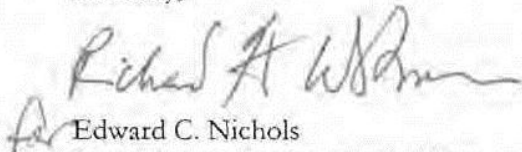
Following our review of the documentation provided, we believe that a finding of **no historic properties affected** (rather than the recommended finding of *no adverse effect*) is appropriate for the proposed project.

Please remember that the consultation process does involve other consulting parties such as local governments and Tribes, which as stipulated in 36 CFR 800.3 are required to be notified of the undertaking. Additional information provided by the local government, Tribes or other consulting parties may cause our office to re-evaluate our comments and recommendations.

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 Mark Tobias, Section 106 Compliance Manager, at (303) 866-4674 or mark.tobias@state.co.us.

Sincerely,


Edward C. Nichols
State Historic Preservation Officer
ECN/MAT