

**DRAFT FINDING OF NO SIGNIFICANT IMPACT:  
CONSTRUCTION AND OPERATION OF A DIGITAL MULTIPURPOSE TRAINING RANGE AT FORT  
CARSON, CO**

Fort Carson has prepared an Environmental Assessment (EA) that evaluates the potential environmental and socioeconomic impacts of the Army's proposal to construct and operate a Digital Multipurpose Training Range (DMPTR) to support the combat vehicle live-fire qualification training at Fort Carson. The DMPTR would be constructed on the existing Multipurpose Training Range at Range 111, Fort Carson, Colorado.

**Purpose and Need**

The purpose of the proposed action is to provide a state-of-the-art live-fire range with digitized targetry, telecommunication technologies, and information systems to safely track and manage all forces undergoing individual crew-to-platoon qualification. The Army's training needs now require the ability to process digital information such as target scoring, firing vehicle data such as vehicle speed, crew audio, weapon systems orientation and provide digital situational feedback to firing vehicles and the range operations systems. The current training alternatives do not adequately support the advanced weapons and command and control systems currently being utilized by military units. Modernization of training range capabilities would support Fort Carson's mission of training, deploying, and sustaining combat-ready units. If such improvements are not attained, soldiers will not be able to fully exercise their assigned digital war fighting technology. Soldiers will not receive complete exposure to training standards, resulting in an adverse impact to sustained weapons proficiency, combat unit cohesion and overall combat readiness.

**Description of the Proposed Action**

Fort Carson is proposing to construct and operate a DMPTR to support the Combat vehicle live-fire qualification training at Fort Carson. The DMPTR would consist of a Range Operations Control Area (ROCA), a new Range Control tower, an After Action Review building and other support facilities, the demolition and replacement of an existing latrine, and relocation of the existing tank trail. Moving targets and stationary targets would be constructed. Construction activities would include utilities, grading, excavating, and backfilling.

Construction for the Proposed Action would commence in 2013 and continue through 2014.

**Alternatives**

Fort Carson considered reconstruction of other ranges and the establishment of a new range, but eliminated such from detailed study. Based on screening criteria and due to safety conflicts with other ranges, terrain constraints and the size of the surface danger zone created by the weapons systems that would be used, no other existing Fort Carson ranges met all the criteria for a DMPTR. The Proposed Action was the only site that met these requirements.

There were no other alternative sites that met all the above siting criteria.

### **No Action Alternative**

Under the no action alternative, the Army would not construct or operate the DMPTR. This alternative provided a baseline against which the effects of the proposed action and any other alternatives are compared.

### **Environmental Consequences**

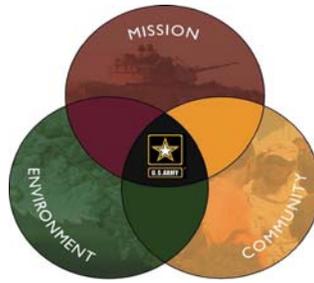
Implementation of the Proposed Action would allow construction and operation of the DMPTR at Range 111 to provide a state-of-the-art live-fire range with digitized targetry, telecommunication technologies, and information systems to safely track and manage all forces undergoing individual crew-to-platoon qualification. The DMPTR would be able to process digital information such as target scoring, and provide digital situational feedback to firing vehicles and units. The current Range 111 does not support the advanced weapons and command and control systems currently being fielded. Reconstruction of Range 111 to a DMPTR would support Fort Carson's mission of training, deploying, and sustaining combat-ready units. If this project is not provided, Soldiers will not be able to fully exercise digital war fighting technology. Soldiers will not receive complete exposure to training standards resulting in an adverse impact to sustained weapons proficiency.

### **Conclusion and Finding**

The attached EA was prepared pursuant to 32 Code of Federal Regulations (CFR) 651 and U.S. Council on Environmental Quality (CEQ) regulations (Title 40, U.S. Code, Parts 1500-1508) for implementing the procedural requirements of the National Environmental Policy Act (NEPA). The analysis contained in this EA concludes that neither the Proposed Action nor the Alternatives, with minor mitigation, would have any significant impact on the human or natural environment. Therefore, based on review of the EA, I find that neither the Proposed Action nor the Alternatives constitute a major federal action that would significantly affect the quality of the environment within the meaning of Section 102(2)(c) of the National Environmental Policy Act of 1969, as amended. Accordingly, no Environmental Impact Statement (EIS) is required. I adopt and incorporate the analysis of the EA, and I approve selection of the proposed action.

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Date: \_\_\_\_\_

DAVID L. GROSSO  
COL, SF  
Garrison Commander  
Fort Carson, Colorado



# **ENVIRONMENTAL ASSESSMENT**

## **CONSTRUCTION AND OPERATION OF A DIGITAL MULTIPURPOSE TRAINING RANGE AT FORT CARSON, CO**



**MAY 2012**



**ENVIRONMENTAL ASSESSMENT  
CONSTRUCTION AND OPERATION OF A DIGITAL MULTIPURPOSE TRAINING RANGE AT FORT  
CARSON**

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# Environmental Assessment for the Upgrade, Construction, and Operation of a Digital Multipurpose Training Range at Range 111, Fort Carson, Colorado

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## 1.0 Purpose of and Need for the Proposed Action

### 1.1 Introduction

The Fort Carson, 4th Infantry Division and USASOC mission is to be trained and resourced to deploy rapidly and achieve battle space dominance anywhere in the world, across the operational continuum, in support of U.S. National Objectives. The 4th Infantry Division is required to deploy in 96 hours, worldwide, to defeat enemy forces and control land areas, including populations and resources, by employing the unique capabilities of the Infantry Division. In addition, the 10th Special Forces Group train for and conduct combat, unconventional warfare, and special reconnaissance, and foreign internal defense missions. These groups, along with others, require training facilities that will prepare them to accomplish these complex missions. Specifically, this Digital Multipurpose Training Range will provide these Soldiers with facilities in which they can train to the current standards and attain critical proficiencies in gunnery.

Existing Fort Carson range facilities do not support the advanced weapons and command and control systems being fielded by the digitized force. They are not capable of processing digital information and situational feedback or reports to firing vehicles and units, a requirement of the Army's new training doctrine. The existing Multi-Purpose Training Range (MPTR, Range 111) consists of two primary firing lanes, a sensing lane, and a return route. This range was constructed in 2003 and the current range dimensions do not support increased vehicle dispersion and enhanced sighting systems associated with digital unit weapons platforms. Currently Fort Carson uses Range 111 which is classified as an existing Multipurpose Training Range (MPTR), however, this range does not allow these units to train to the current digital standards. The existing range lacks digital feedback capabilities required for the transition to the future force; lacks required target densities, and necessary lateral dispersion distance areas between target engagements.

### 1.2 Purpose and Need

The purpose of the proposed action is to provide a state-of-the-art live-fire range with digitized targetry, telecommunication technologies, and information systems to safely track and manage all forces undergoing individual crew-to-platoon qualification. The Army's training needs now require the ability to process digital information such as target scoring, firing vehicle data such as vehicle speed, crew audio, weapon systems orientation and provide digital situational feedback to firing vehicles and the range operations systems. The current training alternatives do not adequately support the advanced weapons and command and control systems currently being utilized by military units. Modernization of training range capabilities would support Fort Carson's mission of training, deploying, and sustaining combat-ready units. If such improvements are not attained, soldiers will not be able to fully exercise their assigned digital war fighting technology. Soldiers will not receive complete exposure to training standards, resulting in an adverse impact to sustained weapons proficiency, combat unit cohesion and overall combat readiness.



(includes a bathroom), bleacher enclosure, covered mess building, latrine, ammunition loading dock, vehicle instrumentation dock, bivouac area, unit staging and parking area, building information systems, berms, and demolition of an existing 200 SF latrine. In order to position the new ROCA for a clear view down the middle of the range, the existing tank trail would be relocated and constructed to accommodate operations. The existing Range Control tower and bleacher enclosure will be reutilized at another range (yet to be determined) on Fort Carson. The appropriate NEPA analysis will be conducted for this relocation once the receiving range has been identified.

Moving targets and stationary targets would be constructed. Erosion control measures such as culverts and diversions would be installed. Areas disturbed during removal and construction of targets and lanes would be reseeded. Construction activities would include grading, excavating, and backfilling. Utilities would be underground electricity. Approximately 10 acres would be disturbed during the course of the construction.

## **2.2 Operations**

During the construction of the DMPTR, live fire exercises previously conducted at Range 111 would be moved to other ranges on Fort Carson, determined by the Units' requirements. No new ordnance would be fired on ranges that have not been fired on ranges in the past. Installation ranges would continue to be used to assist in achieving qualification standards for Fort Carson's combat platforms. There would be no increase in the number of tactical vehicles qualifying each year at Fort Carson. Once construction of the DMPTR is completed, combat vehicle qualification training would again be conducted at the DMPTR.

## **3.0 Alternatives Considered**

### **3.1 No Action**

There would be no improvements to existing range under the No Action Alternative. The DMPTR would not be constructed. The no action is considered to be no changes to the existing ranges at Fort Carson. This will provide a baseline against which the effects of the proposed action and any other alternatives are compared.

### **3.2 Alternatives Considered but Eliminated from Detailed Study**

#### *Reconstruct another range or ranges*

Due to safety conflicts with other ranges, terrain constraints and the size of the surface danger zone created by the weapons systems that would be used, no other existing Fort Carson ranges met all the criteria for a DMPTR.

#### *Establishment of a new range*

This was not considered feasible due to safety and cost considerations. Establishment of a new range would require expansion of the Large Impact Area or establishment of a new impact area. Impacts resulting from expanding the Large Impact Area or establishing a new impact area would have produced unacceptable and significant environmental impacts. The reduced area of land available for maneuvers and other training would be unacceptable and negatively impact Fort Carson's training mission.

### **3.3 Reasonably Foreseeable Cumulative Actions**

Cumulative impacts consider the cumulative effects of past, present, or reasonably foreseeable actions. The impacts of implementing the proposed action would be concurrent with other actions at Fort Carson. Other range projects for the FY 13 - 15 timeframe include the upgrade to Range 141A and the construction of two Infantry Squad Battle Course (ISBC) ranges. Other

construction projects include the Combat Aviation Brigade (CAB) facilities at the Wilderness Road Complex, Gate 19 improvements and road construction, and various other construction projects in the main post area.

Information on future projects was presented in the 2009 *Fort Carson Grow the Army FEIS*. Table 3.3-1 identifies projects and activities at the Installation that are different than those identified in the 2009 *Fort Carson Grow the Army FEIS*.

***Table 3.3-1. Anticipated Cumulative Impacts to Valued Environmental Components from CAB Stationing Implementation at Each Potential Site***

Project or Activity	Time Frame
<b>No Longer Foreseeable or Valid Projects</b>	
Fort Carson Lifestyle Village	N/A
Additional Integrated Brigade Combat Team that would train at Fort Carson and PCMS (part of the 2009 <i>Fort Carson Grow the Army FEIS</i> proposed action)	N/A
<b>Future Projects at Fort Carson</b>	
CAB associated construction including control tower, bulk fuel facility, hot refuel point, CEP, and infrastructure	FY 2012-2017
Battle Command Training Center	FY 2012
Chapel at Fort Carson	TBD
Convoy Skill Trainer	FY 2010
Special Forces Tactical Unmanned Aerial Vehicle (TUAV) Facility	FY 2012-2013
Child Development Center (2)	Long Range
Biofuel Co-generation project	potentially FY 2012
Warriors in Transition Unit Complex (Barracks/Admin)	FY 2011
Turkey Creek Fire Station [possible FY 2012 UMMCA project]	FY 2012
Medical clinic addition and alteration	FY 2012-2013
Iron Horse Park Development	FY 2012-2013
Infantry Squad Battle Course Ranges (2)	FY 2012
Net Zero Energy, Water, and Waste Projects	TBD
High Altitude Mountain Environmental Training agreement with the BLM	TBD
Rod and Gun Club	TBD
TUAV Hangar and Facility	FY 2015
<b>Future Projects at Piñon Canyon Maneuver Site</b>	
Vehicle Wash Facility	FY 2012
<b>In Progress Projects at Fort Carson</b>	
Soldiers Family Assistance Center	
Army and Air Force Exchange Service Tri-Foods	
Army and Air Force Exchange Service Post Exchange expansion	
Commissary	
Banana Belt Redevelopment	
Physical Fitness Center	
Family Housing	
Fort Carson Rail Yard Improvements	
<b>In Progress Projects off-post</b>	
Improvements to Drennan Rd and Academy Blvd	

## 4.0 Affected Environment

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
- Utilities

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. 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.

Range 111 is an existing range. 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”.

Range 111 is an existing range. Neither the proposed action nor its alternative would change any existing impacts with regard to minority and low-income populations.

### **Geology and Topography**

Range 111 is an existing range. Neither the proposed action nor its alternatives would have any measurable effects on geologic resources or topography.

### **Land Use**

Range 111 is an existing range. Neither the proposed action nor its alternatives would change existing land use. Lands affected by the proposed action on Fort Carson would continue to be used primarily for military training.

### **Air Space Use**

Range 111 is an existing range. Neither the proposed action nor its alternatives would change existing airspace use on Fort Carson.

### **Noise Environment**

Range 111 is an existing range on the eastern boundary of Fort Carson. The bordering area of Range 111 is a Colorado Springs industrial area. Neither the proposed action nor its alternatives would change the noise environment conditions from what currently exists. Noise generated at these facilities would be compatible with surrounding land use and the level of noise produced by weapons firing would not change from current conditions.

### **Hazardous Waste/Materials**

Range 111 is an existing range. 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**

Range 111 is an existing range. 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**

Range 111 is an existing range. Neither the proposed action nor alternatives would impact visual or aesthetic resources.

### **Sustainability**

Range 111 is an existing range. There would be a minor benefit to sustainability as the proposed construction would include measures to meet LEED Silver requirements and replacement of older, inefficient facilities, however these benefits would not be significant..

## **4.2. General Information – Location and Surrounding Land Uses**

As seen in Figure 4.2, Fort Carson is located in central Colorado at the foot of the Rocky Mountains in El Paso, Fremont, and Pueblo counties. To the north is Colorado Springs, to the east is Interstate-25 and mixed development, to the south are privately-owned ranches, and to the west is State Highway 115. Downtown Colorado Springs and Denver lie approximately 8 miles and 75 miles, respectively, to the north, while the City of Pueblo is 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**

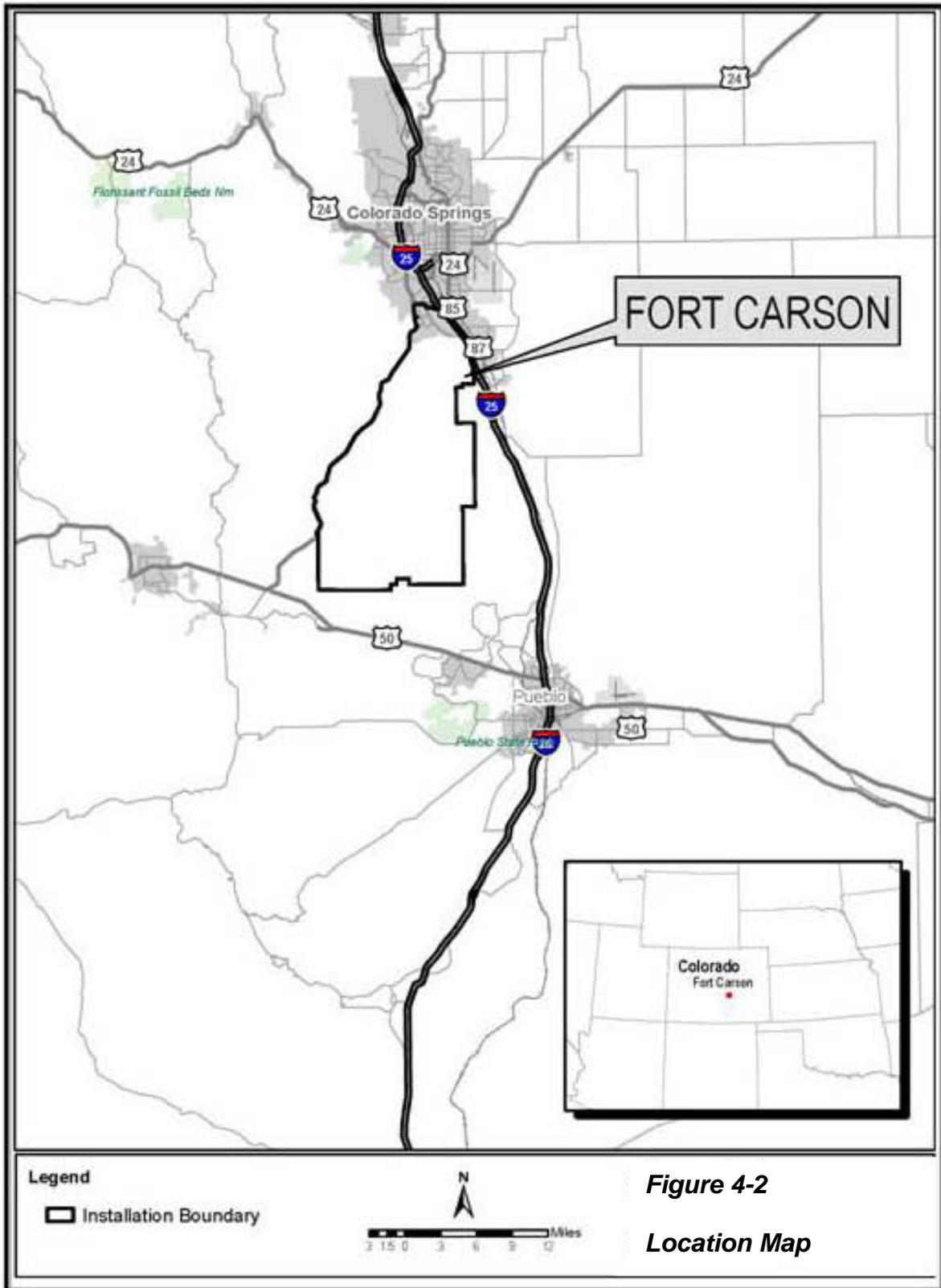
The region including Fort Carson is classified as mid-latitude semi-arid, characterized by hot summers, cold winters, and relatively light rainfall. July is the warmest month with the average daily maximum temperature of 84.4° Fahrenheit, and January is the coldest with an average daily minimum temperature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

## **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.

Figure 4-2 Geographic Location of Fort Carson, Colorado



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. Range 111 is located well south of and outside the area covered by the maintenance plan.

#### **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 (CO<sub>2</sub>e), 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, localized short-term adverse impacts on air quality due to a minor increase in firing activity on other range facilities. Overall, the modernization of Range 111 will not result in an increase over current and foreseeable levels of weapons firing activity. 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. As with current activities at Range 111, the firing of rifles, pistols, and machine guns 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 consistent with prior use and at insignificant concentrations that 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 change from existing conditions for 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 construction of the proposed action would be short term and the operations would not change significantly from what already exists at Range 111. 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**

All Fort Carson training activities are subject to the Installation's Fugitive Dust Control Plan (Fort Carson, 2012). 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. 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 Fort Carson Regulation 385-63.

### **4.4 Soils**

#### **4.4.1 Existing Conditions**

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 111 DMPTR were collected from the U.S. Department of Agriculture (USDA) Natural Resource Conservation Service (USDA, 2011). Although the military impact area is mostly unsurveyed, the soil types that would be potentially affected by the proposed action are mainly Razor-Midway, Schamber-Razor, and Limon Clay. Razor-Midway is a well drained soil, has a 3 to 15 percent slope and depth to restrictive feature is 20 to 40 inches to paralithic bedrock. The typical profile is 0 to 4 inches stony clay loam, 4 to 22 inches cobbly clay loam, 22 to 29 inches cobbly clay, and 29 to 33 inches of weathered bedrock. Available water capacity is low (4.7 inches). Schamber-Razor is a well drained soil, has a 8 to 50 percent slope and depth to restrictive feature is more than 80 inches. The typical profile is 0 to 5 inches gravelly loam, 5 to 15 inches very gravelly loam, and 15 to 60 inches very gravelly sand. Available water capacity is low (about 3.0 inches). Limon Clay is a well drained soil and has a 0 to 3 percent slope. The depth to restrictive feature is more than 80 inches. The typical profile is 0 to 4 inches clay, 4 to 8 inches silty clay, and 8 to 60 inches silty clam loam. Available water capacity is high (about 9.9 inches).

#### **4.4.2 Environmental Consequences**

##### **4.4.2.1 Proposed Action**

All three soil types are categorized as moderately to highly susceptible to erosion. However, the construction disturbance footprint would be temporary and best management practices (BMPs) to include turnouts, sediment traps, hardenings, and revegetation would be applied. Overall, the effects of construction under the proposed action would be minor, and easily controlled by standard BMPs. The effects of post-construction operations under the proposed action would be minimal, as Range 111 is an existing training range.

#### **4.4.2.2 No Action Alternative**

Under the No Action Alternative, there would be no change from existing conditions for 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 for soil stabilization and to catch potential sediment, if monitoring determined the need.

#### **4.4.4 Site-specific Mitigation**

Monthly inspections (and visual monitoring after any major storm event) for erosion and sediment deposition. Any deficiencies observed while monitoring will be mitigated using the proper BMP(s) to correct the problem.

### **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* (Fort Carson 2011) 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*.

##### **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 (Fort Carson, 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.

### **4.5.2 Environmental Consequences**

#### **4.5.2.1 Proposed Action**

The proposed action area is located in the Sand Canyon and Crooked Canyon watersheds. The stormwater from these watersheds drain into Fountain Creek, which is a tributary of the Arkansas River. Sand Canyon and Crooked Canyon creeks are included in the State of Colorado's water body ID COARFO04, all tributaries to Fountain Creek, which are not on National Forest of Air Force Academy Land. This segment appears on the Colorado Department of Public Health and Environment's 303(d) list for *E. coli*. The proposed action would not significantly impact the *E. coli* contributions to the surface water because such impairment is not associated with range operations.

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 expected to require permit coverage under the NPDES General Construction Permit because the disturbed area will be over one acre. A Notice of Intent (NOI) must be submitted to be covered under EPA's Construction General Permit (CGP). A Stormwater Pollution Prevention Plan (SWPPP) will also be required and must be reviewed and approved by the Fort Carson's Stormwater Program prior to filing the NOI with the EPA. The SWPPP must be developed in accordance with Fort Carson's Stormwater Management Plan (SWMP).

All disturbed areas would be stabilized (i.e. landscaping, seed, gravel, etc.) to achieve a stabilization rate of 70% preexisting condition prior to project completion. Reseeding would only be conducted with Fort Carson approved methods and seed mixes. Alterations and additions to this mix are not allowed. Temporary irrigation and maintenance including weed mowing may be required until seeded area is revegetated. This stabilization would include perennial grasses;

annual weeds would not be accepted as stabilization. Coordination with the Fort Carson Stormwater Program office must be conducted prior to terminating Construction General Permit coverage and filing the Notice of Termination (NOT).

Although a floodplain map does not exist for the Sand Canyon sub-watershed, it is unlikely that the proposed action is located within a floodplain. The permanent structures within the proposed area are located significantly higher in elevation from the closest creek, Sand Canyon.

#### **4.5.2.2 No Action**

Under the No Action Alternative, there would be no change in existing 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.

## **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* (Fort Carson, 2007) 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 shrublands. Typically with grass understory, shrublands comprise about 15% of the Fort Carson vegetation. Coniferous shrubland, dominated by pinon pine and one-seed juniper is found throughout Fort Carson. Deciduous shrubland, whose species include Gambel oak, salt cedar, and willow, is found along major drainageways.

##### **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* (Fort Carson, 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 and it will continue unaffected by the modernization of Range 111.

### 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 4.6 presents federally-listed endangered, threatened, and candidate species for Fort Carson. Critical habitat for these species does not occur on Fort Carson.

**Table 4.6 Federally-Listed Endangered, Threatened, and Candidate Species Known to Occur at Fort Carson**

Species	Scientific Name	Species Type	Status	Distribution on Fort Carson
Arkansas Darter <sup>1</sup>	<i>Etheostoma cragini</i>	Fish	C	Introduced multiple sites on Fort Carson
Mexican spotted owl	<i>Strix occidentalis</i>	Bird	T	Rare winter resident

Source: Fort Carson, 2007

<sup>1</sup>Species occurring on Fort Carson are also state-listed.

C- Candidate

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 (Fort Carson, 2007). 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* (Fort Carson, 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 (Fort Carson, 2007). 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*

There are no known Golden Eagle Eyries within the SDZ of the proposed reconstruction of Range 111.

#### 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***

Range 111 is an existing range that is used for multipurpose training, therefore construction and operation of the proposed action would have a minor, temporary impact on the vegetation. There is a potential for fires as a result of training with flame producing ammunition and pyrotechnics, however range operations involving the use of flame producing ammunition and pyrotechnics during periods of high fire danger, are prohibited as a precautionary measure.

###### ***Wildlife***

Range 111 is an existing range. There are no critical wildlife concerns with the proposed upgrade and construction of the DMPTR. There are no endangered species present and no critical habitat to be affected. However, the potential for groundbird nesting exists in the southern portion of the impact area. The primary nesting season for most birds protected by the Migratory Bird Treaty Act (MBTA) occurs between 15 April – 15 September, annually.

###### ***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 change in impacts to vegetations.

##### ***Wildlife***

Under the No Action Alternative, there would be no change in 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 be classified as minor as Range 111 has been utilized for multipurpose training since 2004. 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.

Fort Carson regulations require immediate notification of fires that are started on ranges.

##### ***Wildlife***

The proposed action results in a variety of potential cumulative impacts, including mortality, disturbance, or displacement, and loss of habitat of 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 would include best management practices (BMPs). 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. Any fires at the proposed range from operations would be suppressed on a high priority basis.

##### ***Wildlife***

Prior to ground disturbance due to construction, wildlife surveys will be conducted to ensure no active nests are within the construction footprint. If the prairie dog colony is part of construction area then prior coordination with DPW-ED Wildlife Office is necessary to conduct 3 days of Burrowing Owl clearing surveys IAW State protocols.

If the ground disturbing activity is going to be started during MBTA nesting season 15 Apr to 15 Sept annually then prior coordination with DPW-ED Wildlife Office is necessary to conduct clearing surveys for ground/shrub nesting birds to minimize potential MBTA violations.

##### ***Wetlands***

If a drainage/waterway has the potential to be impacted and is "jurisdictional", the Fort Carson Watershed Program office would be contacted. Any work potentially impacting US jurisdictional waters would be coordinated and submission of Section 404 permit requests made through the Fort Carson Watershed Program.

## **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 94,367 acres of Fort Carson have been inventoried for historic properties, with approximately 30,343 acres un-surveyed (this figure does not include over 13,000 acres of un-surveyed area within the two impact areas). Over 1,200 archaeological sites (excluding isolated finds) have been identified. Currently, Fort Carson considers 140 of these sites eligible for inclusion in the National Register of Historic Places (NRHP), with an additional 56 sites requiring further evaluation for a determination of eligibility.

### **4.7.2 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).

#### **4.7.2.1 Proposed Action**

The CRM conducted an initial review of the actions required for the construction and operation of the DMPTR range, and determined that there would be "*no historic properties affected*" by the Proposed Action as defined in 36 CFR 800.4[d][1]. The entire area encompassed by the Proposed Action is located within land that has been heavily disturbed due to its location within Fort Carson's Large Impact Area and associated Buffer Safety Zone. Due to the location of Range 111 in this heavily impacted area, a total of 723 acres of the area encompassed by the Proposed Action (Range 111 footprint) have been inventoried for cultural resources, and 523 acres remain to be surveyed. Within the previously surveyed area there are 3 archaeological sites and 3 isolated finds, none of which are considered eligible for inclusion in the National Register at this time. Section 106 of the NHPA will be conducted in accordance with 36 CFR 800.3-6 with the Colorado State Historic Preservation Officer (SHPO), Native American Tribes with a cultural affiliation to Fort Carson lands, and Fort Carson's other identified consulting parties to quantify the potential for adverse effects to historic properties and work toward resolution of those effects, as necessary.

#### **4.7.2.2 No Action Alternative**

There is no additional potential for adverse effects to historic properties under the No Action Alternative. No effects on cultural resources would be expected under the No Action Alternative. All Army actions affecting the involved parcels would conform to installation policies and relevant regulatory frameworks

### 4.7.3 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, but such risk is not significantly affected by the Modernization of Range 111. It is anticipated that the proposed action would not result in significant adverse cumulative impacts with the Cultural Resources Management Program 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 analyses, 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.

### 4.7.4 Site-specific Mitigation

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 would be conducted in accordance with 36 CFR 800.3-6 with the Colorado State Historic Preservation Officer (SHPO), Native American Tribes with a cultural affiliation to Fort Carson lands, and other interested parties to quantify the potential for adverse effects to historic properties and work toward resolution of those effects, if necessary. This consultation will include discussion regarding the un-surveyed areas within the Large Impact Area and Buffer Safety Zone, resources within the Proposed Action, and the Fort Carson Cultural Resources Manager's recommended finding of "*no historic properties affected*". Fort Carson anticipates initiating Section 106 consultation for the Proposed Action in late May/early June 2012 and will be included in the Final EA/FNSI (Appendix B).

## 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”	No Action Alternative	Proposed Action
Air Quality	No effect	Slightly negative during construction, undetectable effects during operation
Soils	No effect	Slightly negative during construction, but mitigatable using BMPs, reseeded, etc.
Water Resources	No effect	Slightly negative during construction, undetectable effects during operation
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 a DMPTR at Range 111 at Fort Carson was analyzed by comparing potential environmental consequences against existing conditions. Implementation of the proposed action would provide the training the Army needs to prepare troops to support the digitized force, and increase survivability of soldiers in Theaters of Operation. Existing Fort Carson range facilities cannot support current and future standard live-firing training requirements as required by the Army Digital Training Doctrine, therefore the no

action alternative (no Digital Multi-Purpose Training Range upgrade of Range 111) is not the preferred course of action.

Minor adverse environmental impacts from the proposed action would be expected from construction activities such as site grading. Fugitive dust mitigation as required by construction permits and on-going unpaved trail management would keep dust migrating off-post to a minimum. No increases in air emissions would be anticipated from the operation of additional permanent facilities. There would be no impacts to threatened and endangered species, cultural resources, floodplains and wetlands. The modification of Range 111 would not produce additional noise impacts because the range would be used in the same manner and with the same frequency as before the modifications.

Satisfaction of the Army's significant training needs through implementation of the proposed action is considered to outweigh the relatively minor environmental impacts, particularly since every effort would be made to minimize those impacts. Implementation of the proposed action would not cause significant impacts to human health or the environment. Preparation of an Environmental Impact Statement is not required and a Finding of No Significant Impact will be published in accordance with 32 CFR 651, Environmental Analysis of Army Actions.

## **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  
Kacey Burton – Archaeologist / GIS Analyst, 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  
James Kulbeth – Noxious Weeds Program Manager and CWA Section 404 Coordinator, DPW  
Jeffrey Linn – Natural Resources and Forestry Section, Conservation Branch Chief, DPW  
Harold Noonan – Wastewater Program Manager, DPW  
Mark Owens – Cultural Resources Program Manager, DPW  
Roger Peyton – Wildlife Biologist, 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

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## 9.0 ACRONYMS

AR – Army Regulation  
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<sub>2e</sub> – Carbon Dioxide equivalents  
CRM – Cultural Resources Manager  
DECAM – Directorate of Environmental Compliance and Management (DECAM responsibilities are now executed within the Directorate of Public Works, Environmental Division).  
EA – Environmental Assessment  
EO – Executive Order  
FNSI – Finding of No Significant Impact  
GHG – Green House Gases  
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  
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  
POVs – Privately Owned Vehicles  
SDZ – Surface Danger Zone  
SHPO – State Historic Preservation Office  
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

## APPENDIX A – Comments Received and Responses

## **APPENDIX B – Colorado State Historic Preservation Office Correspondence**

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## **Glossary of Terms**

Army Digital Training Doctrine - Army rules and regulations that govern the proper training standards and tactics of digital equipment.

Digital Multipurpose Training Range (DMPTR) – An advanced live-fire training complex that is capable of firing a variety of digitally enhanced weapons systems and vehicles or aircraft to Army Standard. DMPTRs provide the ability to interface with the firing vehicles, simulations facilities and virtually reality programs. Fiber optic connectivity and digital information links between the ranges and firing vehicles or aircraft enhances training realism, command and control exercise and provides excellent after action review capabilities.

Heavy Equipment – Comprised of armored combat vehicles (Tanks, Bradley Fighting Vehicles, artillery, etc.)

Surface Danger Zone (SDZ) – The area forward of a firing weapon system that a projectile could statistically land in. Fort Carson SDZs are designed for each range and weapons system capacities (the farthest the bullet could possibly go).

Theater of Operations – wherever the Army is deployed in support of any mission.