



## **Environmental Assessment**

# **Pinon Canyon Maneuver Site (PCMS) Transformation Fort Carson, Colorado**

**Directorate of Public Works  
Environmental Division  
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**ENVIRONMENTAL ASSESSMENT**  
**Pinon Canyon Maneuver Site (PCMS)**  
**Transformation**  
**Fort Carson, Colorado**

**Prepared By:**

Robin Renn  
Directorate of Public Works  
Environmental Division  
Fort Carson, Colorado

Deb Owings  
Directorate of Public Works  
Environmental Division  
Fort Carson, Colorado

**Reviewed By:**

Russ Hamilton  
Environmental Law Specialist  
Office of the Staff Judge Advocate  
Fort Carson, Colorado

**Submitted By:**

HAL K. ALGUIRE  
Director  
Directorate of Public Works  
Fort Carson, Colorado

\_\_\_\_\_  
\_\_\_\_\_  
Date

**Approved By:**

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

\_\_\_\_\_  
\_\_\_\_\_  
Date

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## **ENVIRONMENTAL ASSESSMENT**

### **Pinon Canyon Maneuver Site (PCMS) Transformation Fort Carson, Colorado**

#### ***SECTION 1.0 PURPOSE, NEED, AND SCOPE***

##### ***1.1 INTRODUCTION***

From 2005 to 2007, the Army underwent significant changes, and several of those changes involved Fort Carson and its associated training area, the Pinon Canyon Maneuver Site (PCMS). To comply with the requirements of the National Environmental Policy Act (NEPA), the Army conducted environmental analyses before deciding how to implement those changes. However, the Army's Record of Decision (ROD) following one such NEPA review was successfully challenged in court, and, thus, further NEPA review was required. This Environmental Assessment (EA) is that review.

##### ***1.2 HISTORY***

On June 20, 2007, the Department of the Army issued a Notice of Availability of the Final PCMS Transformation Environmental Impact Statement (EIS) (Federal Register, Vol. 72, No. 118, June 20, 2007). The purpose of that EIS (to be referred to in this EA as the "2007 PCMS EIS") was to study the environmental impacts of implementing three Army transformation programs at the PCMS: Base Realignment and Closure (BRAC) 2005, Integrated Global Presence and Basing Strategy (IGPBS - also known as Global Defense Posture Realignment (GDPR)), and the Army Modular Force (AMF) initiative.

The Proposed Action studied in that EIS specifically included the implementation at the PCMS of the three transformation programs through increased training at the PCMS and construction in the PCMS cantonment (or built-up) and downrange (training) areas.

On August 10, 2007, the Department of the Army issued a Notice of Availability of the Record of Decision (ROD). The ROD announced that the Army had decided to proceed with the Proposed Action. (Federal Register, Vol. 72, No. 154, August 10, 2007)

On April 23, 2008, four plaintiffs filed a suit in the United States District Court for the District of Colorado (Civil Action No. 1:08CV828-RPM) challenging the EIS, with a Complaint that alleged that the EIS should have included study of expansion of the PCMS and that the EIS should have studied more alternatives than the Proposed Action and the No Action alternative.

On September 8, 2009, the judge in the case issued a Memorandum Opinion and Order (the Opinion). The Opinion held that the EIS correctly excluded study of expansion of the PCMS. However, the Order vacated the ROD issued in August, 2007, which had authorized proceeding with the Proposed Action.

The Proposed Action to implement the transformation activities at Fort Carson received NEPA review in the Fort Carson Transformation EIS, which was also issued in June, 2007, and for which a ROD was issued in August, 2007, authorizing the Proposed Action. With the associated increases in the numbers of Soldiers assigned to Fort Carson and the transformation of the units stationed there, the need for use of the PCMS for training became an obvious issue when the court vacated the ROD for the PCMS Transformation EIS. After the court's order, the Army, in coordination with the Department of Justice, determined that it was permitted to continue to train Soldiers at the PCMS as authorized prior to the 2007 PCMS EIS and ROD and as evaluated in prior NEPA reviews, including the 1980 Acquisition EIS and subsequent environmental assessments and findings of no significant impact.

Although this determination allowed training to continue, there remained a need to complete NEPA review of the implementation of the transformation activities at the PCMS, which is the purpose of this EA.

### **1.3 PURPOSE AND NEED FOR PROPOSED ACTION**

The purpose of the Proposed Action remains the same as stated in the 2007 PCMS EIS: to implement BRAC 2005, IGPBS, and AMF at the PCMS. In summary, these programs entail the following:

- \* BRAC 2005 relocated to Fort Carson the Headquarters of the 4<sup>th</sup> Infantry Division (Mechanized) and a brigade combat team (BCT),
- \* IGPBS relocated to Fort Carson an infantry BCT from Korea, and
- \* AMF transformed Army combat brigades, including those stationed at Fort Carson, into self-sufficient brigade combat teams; activated support units supporting the BCTs; relocated the 3<sup>rd</sup> Armored Cavalry Regiment from Fort Carson to Fort Hood; and changed weapons and communications systems to enable BCTs to operate on expanded battlefields and areas of operation.

More detail on these programs may be found in Section 1.2 and other locations in the 2007 PCMS EIS.

## **1.4 SCOPE OF ANALYSIS**

The 2007 PCMS EIS was an extensive and comprehensive effort. As a result, this EA will not repeat unchallenged portions of it. Instead, the analysis in this EA will only address the deficiencies identified in the court's decision.

However, as reflected in Section 2 of this EA, the Proposed Action has been changed significantly by eliminating the construction projects that were included in Appendix B of the 2007 PCMS EIS. As a result, it was determined that an EA was the appropriate initial level of NEPA review. Under the regulations implementing NEPA, if the decision upon completion of review of this EA is that there are significant unmitigated adverse environmental effects resulting from the Proposed Action, an EIS will be initiated.

As with the 2007 PCMS EIS and consistent with the Opinion, this EA will not include study of the potential expansion of the PCMS. The reasons for this determination were expressed in the body of the 2007 PCMS EIS and were expanded upon in Appendix H in response to public comments. As stated above, this determination was upheld in the court's decision in 2009. The supporting rationale for excluding study of potential expansion remains valid, probably even more so now than in 2007, when the 2007 PCMS EIS was completed, or in 2009, when the Opinion was issued. That is, the current Army and Fort Carson posture is that expansion is not being considered. Instead, planning is focused on using the training assets that are available at both Fort Carson and the PCMS in the best manner to achieve training needs. NEPA review of a proposed action to expand the PCMS would be conducted if and when, and only if and when, the situation were to change considerably, with a definitive expansion proposal having reached a sufficient stage of development.

## **1.5 AGENCY AND PUBLIC PARTICIPATION**

Public participation opportunities with respect to this EA and decision-making on the Proposed Action are guided by Army Regulation 200-2, *Environmental Analysis of Army Actions*, 32 Code of Federal Regulations (CFR) Part 651. 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.

This EA will be available to the public for 60 days, starting from the first day of publication, along with a Draft Finding of No Significant Impact (FNSI). At the end of the 60-day public review period, the Army will consider all comments submitted by individuals, agencies, or organizations on the Proposed Action, EA, or Draft Finding of No Significant Impact (FNSI). A Notice of Availability (NOA) will be announced in The Colorado Springs Gazette, El Paso County Advertiser and News, Pueblo Chieftain, La Junta Tribune-Democrat, Bent County Democrat, Fowler Tribune, Trinidad Chronicle, Rocky Ford Daily Gazette, Ordway New Era and Hispania News, in accordance with

part 1501.4 (e)(1) of Title 40 of the Code of Federal Regulations and Army Regulation 200-2. These documents will be available at the following locations:

- Colorado Springs (Penrose) Public Library, 20 N. Cascade Ave.
- Pueblo City-County (Rawlings) Library, 100 E. Abriendo Ave.
- Trinidad Carnegie Public Library, 202 N. Animas St.
- La Junta Woodruff Memorial Library, 522 Colorado Ave.
- Rocky Ford City Library, 400 S. 10<sup>th</sup> St.
- Walsenburg Huerfano County (Spanish Peaks) Public Library, 323 N. Main St.
- Cañon City (Carnegie) Public Library, 516 Macon Ave.

This EA will also be available online at the following Fort Carson website: <http://www.carson.army.mil/>, then hover over Pinon Canyon button on left to display available documents.

Since this EA relies considerably on information in three previous EISs (the 1980 Acquisition EIS, the 2007 PCMS EIS, and the 2009 EIS for Implementation of Fort Carson Grow the Army Stationing Decisions (GTA EIS)), the text of these documents will also be available at this website.

Anyone wishing to comment on the Proposed Action or request additional information must write to the Fort Carson NEPA Program Coordinator, Directorate of Public Works, Environmental Division, (IMWE-CAR-PWE), 1626 O'Connell Blvd, Building 813, Fort Carson, Colorado 80913-4000, or call (719) 526-1241. Written comments can also be submitted by email to: carsdecamnepa@conus.army.mil.

Several thousand public comments were submitted in response to the draft of the 2007 PCMS EIS. However, the overwhelming majority of those comments were associated with potential expansion of the PCMS. As stated above, the court ruled that potential expansion was not a required topic for examination in the 2007 PCMS EIS, and that is still the situation at present.

Regardless, the Army recognizes that significant actions pertaining to the PCMS remain a matter of considerable public concern, particularly to the citizens in the area around the PCMS. As a result, we have determined to expand upon the required manner of public involvement for an EA. The normal 30-day public comment period has been extended to 60 days. In addition, we will also conduct two public meetings to allow comments upon this EA and the draft FNSI that is associated with it. Appropriate media notices will be issued transmitting the following details for these meetings:

These meetings will take place in Trinidad and La Junta. The La Junta meeting will take place Wednesday, February 16, 2011, from 6:30 pm to 8:30 pm at Otero Junior College, Student Center Banquet Room, 2001 San Juan Avenue, La Junta, Colorado. The Trinidad meeting will be held on Thursday, February 17, 2011 from 6:30 pm to 8:30 pm



at Trinidad State Junior College, Sullivan Center Pioneer Room, 600 Prospect Street, Trinidad, Colorado.

The procedures prescribed in Army Regulation 200-2, *Environmental Analysis of Army Actions*, 32 Code of Federal Regulations (CFR) Part 651, call for completion of the EA and drafting the FNSI before release to the public, all of which are complete. However, all public comments, by whatever means received, will be carefully considered with regard to possible revision of these documents.

## **1.6 LEGAL FRAMEWORK**

The legal framework for this EA is the NEPA and its implementing regulations, as well as any other applicable environmental laws and regulations.

## **SECTION 2.0 PROPOSED ACTION AND ALTERNATIVES**

### **2.1 PROPOSED ACTION**

#### **2.1.1 GENERAL**

The Proposed Action is to implement the three transformation programs at the PCMS through increased training of the same general types that have occurred at the PCMS in the past. The details of the Proposed Action are as described at Section 2.3 of the 2007 PCMS EIS, except as modified below. As stated in the 2007 PCMS EIS, the Proposed Action incorporates the need to balance the requirements for maneuver training and live firing against the Army's responsibilities for stewardship of environmental and cultural resources. The Proposed Action does not include introduction of significantly different training methods, assignment of new units other than those included in the 2007 PCMS EIS, introduction of new weapons systems, or construction of new ranges or facilities. If and when any of these actions should occur, it would be subject to NEPA review at that time.

#### **2.1.2 REMOVAL OF CONSTRUCTION**

In assessment conducted after the Opinion was issued in 2009, it was determined that none of the facilities listed in the 2007 PCMS EIS had been constructed or even funded. Many of the facilities, such as the brigade support complex, were listed in that EIS as part of plans for operation of the PCMS that have since been discarded. Others were projects that were not really associated with the increased training associated with implementation of the transformation programs. Instead, they were projects that would be necessary for the operation of the PCMS as a training site, regardless of how often or by what units the training were to be conducted.

As a result, on January 15, 2010, the Fort Carson Garrison Commander approved removal of the construction projects as part of the Proposed Action. Should any of the

individual projects be deemed necessary in the future, they will receive the appropriate NEPA assessment at that time.

Construction projects other than those listed in the 2007 PCMS EIS have been and will likely continue to be built. These projects have filled needs identified after the 2007 PCMS EIS was prepared and/or needs separate from the implementation of the transformation programs. These projects also have received or will receive separate, appropriate NEPA assessment and will be considered in the cumulative impacts section of this EA only.

### **2.1.3 BALANCE BETWEEN TRAINING AND SUSTAINMENT OF NATURAL RESOURCES**

Basically, with regard to training, the 2007 PCMS EIS and the ROD following it explained that implementation of the Proposed Action would mean that the PCMS would be used in much the same manner as it had been before implementation of the transformation programs, except that the amount of training would be increased.

As described at paragraph 2.0 of the ROD, the Proposed Action would implement the three transformation programs at the PCMS through “increase[d] use of the PCMS training areas to provide training for realigned AC units and additional RC units assigned to, or otherwise under the control of Fort Carson.” Paragraph 2.0 went on to say,

The development of the training component of the Preferred Alternative [Proposed Action] is based on training resource requirements as prescribed by Army Training Circulars (TC) 25- 1, "Training Land," and 25-8, "Training Ranges." Training and maneuver activities will be similar to the types of activities that presently occur on the PCMS. The increased training requirements of additional AC and RC units, however, will result in increased frequency of use of the training areas. It is likely that more training rotations will occur and that the duration of training exercises will increase to support additional AC Soldiers and new training requirements (which also occur under the No Action Alternative). The PCMS also may be responsible for providing training for thousands of RC troops. **The Army will continue to implement land and environmental management programs and standard practices to maintain its training lands for continued use and coordinate and execute its training exercises through its directorates as described in Sections 2.3.4.3, 2.3.4.4, and 2.3.4.5 of the EIS.** *(emphasis added)*

Paragraph 4.0 of the ROD explained why alternatives would not satisfy the purpose of the Proposed Action:

The Army considered other alternatives to balance training requirements and land availability. These alternatives included training troops at other locales or varying training schedules to account for operational deployments. These

alternatives were determined not to be reasonable because they either were not feasible or unreasonably restricted the Army's ability to react to changing conditions.

The Proposed Action does **not** include all types of training on a round-the-clock-round-the-year basis.

As a preliminary issue, the term “training” must be placed in proper context. In its broadest context, as expressed at Section 1.2.4 of the 2007 PCMS EIS, “training” included both “live-fire mission support and maneuver training.” The various types of training at the PCMS were explained in Section 2.2.4.2. Live-fire training is conducted on small-arms live-fire ranges, with the use of weapons up to .50 caliber (machine guns). This type of training could be conducted, without significant environmental damage, 365 days a year. Dismounted training consists of Soldiers moving on foot without vehicular traffic. This type of training “results in environmental impacts that are similar to recreational uses, such as hiking or camping.” This training, too, could be conducted much, if not all, of a year without significant environmental damage, as was recognized in a 1997 EA of Training Area and Management Modifications. Finally, and presumably the type of training of main concern, maneuver (or mechanized) training involves tracked and wheeled vehicles and engineer equipment moving throughout a maneuver area as required by the training mission, which, clearly, has the potential for significant environmental impacts. As a result, the following discussion will focus on maneuver training.

A further, relevant issue of context is the size and varying nature of the PCMS. Overall, it comprises approximately 235,000 acres. Of that total, approximately 175,000 acres are available for mechanized maneuver training. A considerable portion of the facility, in absolute terms, is available only for limited, non-mechanized training or not available for any type of training, as a result of factors such as topography or presence of utilities, cultural resources or flora or fauna requiring preservation. Live-fire training is conducted only on ranges comprise a very small portion of the PCMS.

The intention of the 2007 PCMS EIS and ROD was to show that that “worst case” possibility of round-the-clock, round-the-year maneuver training was far more theoretical than real, being allowed only in the unlikely event that doing so could be accomplished without violation of applicable environmental laws and regulations or without degradation to the long-term sustainability of PCMS’s natural and cultural resources. To remove any doubt as to the scope of the Proposed Action, the Army’s position is that, while the capacity of the natural resources at the PCMS to sustain large-scale maneuver training may not yet be precisely defined, that capacity most assuredly is less than sufficient to allow year-round maneuver training.

The Proposed Action is as described in paragraph 2.0 of the ROD, in pertinent part; i.e., as a balance. There could be increased use of the training areas, but, “The Army will continue to implement land and environmental management programs and standard practices to maintain its training lands for continued use and coordinate and execute its

training exercises through its directorates as described in Sections 2.3.4.3, 2.3.4.4, and 2.3.4.5 of the EIS.”

As stated in paragraph 5.0 of the ROD, increased training “could degrade training lands and affect the long-term availability of training lands for military use.” Accordingly, reflecting paragraph 6.0 of the ROD, the Proposed Action includes continued compliance with environmental laws and regulations, the Integrated Natural Resources Management Plan (INRMP), and the Integrated Training Area Management (ITAM) program as mitigation measures and, “The Army will continue to consider both training needs and necessary sustainable measures to establish the balance between the two that maintains lands suitable for training while maximizing the achievement of the training mission.”

This EA reaffirms the provisions in the 2007 PCMS EIS that were intended to show that the “worst case” of constant training was only theoretically possible but not likely in view of the need for sustaining the natural resources of PCMS. For example, at page 2-19, under “Combat Readiness,” that EIS said,

For the analysis of environmental consequences, impacts are assessed in a way that discloses conservative (that is, worst case) impacts, even though that intensive level of training over broad geographies might not occur frequently, or at all. The “worst case” condition is bounded by the Army’s requirements to sustain training lands for continued use and its need to balance training requirements and land sustainability as described in Section 1.0.

It is correct that Section 3.7.2.2 of that EIS said, “[T]raining under the Proposed Action may or may not be conducted 52 weeks per year.” However, the quoted language was immediately preceded by, “To protect long-term land sustainability at the PCMS, ... .” Immediately following the quoted language, Section 3.7.2.2 showed that the amount of training would be limited by measures needed to sustain the training lands:

To ensure the continued availability of quality training lands, the Proposed Action would continue the use of the INRMP and the Army’s ITAM program at the PCMS to provide for sustainable land management (see Section 1.2.5) and to apply existing processes for interpreting the training mission (see Section 2.2.4.3). The ITAM program balances the Army’s training needs with the need to sustain the quality and sustainability of environmental resources in the training areas.

In short, throughout the 2007 PCMS EIS, including in responses to public comments, the EIS referred to the balancing process as limiting the extent to which increased training under the Proposed Action would be conducted. At page 3-115, the EIS summarized both the balancing process and the rationale for it; i.e., the Army’s need to sustain PCMS as a long-term training resource:

The implementation of design features; BMPs [best management practices]; standard construction practices; other measures described in this EIS; adherence to existing management plans and programs; and federal, state, and local regulations that would be incorporated into the Army's Proposed Action is aimed at the sustainability of the PCMS mission. Sustaining the mission and function of the installation would enhance the long-term productivity of the PCMS as a military training facility. With increased training activity, short-term uses of the environment would become more frequent and intensive. However, the Army's need to maintain the long-term productivity of its training lands for continued military use also provides protection to land-based resources such as soils, water, vegetation, and wildlife. Additionally, Army regulations protect sensitive environmental resources such as cultural resources, wetlands, and floodplains from avoidable damage.

Further, the Proposed Action includes the recognition in the 2007 PCMS EIS of the need for scheduling training in a manner that permits rest, recovery and restoration of the land.

Section 2.2.4.3 of that EIS showed that land rotation and rest are part of the ITAM program, although with a degree of flexibility,

ITAM is a dynamic program for collection and review of maneuver data and land conditions. Because the condition of training lands is highly variable, depending on the amount and type of training and the climatic conditions during training, the ITAM program does not set specific ratios for land rest to sustain training lands. Instead, the ITAM program provides a process by which the post directorates (primarily the G-3, Directorate of Plans, Training, and Mobilization [DPTM], DPW, and DECAM) work together to provide input regarding the training needs and the environmental condition of the training lands.

Since the most relevant part of the above-quoted language ("the ITAM program does not set specific ratios for land rest to sustain training lands") is expressed in a negative, it may possibly be misconstrued or overlooked. To be very clear, the Proposed Action includes implementation of the ITAM program, and the ITAM program does, in fact, include land rest as necessary. It simply does not prescribe specific ratios of use-to-rest periods.

The 2007 PCMS EIS also specifically described resting the land, which is part of the Proposed Action. Section 2.2.5, entitled, "Land Sustainability," said,

Under the No Action alternative, periods of ground maneuver training would continue to be interspersed with periods of rest and recovery as determined necessary and appropriate under the procedures described above. These procedures have proven effective in maintaining the sustainability of the training areas.

Section 2.3.4.5 showed that these practices under the No Action alternative would also be a part of the Proposed Action: “Under the Proposed Action, environmental and safety considerations would influence the development of training exercises, as described under the No Action alternative ... .”

On page 2-19, in describing the Proposed Action, the 2007 PCMS EIS said, “The “worst case” condition is bounded by the Army’s requirements to sustain training lands for continued use and its need to balance training requirements and land sustainability as described in Section 1.0.” (“Section 1.0” here was a typographical error; it should have said “Section 2.0.”) That remains the Proposed Action.

On page H-165, in response to a question arising from the draft EIS, the 2007 PCMS EIS said, “The Army carefully monitors, avoids, minimizes, and mitigates the effects of its training activities on the environment **and will continue to do so under the Proposed Action (as described in Sections 2.2.4.4, 2.2.5, and 3.7.2.2 of the DEIS).** (*emphasis added*)

Perhaps the frequency-of-training aspect of the 2007 PCMS EIS that has raised the most concern is the description of maneuver training in Section 2.3.4.1, on pages 2-29 and 2-30. This description concludes with the statement, “This training load is not possible and becomes more unrealistic when factoring in conflicts attributable to the live-fire operations and necessary land rest to sustain the training lands.” A very significant point is that this portion of the EIS mentioned, but did not make clear, that the training requirements described are what are known as “doctrinal” requirements. Doctrinal requirements are derived from the full spectrum of missions that units may be called upon to fulfill, and they are somewhat subject to adjustment if necessary.

To illustrate, immediately following the quotation above, the EIS explained the balancing process between training and the need to sustain the training areas that is the essence of the Proposed Action. The Fort Carson Garrison Commander would approve the use of the PCMS for training events, with advice from both training and environmental personnel. On pages 2-29 and 2-30, the EIS addressed the situation in which meeting doctrinal training requirements might not be possible within environmental limits:

It is recognized that trade-offs would be necessary under the Proposed Action because of land constraints. TC 25-1 (Army, 2004a) notes some of the options commanders have to modify training requirements to best meet training resource objectives:

... [a] maneuver area may be limited as a result of its configuration or restrictions on use. There are several ways to adjust the battlefield space requirement. The commander can reduce unit frontages, decrease the distance between maneuver brigades and their support units, or position support units in an area not contiguous to the maneuver brigades. As an example, the brigade commander could disperse his units across an installation, a good distance apart. This example does not reduce the

requirement for maneuver/training areas, but represents one option for training to standard within constrained resources.

Examples of decisions that could be made to address land constraints include reducing the size of the areas used for training (that is, maneuver boxes), reducing the duration of training exercises, alternating unit readiness by training less than all of the four BCTs, or a combination of these. To maintain operational flexibility on the part of military commanders and land managers, this EIS assumes that training could occur at any location at the PCMS in accordance with the appropriate training land uses (for example, maneuver training areas). Specific training scenarios would only be known after training needs are evaluated in the real-world context of identified needs (based on when troops are realigned to Fort Carson during the implementation period) and the assessment of land conditions and sustainability.

In short, the Proposed Action states that doctrinal training requirements cannot be satisfied at the PCMS for all the Soldiers and units assigned to Fort Carson as a result of the transformation programs. However, that fact will not relieve Fort Carson of its requirements to comply with all applicable environmental laws and regulations. Put another way, the Proposed Action includes the inherent limit that the long-term sustainability of the natural resources at the PCMS must not give way to short-term training requirements. Instead, in the event of conflict between training need and environmental sustainment, training will have to be modified in ways such as those mentioned in the quotation above.

#### **2.1.4 PUBLIC INVOLVEMENT IN TRAINING EFFECTS**

The Army recognizes that the public may be concerned over the decisions that may be made to balance training against sustainment. As a result, the Proposed Action has been modified to include regular public meetings to be held in the PCMS area. Those meetings would initially occur quarterly, although the schedule may be adapted based on interest and attendance levels. At these meetings, Fort Carson personnel will outline training activities that have occurred, assess how those activities have affected the various environmental media, explain lessons learned and adjustments to be made for future training activities, and, as permitted by security considerations, outline future training schedules. Members of the public, both individuals and organizations, as well as appropriate federal, state, and local agencies, will be afforded reasonable opportunity to ask questions and provide comments.

On page K-43 of the final 1980 Acquisition EIS, a similar activity was included, in the form of a body called the Land Use Technical Advisory Committee (LUTAC). This body apparently met at various times over the years. However, there is no record of its exact composition, no indication of when and how it was called upon, and no indication that it has been used for years. Thus, the regular public meetings described above as part of the present Proposed Action are considered to provide the same function as the LUTAC but in a more inclusive and systematic fashion.

In addition, the Proposed Action also now includes the establishment of a PCMS hotline for the Headquarters, US Army Garrison, Fort Carson. A phone number and email address will be established for members of the public to submit questions and concerns about activities at the PCMS. Submissions may be made anonymously, but contact information will have to be provided in order to receive a response. The Fort Carson Garrison Commander will regularly monitor the operation of the hotline to ensure that prompt, accurate responses are being provided.

## **2.2 ALTERNATIVES CONSIDERED BUT DISMISSED**

### **2.2.1 TRAINING AT OTHER LOCATIONS**

Sections 2.4.1 and 2.4.2 of the 2007 PCMS EIS discussed alternatives that involved training at other locations or in areas other than the existing PCMS. Accordingly, those alternatives will not be addressed in this EA. However, as necessary to provide venues to meet training objectives, Fort Carson will continue to search for suitable and feasible alternative locations.

### **2.2.2 TRAINING INTENSITIES BASED ON DEPLOYMENT ACTIVITIES**

Section 2.4.3 of the 2007 PCMS EIS stated that the Army also considered training alternatives based on three types of land use, depending on the deployment activities of assigned units. These alternatives were low-, medium-, and high-intensity land uses, depending on whether two, three, or four BCTs were not deployed at any given time and, thus, dependent on the PCMS for training. The conclusion in the 2007 PCMS EIS was that using these alternatives was not reasonable “because they were based on conditions that were beyond the Army’s control [i.e., dependent on deployment requirements dictated by world conditions and national defense needs].”

That stated rationale was correct as far as it went, but it included an unstated assumption, conclusion, and course of action. That is, the unstated assumption was that basing an EIS alternative on a low- or medium-use intensity use would result in findings of lesser environmental impacts. The conclusion was that those findings would not be valid because there was no way to assure that the actual situation would normally or ever include just two or just three BCTs at home station at any given time. As a result, the course of action chosen was to proceed with a Proposed Action that included the “worst case” (from an environmental impact perspective) basis; i.e., all four BCTs home from deployments, needing to train at the PCMS, and funded for such training.

### **2.2.3 FIXED TRAINING PERIOD LIMITATIONS**

The Army has considered alternatives for increased training expressed in terms of limitations such as so many months per year or so many training rotations per year by various sizes of units. A fundamental problem with such an approach is that, as



explained above, “training” is not a monolithic term. In fact, training at the PCMS can range from small arms fire on ranges to dismounted training for small or large units, to large-scale mechanized maneuver training. Trying to set realistic limits on all possible variations of training, particularly after factoring in variables such as weather and existing environmental conditions, becomes an impossibly complex matter.

Further, setting fixed limitations may impose unnecessary limitations on training. Training needs have varied considerably in the past, and they will almost certainly continue to do so in the future. The variances are caused by factors such as mission requirements, changes in tactics and strategy, changes in unit composition, and changes in weaponry, equipment, and communications capability. For example, during the current conflicts, deployments of units have limited the troops on station and needing training at the PCMS. Further, focusing training on the needs of a current conflict may limit the need for certain types of training. For instance, in the last few years, focus on urban and support-of-host-nation operations in Iraq and dismounted operations in Afghanistan, combined with the short turn-around time between deployments, have resulted in a considerable curtailment of large-scale maneuver training.

Before the troop increases resulting from the transformation activities studied in this EA, maneuver training at the PCMS had not pushed the original limits established in the 1980 Acquisition EIS. Thus, empirical data does not exist as to whether those limits may be exceeded without endangering the sustainability of the PCMS’s environment. With the increases in Soldiers and units resulting from the transformation activities, the needs for maneuver training for the assigned units, based on the full range of missions they may be called upon to execute, may exceed those originally set limits.

As a result, the Proposed Action does not include specific limits, but, instead, it involves a process, one in which the training needs and environmental concerns are balanced for each training event. This process allows the Army the necessary flexibility to maximize training opportunities but constrains that flexibility within environmental sustainability limits.

Some have contrasted this process approach with the 1980 Acquisition EIS, which appears to have provided a much greater level of specificity. However, examination indicates that, despite the differences in their methods of analysis, the 1980 and 2007 EISs actually reached essentially the same conclusions.

Starting on page 2-9, the 1980 Acquisition EIS did go into considerable detail concerning what it characterized as “carrying capacity” of the land. However, all of that discussion was limited by paragraph 2.4.3 on page 2-13, which said,

Carrying capacities are practical bases for estimating the intensity of military training operations that can be imposed on a land area. The intensity of use, if within the carrying capacity, would reduce the risk of irreversible damage to soils and vegetation. The use of carrying capacity is combined with control of time of

use, frequency of use, and application of enhancement practices to protect the soil and vegetation resources of the parcel and to form the basis of the land use and management planning here.

On the same page, para 2.4.4 said,

The carrying capacities developed on the Fort Carson military reservation reflect long-term experience with land response to military training use. **As military training evolves and changes, these training intensities may change due to new patterns of use or the advent of more effective mitigation measures.** (*emphasis added*)

Appendix A of the 1980 Acquisition EIS, beginning at page A-1, was further analysis of possible effects on land use from the anticipated training to be conducted at the PCMS. However, in the first paragraph at page A-1, the specificity of the data was questioned by this limiting information: “The number and types of vehicles required to complete a particular Army Training and Evaluation Program (ARTEP) and the frequency of maneuvers over a year are particularly important for assessing potential effects on the land.”

On page K-42, the Army’s response to Issue 68 reflected the uncertainty or lack of exactitude as to PCMS’s carrying capacity or sustainable training load:

*68. ISSUE: Several organizations indicated concern over the selection of the Increased Use, Land Use and Management Plan (LUMP) scenario, since it calls for a training intensity 15% greater than the predicted carrying capacity of the sites. ...*

**RESPONSE:** The Increased Use scenario was selected over the Balanced Use/Protection scenario because it increases available training area by approximately 50% each year with only a 15% increase in carry capacity consumption. The benefit of the additional acreage to training flexibility is extremely important and the exceedance [*sic*] of the predicted carrying capacity by 15% is actually within the error limit of carrying capacity calculations which are extremely worst case. It must be recognized that the proposed training intensity of each LUMP scenario represents only a guideline. Considerable effort was expended to develop projected carrying capacities to insure that the sites could accommodate the training mission and so that potential, comparative impacts could be presented. **In the final analysis, training intensity would be determined through a continuing evaluation of the vegetative condition of either site and would be modified as required.** (*emphasis added*)

After all the recitation of the seemingly precise information in the EIS, the following from page K-43, in the response to Issue 69, reflected that the ultimate resolution was a balancing process that is essentially the same as presented in the 2007 PCMS EIS:

...The scope of [land use] decisions will be within the proposal contained in this document. Nevertheless, as discussed in paragraph 2.4.4 on page 2-13 of the DEIS, military training land use will be continually reevaluated and adjusted as required in order to meet our twin objectives of combat readiness and natural resources protection. Training levels will vary in direct proportion with our success in avoiding or repairing maneuver damage as well as natural climactic variations. The authority for those [land use] decisions is reserved to the Commanding General ... .

In the 1980 Acquisition EIS, the Army had a different purpose for its proposed action than it had for the 2007 PCMS EIS. That is, in the acquisition EIS, the Army was determining where to acquire additional training land and how much land to acquire. As a result, good faith effort was made to present the best and most detailed information available, even though, as the above-quoted references reflect, the value of the information was limited and subject to all the variables associated with training – types and numbers of units and vehicles, tactics used; length, timing, and duration of training; weather; soil conditions; and mitigation measures.

In contrast, in the 2007 PCMS EIS, the Army was studying a training facility, the PCMS, which it had owned and used for over twenty years. The purpose of this EIS was to study the possible environmental effects of implementing the three transformation programs at that facility through increased training. That is, there was not to be a substantially different qualitative difference in training; instead, the studied training would essentially be “more of the same.” In framing the Proposed Action, the Army used its experience to determine that attempts to detail specific effects from specific training levels or intensities would, like the 1980 Acquisition EIS, provide information subject to considerable revision or variation based on subsequent actual events.

As a point of emphasis, though, and to repeat from the description of the Proposed Action above, the absence of specific limitations on training does not equate to unlimited or round-the-clock, round-the-year training. The ITAM program and other mitigation measures long in effect at the PCMS and discussed in the 2007 PCMS EIS, include rest periods and rotations of training areas. On the other hand, the 1980 Acquisition EIS included specific deferral periods (April through June and December) in which no training involving off-road use of vehicles was permitted. This restriction was removed in 1997 and replaced with a system in which off-road use of vehicles would be based on the conditions of the land, as assessed by a monitoring program. Again, the current Proposed Action is not a departure from past practices as authorized under the 1980 Acquisition EIS.

Thus, fixed training period limitations will not be studied as a separate alternative.

#### **2.2.4 “SUSTAINABILITY” ALTERNATIVE**

In the preparation of this EA, no information has been obtained to substantiate the keystone of the “PCMS Sustainable Training Alternative” included in a presentation

dated April, 2006; i.e., “To achieve full sustainability at PCMS allows 4.4 months or 20 weeks of maneuver training per year at PCMS.” It appears that this conclusion was drawn from the 1980 Acquisition EIS. Under the “Increased Use” scenario adopted in that EIS (see Tables 2-9 and 2-11), the baseline limit for brigade-level maneuver training of approximate one month each was between 4.2 and 4.7 per year. That would allow an average of approximately 4.4 months of maneuver training per year.

However, as explained above, there has not been sufficient large-scale maneuver training activity at the PCMS to determine whether the limits in the 1980 Acquisition EIS are valid or, more important, whether they remain constant in light of variables such as weather, existing conditions of environmental resources, and effectiveness of mitigation measures such as the ITAM program.

Further, the validity of the conclusion in the presentation concerning limits at the PCMS is belied by information in it concerning use of maneuver training areas at Fort Carson. While there are differences between the maneuver training areas at Fort Carson and the PCMS, the two locations are sufficiently comparable to establish rough comparisons. The presentation states, “Sustainability thresholds for Ft. Carson have been determined to fluctuate around a 75% use to 25% recovery/rest ratio.” Utilization of maneuver training areas at Fort Carson has been considerably greater than at the PCMS and for a much longer time. Thus, there appears to be no rationale for concluding that Fort Carson’s maneuver areas could be used nine months a year (75% use to 25% recovery), while the PCMS’s areas could only be used 4.4 months (37% use to 63% recovery).

### **2.3 NO ACTION ALTERNATIVE**

The No Action alternative is as described in Section 2.2 of the 2007 PCMS EIS:

Under the No Action alternative, the changes required by BRAC 2005, IGPBS, and AMF actions at Fort Carson (as discussed in detail in Section 2.3) would not be implemented at the PCMS. Force structure, assigned personnel, and equipment would be as they existed prior to the development of these programs. Facility construction and training activities would occur as needed to support the pre-BRAC 2005, pre-IGPBS, and pre-AMF conditions and would undergo separate NEPA review prior to implementation in accordance with regulations and current practice. Therefore, the No Action alternative does not include construction of new facilities.

This alternative is not feasible because troops would be moving to Fort Carson and would need to be trained at the PCMS (as discussed in Section 1.0). Nevertheless, this alternative is included as required by CEQ and Army NEPA-implementing regulations. The No Action alternative provides a benchmark to compare the magnitude of the environmental effects of the Proposed Action.

More detail is contained in the subsections of the 2007 PCMS EIS following Section 2.2.

## **2.4 LIMITED NUMBER OF ALTERNATIVES**

The result of the preceding sections is that only the Proposed Action and the No Action alternatives are being studied in this EA. However, as also reflected in Section 2.3, above, considerable effort was expended to frame other reasonable alternatives.

After this effort, the conclusion was that there is no reasonable alternative available that would satisfy the need of the Proposed Action; that is, increasing training at the PCMS to implement the assignment to Fort Carson of additional troops and units and the execution of the different mission requirements resulting from the three transformation programs. That implementation includes being able to use the PCMS to train those troops as close to doctrinal standards as possible, restrained by the size of the PCMS and the sustainability of the PCMS's natural resources.

The EIS addressed this issue at pages H-18 and 19:

On the basis of the need to meet mission readiness goals and to consider sustainability, the Transformation Proposed Action describes training activity as a process by which the Army would monitor and respond to changing conditions to sustain the land for training and provide maximum troop readiness. That process is characterized by incorporating flexibility required to accomplish mission training and balance land use sustainability in the definition of the Transformation Proposed Action. **A comprehensive Transformation Proposed Action that encompasses the full range of ways in which the mission could be achieved is more realistic and reflective of the way that transformation can and will be implemented.** Defining separate alternatives that would address component features of the Transformation Proposed Action would compromise the Army's ability to meet its mission needs and address sustainability; doing so would either be redundant of the Proposed Action description or would not meet the defined Purpose and Need. The selection of a single preferred alternative could result in a range of unsatisfactory options for meeting the Army's mission requirements. For example, selecting an alternative defined by limited training and support facilities could preclude a viable way to achieve the Army's mission. Conversely, selecting a training alternative that prescribed greater intensity of training activities than required at a given time could result in unnecessary environmental impacts. **Artificial creation of alternatives in this situation would not serve the public or the Army well.**

The Transformation Proposed Action assumes that all units are training at their home station; however, this situation might not materialize for several years, depending on the frequency of operational deployments. When this situation does occur, the PCMS would not be able to support the training load required, and the Army would have to make decisions to balance the need to maximize training and support combat readiness. **Adding incremental training scenarios**

**as alternatives would not be reasonable because doing so would be redundant of the defined Transformation Proposed Action, which has been determined to accommodate the required mission-ready flexibility.**  
*(emphasis added)*

In other words, the Proposed Action is the only alternative that would allow the Army the flexibility to accomplish its many and varied training missions. Describing all of the possible permutations of training as alternatives in the 2007 PCMS EIS or this EA would have been impossible. Even establishing upper limits on maneuver training would have been a triumph of form over substance, given the incalculable and ever-changing variables involved. As described above, the apparent certitude of the calculations to that effect in the 1980 Acquisition EIS were belied by its ultimate statement, at page K-43,

The scope of [land use] decisions will be within the proposal contained in this document. Nevertheless, as discussed in paragraph 2.4.4 on page 2-13 of the DEIS, military training land use will be continually reevaluated and adjusted as required in order to meet our twin objectives of combat readiness and natural resources protection. Training levels will vary in direct proportion with our success in avoiding or repairing maneuver damage as well as natural climactic variations.

The 2007 PCMS EIS essentially mirrored this ultimate position of the 1980 Acquisition EIS, as reflected at page 3-69:

To ensure the continued availability of quality training lands, the Proposed Action would continue the use of the INRMP and the Army's ITAM program at the PCMS to provide for sustainable land management (see Section 1.2.5) and to apply existing processes for interpreting the training mission (see Section 2.2.4.3). The ITAM program balances the Army's training needs with the need to sustain the quality and sustainability of environmental resources in the training areas.

Because of the limited quantitative baseline data, not all potential environmental effects resulting from increased training levels can be precisely determined at this time. For this reason, environmental conditions would be monitored under the Proposed Action, evaluated, and considered if and as the level of training were increased. This process of monitoring and adaptive management feedback would continue to be governed by the ITAM program, document the level of impact that is occurring, and serve to establish the upper acceptable level of impacts that would be allowed to occur without precluding achievement of sustainable land management goals under the Army's ITAM program. This process for balancing mission needs with environmental conditions also applies to the No Action alternative.

## **SECTION 3.0 AFFECTED ENVIRONMENT AND CONSEQUENCES**

### **3.1 INTRODUCTION**

The portrayal of the affected environment and consequences in the 2007 PCMS EIS was, in general terms, predicated on the stated lack of empirical data regarding the potential increases in training activities. That basis is still considered valid. As stated above, the upper level of training that can be accomplished while still maintaining a sustainable environment has not yet been determined. More precisely, the multiple upper levels, depending on the many variables involved, have not yet been determined. Further explanation is provided in Section 3.3, below.

As a result, in preparation of this EA, the description of affected environment and consequences in Section 3.0 of the 2007 PCMS EIS was reviewed to determine if any circumstances arising in the interim require changes. Any such changes are described below. Otherwise, Section 3.0 from the 2007 PCMS EIS is adopted for purposes of this EA.

### **3.2 AFTER ACTION REPORTS**

From 1985 through 2002, the Army compiled After Action Reports (AARs), which reflected the impacts of many of the larger maneuver exercises that took place at the PCMS. We have examined these reports to see whether they provide baseline data concerning impacts of maneuvers that can be extrapolated to accurately predict the impacts of the increased training that may result under the Proposed Action. Our conclusion is that they do not.

These AARs were not a part of the administrative record for the 2007 PCMS EIS, and they are a part of the record for this EA only to explain their limited utility.

These reports reflected no more than anecdotal data. The period covered by these reports, from 1985 through 2002, included different units, different mixtures of equipment, and different operational schemes than would be involved in the increased training under the Proposed Action in the 2007 PCMS EIS. Further, those reports did not reflect numbers of personnel or numbers and types of equipment. They did not state how the exercises concerned were conducted or where on PCMS that they took place.

In 2009, the GTA EIS responded to many questions that referred to the AARs. The responses there stated that the AARs were not considered relevant or valid in considering the impacts of increased training at the PCMS for a variety of reasons: they were dated, related to equipment and tactics no longer used, did not reveal long-term effects or lack thereof, and did not reflect corrective actions following the exercises covered or management efforts to mitigate damages incurred.

The AARs have also been characterized as reflecting that the maneuver training examined caused severe environmental consequences. The GTA EIS responded to this point in general terms, stating that the damages reflected in the AARs were not placed in context. That is, what might appear to be significant was not when considered in relation to a training facility comprised of 235,000 acres. Also, the apparently dire consequences described in some of the AARs were belied by the generally good condition of the PCMS at present.

In more specific terms, the 28 AARs studied seven environmental areas: air quality, noise, geology and minerals, wildlife, hydrology and water quality, vegetation and soils, and cultural resources. There were no significant adverse consequences reported in any of the reports for air quality, noise, geology and minerals, or hydrology and water quality. Consequences for wildlife included only occasional incidental takes of wildlife (no impacts to threatened or endangered species), with no indication of the overall numbers of the animals concerned at the PCMS. Discussion of vegetation and soils consistently reflected damages, with many of the reports indicating numbers of acres involved. The most extensive acreage reported was for an exercise in 1996 – general damage, 5,840 acres; heavy damage, 115 acres; excessive damage, 15 acres. Again, these seemingly large numbers diminish in comparison to the PCMS's overall size of approximately 235,000 acres.

The only other natural resource damage consistently quantified was damage to and destruction of trees. The largest report of tree damage and destruction was for an exercise conducted in 2001, with 442 trees reported destroyed and 884 damaged (mostly juniper, which is controlled in many areas across the west for encroaching on grasslands). Again, to put these apparently large numbers in context, Colorado State University (Betters and Reich 2002) conducted a tree inventory indicating an average of 117 trees per acre for the PCMS, or a total of over four million trees. Also, to put the effects of the maneuvers on these trees in context, environmental managers are currently recommending thinning up to 60 acres of juniper at the PCMS to reduce fuel load and improve habitat.

In the AARs, generally unspecified damages were reported to numbers of unspecified cultural resource sites. However, again, the numbers of sites reported as damaged were very small in relation to the overall numbers of sites (identified on page 3-72 of the 2007 PCMS EIS as 5,113 as of the time of that document). In no case was a cultural site damaged to the point where it was no longer useful for data recovery. A cultural site at the PCMS has never been “destroyed.”

Finally, the AARs showed almost no recognition of the existence or effectiveness of mitigation measures implemented in response to the relatively little damage that they reported.

Thus, the value of these reports as “baseline” data is limited to non-existent. Likewise, the value of these reports as showing that maneuver training causes significant damage, or significant damage that cannot be mitigated, is also limited to non-existent.



That explains why they were not in the administrative record considered by the 2007 PCMS EIS team and why they will not be considered further in this EA.

### **3.3 OTHER DATA**

Suggestion has been made that there are predictable environmental consequences that would result from any given “training intensity.” That position has been the basis for advocating the establishment of fixed limitations on periods of training such as discussed in Section 2.2.3, above.

However, intensity with regard to environmental impacts would also include factors such as the numbers of troops and vehicles, type of training, geographical area of the training, existing environmental conditions at the start of the training, weather during the training, and mitigation efforts before, during, and after the training. Clearly, all of these factors are subject to great variation.

The variables that preclude establishing useful “training intensities” also make establishment of predictable amounts or ranges of environmental effects from any given training event highly problematic.

As explained in Section 3.2, above, historic uses of the PCMS, as reflected at least in part by the AARs that have been compiled, do not provide the extent of data necessary to establish a basis for reliably extrapolating damages that might be caused by the increasing training under the Proposed Action. Further, the almost constantly changing nature of the relevant variables such as weather, existing conditions, types and numbers of vehicles and equipment, and tactics, means that compilation of reliable data will take much more time, if it can be accomplished at all.

As a result of this situation, paragraph 3.7.2.2 of the 2007 PCMS EIS, at page 3-69, stated,

Because baseline data are not available for quantifying the extent (number of acres) and magnitude (severity) of training-related impacts to vegetation and wildlife resources, it is not possible to quantitatively estimate impacts to habitats and wildlife populations from implementation of the Proposed Action or what the magnitude or severity of those impacts would be compared to the No Action alternative.

Page H-182 of the EIS contained further amplification on this issue in response to a question asked about the draft EIS:

The Army has conducted numerous studies of the biological and cultural resources that are present at the PCMS and does have reliable baseline information for the PCMS environment. Appendix E of the DEIS contains a

complete listing of flora and fauna known to exist at the PCMS. The list of species on the PCMS is updated regularly as new species are found.

Mitigation of training impacts on biological resources would be carried out by monitoring and adaptive management governed by the Army's ITAM and other environmental programs, as described in Sections 2.2.4.4, 2.2.5, and 3.7.2.2 of the DEIS.

Cultural surveys have been conducted throughout the PCMS and are conducted in advance of any activity that has the potential to affect important resources. As described in Section 3.8.2 of the DEIS, all undertakings on the PCMS associated with the No Action alternative or the Proposed Action would be evaluated by cultural resources personnel to determine the potential for adverse effects to cultural resources. If it is determined that the undertaking has the potential to result in an adverse effect to cultural resources, the Section 106 process would be initiated in consultation with the Colorado SHPO, resulting in a plan for the protection or mitigation of the resource. In many cases, mitigation involves avoidance of the resource. Although the time frame to complete the consultation process varies from project to project, consultation must be completed prior to the initiation of the undertaking.

Section 3.7 of the DEIS discusses that data directly relating effects on the resources from past training activities at the PCMS are not available. **Because the quantitative relationship of training activities and impacts to resources is not known (and is difficult to predict because of the variety of factors that influence environmental conditions), the DEIS discloses that more of the same types of impacts predicted from past activities would occur in the future.** (*emphasis added*)

Section 3.7 of the EIS has been revised to clarify this issue. Action alternatives to the Proposed Action were considered. The reasons for dismissing each of these Action alternatives from further analysis are discussed in Section 2.4 of the DEIS.

Cumulative impacts are discussed in Section 3.13 of the DEIS. During scoping and throughout the preparation of the DEIS, past, present, and reasonable foreseeable actions were identified. The analysis in the DEIS concludes that these actions, when combined with the incremental impacts of the Proposed Action, would not result in significant cumulative impacts.

In summary, baseline information on environmental conditions and possible effects on those conditions was available and was presented in Section 3 of the EIS. Baseline information on the *level* of environmental effects of the various kinds of increased training was not available. Thus, all that could be said, and may at this time be said, was that more training, especially more maneuver training, means, generally, more effects. However, as related in Section 2.1.3, above, those effects will be constantly

monitored, and the training that causes them will be limited as necessary to ensure the sustainability of the environmental resources of the PCMS.

### **3.4 CHANGES TO AFFECTED ENVIRONMENT AND CONSEQUENCES**

Unless noted below, the resources analysis in Section 3.0 of the 2007 PCMS EIS remains valid with no substantive changes other than that any environmental effects resulting from construction activities would not occur since the Proposed Action no longer includes construction.

#### **3.4.1 BIOLOGICAL RESOURCES**

The following changes should be made to the 2007 PCMS EIS: the Townsend's big-eared bat, *Corynorhinus townsendii pallescens*, should be added to Table 3-19 as a Species of Special Concern;

In Table 3-20, *Oonopsis puebloensis* should be changed to *Oonopsis foliosa* var. *monocephala*;

These changes to the descriptions of the affected environment do not affect the description of environmental impacts.

#### **3.4.2 CULTURAL RESOURCES**

To update the information in section 3.9 of the 2007 PCMS EIS, archaeological inventory of 200,721 acres of the PCMS has now been completed (88%). On that acreage, 5,414 archaeological sites have been recorded: 1,524 isolated finds; 2,711 prehistoric sites; 502 historic sites; and 677 multi-component, having both prehistoric and historic elements present.

In 2007, Fort Carson's Garrison Commander made the decision to comply with Section 106 of the National Historic Preservation Act (NHPA) through implementation of the Army Alternate Procedures (AAP) in lieu of 36 CFR Part 800. As consultation with the Colorado State Historic Preservation Officer (COSHPO), Native American Tribes (Tribes) with a cultural affiliation to Fort Carson administered lands, and other consulting/interested parties was initiated, concern was expressed regarding the AAP process and its applicability for Fort Carson and the PCMS. Subsequently, Fort Carson made the decision to develop a Programmatic Agreement (PA) for compliance with Section 106 rather than implementing the AAP. Consultations began toward the development of a PA in February and March of 2010. A draft PA has been written and is now undergoing review within the Army. It is expected to be circulated for external comment and consultation in early 2011.

In late summer 2010, the 2<sup>nd</sup> BCT conducted the first relatively large-scale maneuver exercise at the PCMS in a number of years. Unfortunately, that exercise revealed a number of flaws in Fort Carson's exercise of its responsibilities with regard to protection of historic properties, including identification of the exercise as an undertaking, pre-exercise consultation with the requisite parties, coordination between the maneuvering units and cultural resources personnel, and marking and protection of historic properties. However, Fort Carson has faced each of these flaws openly and has taken or is taking responsible actions to remedy them to the extent possible and, more important, to avoid repetition in the future.

### **3.4.3 SOCIOECONOMICS**

Impacts from construction, as related in the 2007 PCMS EIS, would not occur as construction is no longer a part of the Proposed Action. However, there may be a change with regard to the economic impact of operations. Although the effects may not yet be measurable, Fort Carson has implemented a change with regard to units training at the PCMS. Rather than purchasing needed goods and services in the Colorado Springs area, the units are being instructed to make these purchases from vendors in the PCMS area whenever possible and permitted under federal purchasing laws and regulations. This change would apply to both the No Action and Proposed Action alternatives. Effects of the change are not expected to be major.

### **3.4.4 UTILITIES**

The water supply pipeline from Trinidad to the PCMS along U.S. Highway 350 that was deteriorated in some areas, with resultant leaking, has since been repaired, largely with Army funding.

The description of the wastewater and stormwater system in the cantonment area in Section 3.11.1.2 of the 2007 PCMS EIS was slightly incorrect. Stormwater is not conveyed by underground mains. The hardstand at the fuel point drains into a small lagoon with an oil/water separator. This lagoon then drains to the main sewage lagoons.

Headquarters Building 300 is not served by a septic system. It does have a "septic tank" for the separation of solids, and the effluent is fed to the treatment oxidation ponds. Reference to septic systems was inaccurate and should be septic tanks.

None of this changed information affects the description of environmental impacts.

### **3.4.5 HAZARDOUS AND TOXIC SUBSTANCES**

#### **3.4.5.1 ASBESTOS**

Fort Carson environmental personnel discovered the presence of suspect material for asbestos at the PCMS Booster Station and collected samples. On July 15, 2009,

analysis of bulk samples was received that indicated the presence of asbestos. An Asbestos-Contaminated Soil Work Plan was prepared and submitted for State approval. Work to perform the abatement began in July 2010. A licensed asbestos abatement contractor removed the piles of friable asbestos and the pieces of nonfriable asbestos around the building foundation. The contractor also gridded off sections twenty feet out from the foundation and removed two inches of topsoil. The contractor took one soil sample from each of the 57 grids, and all 57 samples were still positive for asbestos in the soil.

Discussions with state regulators reflected that some form of cover would suffice to stabilize the soil and complete the project. Different forms of cover, such as a grass seed lined mat that can be laid over the contaminated soil, are being researched. Installation of the chosen cover will complete the project.

There are no soil-disturbing activities planned for the area where discovery occurred, and the only items on this site are some building foundations, sidewalks, and a metal storage building next to the water tower. The area has been fenced and posted for restricted access to authorized personnel only.

## **SECTION 4.0 CUMULATIVE IMPACTS AND MITIGATION**

Cumulative effects and mitigation were described in Sections 3.13 through 3.17 of the 2007 PCMS EIS. That information was reviewed to determine if any circumstances arising in the interim require changes.

### **4.1 CUMULATIVE IMPACTS**

A draft programmatic EIS has been issued by the Department of the Army, with stationing of a Combat Aviation Brigade (CAB) at Fort Carson as part of the preferred alternative. If approved, this stationing action would result in increase of the frequency in use of the combat assault landing strip at the PCMS and involve use of ground support personnel and vehicles. However, much of the CAB's training would be integrated with maneuver training of ground units, training that would take place whether the CAB were stationed at Fort Carson or not. The potential impacts associated with training a CAB at the PCMS were discussed in the GTA EIS and are being further studied in the programmatic EIS. No construction at the PCMS was associated with the assignment of a CAB, and none is currently projected in the programmatic EIS. The main environmental impact anticipated at the PCMS from the possible employment of a CAB is some additional disturbance of soils, an impact that may be mitigated to less than significant through various measures such as the ITAM program.

Subsequent to the completion of the GTA EIS, the Department of the Army decided not to station the Infantry Brigade Combat Team (IBCT) at Fort Carson. As a result, the overall impacts identified in that EIS would be expected to be much less. None of those impacts was considered to be significant after application of mitigation measures.

If the Army decides that a CAB will be assigned to Fort Carson, there will be appropriate site-specific NEPA review of any effects of implementing that decision that have not previously been studied at Fort Carson and the PCMS.

In the absence of the Proposed Action's construction component described in the 2007 PCMS EIS, cumulative impacts as described in that EIS would most likely decrease. There may be occasional small construction, repair, maintenance, or renovation projects integral to operation of the facility and responsive to changes in mission requirements, but those projects are small in scope and are not expected to have significant impact either individually or collectively.

Cannon Air Force Base in New Mexico has announced a proposal for low level flights of aircraft over northern New Mexico and southern Colorado. That proposal has not yet been coordinated with Fort Carson, but it is not anticipated that it will result in significant cumulative impacts at or near the PCMS. No landings at the PCMS are anticipated. Army aviation impacts at the PCMS, primarily from a CAB if one is stationed at Fort Carson, will largely be confined within the boundaries of PCMS. Flights between Fort Carson and the PCMS will generally be in defined air corridors, with routes and times designed for minimum disturbance to people and livestock. Presumably, the Air Force will similarly take into account similar concerns in its planned routes and times.

## **4.2 MITIGATION**

### **4.2.1 ENVIRONMENTAL ORGANIZATION AND PERSONNEL**

Included in the Appendix is Table 3-24 from the 2007 PCMS EIS, which summarizes mitigation measures to be taken (references to construction activities are no longer applicable).

A substantial factor in effecting the mitigation measures described in the Appendix is the efforts of Fort Carson's environmental staff, including cultural resources personnel. Concern has been expressed about changes in Fort Carson's environmental organization and staffing; namely, whether Fort Carson will continue its stewardship of its natural and cultural resources. The commitment of both the Army and Fort Carson is not dependent on any particular organizational structure or any specific individuals. Those structures and individuals can and do change, but the Army mandate remains constant. Army Regulation 200-1, *Environmental Protection and Enhancement*, paragraph 2-1, states,

a. The Army is committed to environmental stewardship in all actions as an integral part of its mission and to ensure sustainability.

b. This regulation supports the *Army Strategy for the Environment*, 1 October 2004, which presents the Army's environmental vision as sustainable operations, installations, systems, and communities enabling the Army mission. Under the

strategy, the Army's environmental mission is to sustain the environment to enable the Army mission and secure the future.

Paragraph 2-2a of this regulation extends the above mandate to all of the Army,  
a. All Army organizations and activities will comply with applicable Federal, State, and local environmental laws, regulations, executive orders (EOs) ... develop and implement pollution prevention and control strategies; and establish environmental priorities in consideration of the benefits to the sustainment of missions and operations.

#### **4.2.2 INTEGRATED TRAINING AREA MANGEMENT (ITAM)**

The ITAM program was mentioned prominently in the 2007 PCMS EIS and above in this EA. The following is additional information from the Army Environmental Command's website (<http://aec.army.mil/usaec/range/sustainment00.html>) concerning ITAM and other related programs for preservation of training ranges such as the PCMS:

In January 2003, Department of Defense Directive (DoDD) 3200.15 established policy and assigned responsibility under Title 10, United States Code for the sustainment of training and test ranges in the Department of Defense. In August 2003, LTG Cody, Deputy Chief of Staff G-3 signed out the Army's Sustainable Range Program (SRP) Plan as implementing guidance for DoDD 3200.15. In 2005 the Army created Army Regulation 350-19, "The Army Sustainable Range Program". The regulation laid the groundwork and established responsibilities and procedures for the Sustainable Range Program.

The SRP goal is to maximize the capability, availability, and accessibility of ranges and training lands to support doctrinal requirements, mobilization, and deployments under normal and surge conditions.

SRP is comprised of two programs, the Range and Training Land Program (RTLTP) and Integrated Training Area Management (ITAM). The RTLTP provides for the central management, programming, and policy for modernization of the Army's ranges and their day-to-day operations. ITAM provides Army Range Officers with the capability to manage and maintain training land by integrating mission requirements with environmental requirements and sound land management practices. ITAM relies on its four components and an integrated management from Headquarters Department of the Army (HQDA), and installations to accomplish its mission. The four components are Training Requirements Integration (TRI); Range and Training Land Assessment (RTLTA); Land Rehabilitation and Maintenance (LRAM); and Sustainable Range Awareness (SRA). Geographic Information Systems (GIS) is used in coordination as a foundational support element that provides geospatial information that assists land managers in decisions making. ...

The U.S. Army Environmental Command (USAEC) is responsible for providing and managing environmental technical support for the SRP. ...

## Integrated Training Area Management (ITAM) Program

- **The SRP Workshop** has been a longstanding conference for the ITAM community. It has always been held in a location, which was near an Army ITAM installation. It was established for the ITAM community to share ideas, collectively train and disseminate and promote program policy and guidance. The workshop has been held annually for fourteen years and has provided many successes.
- **ITAM Learning Modules**

The ITAM Learning Modules are designed to enhance professional understanding of the scientific, technical and programmatic components of the Army's ITAM program in a distance-learning environment. The following are the ITAM Learning Modules:

  - Tactical Units and Equipment
  - Training Requirements Integration
  - Range and Training Land Assessment
  - Land Rehabilitation and Maintenance
  - Sustainable Range Awareness
  - Natural and Cultural Resources
- **Training Requirements Integration (TRI)**

TRI facilitates training land management decisions that meet both mission requirements and natural resource conservation objectives. TRI integrates the installation's training and testing requirements for land use derived from the Range and Training Land Program (RTLTP), range operations and training land management processes, and the installation training readiness requirements with the natural resource conditions of installation lands. TRI includes the Army Training and Testing Area Carrying Capacity (ATTACC) methodology, which is the standard ITAM erosion and sediment transfer methodology for estimating training land carrying capacity by relating training load, land condition, and land maintenance practices.
- **Range and Training Land Assessment (RTLA)**

RTLA is a process of military land management to maximize the capability and sustainability of land to meet the Army training and testing mission. It incorporates a relational database and uses GIS to support land use planning decisions. RTLA collects physical and biological resources data from training land utilization in order to relate land conditions to training and testing activities.

  - RTLA Plan and Reporting
  - RTLA Technical Support
  - RTLA Data Collection and Monitoring
  - RTLA Data Management and Analysis
  - RTLA Coordination
  - RTLA Resources
  - RTLA Overview
  - RTLA Learning Module
  - RTLA User's Working Group



- **Land Rehabilitation and Maintenance (LRAM)**

The LRAM Component is a key enabler for sustaining realistic training conditions and supporting the personnel, weapons, vehicles, and the mission requirements for the Soldiers. LRAM is a preventive and corrective land rehabilitation and maintenance procedure that reduces the long-term impacts of training and testing on installation lands. Its primary function is to maintain training lands to ensure its capability to support the mission. It mitigates mission and training and testing effects by combining preventive and corrective land rehabilitation, repair, and/or maintenance practices to reduce the impacts of training and testing on an installation. It includes training area redesign and/or reconfiguration to meet training requirements.

- [LRAM Overview](#)
- [LRAM Resources](#)
- [LRAM Working Group](#)
- [LRAM Learning Module](#)

- **Sustainable Range Awareness (SRA)**

SRA provides a mean to educate land users on their environmental stewardship responsibilities in conjunction with their use of Army lands. It also provides for the development and distribution of educational materials to land users. These materials relate procedures for sound environmental stewardship of natural and cultural resources and reduce the potential for inflicting avoidable impacts on Army training lands. SRA also includes information provided to environmental professionals concerning operational requirements.

- [SRA Products](#)
- [SRA Recognition Program](#)

- **SRP Geographic Information Systems (GIS)**

GIS is the foundational support element of the SRP. . The SRP GIS mission is to create, analyze, manage, and distribute authoritative standardized spatial information, products, and services for the execution of training strategies and missions on Army ranges and training lands.

- [GIS Regional Support Center](#)
- [GIS Users Working Group](#)
- [GIS Tools](#)
- [GIS Resources](#)
- [GIS Training](#)

As was the case at the PCMS in July and August 2010, mechanized maneuver areas may appear considerably damaged immediately after an exercise. However, ITAM efforts, either passive measures such as rest or active measures such as reseeding or grading, will restore these areas to acceptable condition. As stated in Army Regulation 200-1, paragraphs 2-1a, 2-1b and 2-1b(3), the Army's long-term need for training is co-extensive with its commitment to sustainability of its training resources:

[T]he Army's environmental mission is to sustain the environment to enable the Army mission and secure the future. In doing so, all Army organizations and activities will —

(3) Meet current and future training, testing and other mission requirements by sustaining land, air, and water resources.

At Fort Carson, the SRP is comprised of two functional areas: ITAM and RTLP. The ITAM program is used to monitor, analyze, manage and sustain the Training Land Resources of Fort Carson. The RTLP is used to manage, schedule and safely operate the use of the ranges and land resources.

Annually, the ITAM program conducts monitoring of the land condition. Throughout the training lands at Fort Carson and the PCMS, there are “monitoring plots.” A monitoring plot is a straight-line, point-to-point survey line that is 50 meters long. Data collection teams tie a string between two surveyed points and analyze everything between the two points, including each individual piece of vegetation (type, size, condition) and any damage from vehicle traffic, erosion, fire, wildlife, drought or disease. All data is entered into master data base that is utilized to calculate the Land Condition and Trend Analysis (LCTA) model. This data identifies the condition of the land, the impacts of military training on the land and the trends related to military training (gathering points, areas of sustained impact, areas that have a difficult time recovering from impacts). The LCTA data is briefed to the senior military commanders and training managers to assist in the planning of military training during the upcoming year and to assist in validation, funding and prioritization of suggested projects to rehabilitate, mitigate and prevent damages.

Currently, there are 511 monitoring plots throughout the training lands. The plots are placed in each and every training area and are dispersed in a manner to achieve monitoring data from all areas, regardless of the current use of each piece of land. In other words, the plots are not placed in a tactical manner to achieve a desired outcome. There are as many plots in highly used areas that are routinely impacted as there are in seldomly utilized areas that routinely receive minimal or no impacts. The LCTA data is useful in determining the best management practices for each individual training area.

Each year, the LCTA data is used to develop and update the Fort Carson LRAM work plan. The overall work plan is a five-year plan that identifies various land rehabilitation projects with the primary emphasis on the upcoming fiscal year. The various projects include smoothing and re-seeding of areas that have encountered impacts from training or natural causes. Project types include erosion control structures, bank sloping, hazard identification, hardened crossings and re-seeding. The LRAM work plan is a living document that can be and is revised as new LRAM requirements are identified. The work plan also serves Fort Carson as the main justification document for obtaining the required funds for the LRAM work. Once funds are received, the workload is prioritized by management and senior mission commanders. Prioritization is based on

the planned training events for the upcoming years, available funding levels and the land condition.

The majority of the actual LRAM workload is executed by contractors. Individual projects are developed into task orders, which identify the project specifics, details and requirements. Each task order is coordinated and approved separately and, in some cases, if there are similar projects that are located near one another, they may be combined under one task order. The Government provides direct oversight on the projects to ensure that the LRAM work is executed properly to meet the exact specifications of the contract. Upon completion, the project site is monitored for its performance, and the analysis data is maintained for use as a potential best management practice.

Areas that require time to recover are placed in a condition called "Limited Use," provides temporary protection to an impacted area and affords the opportunity for vegetation or rehabilitation efforts to recover before being returned to the available training lands inventory. Limited use areas are identified with signs around their perimeters. All limited use areas are presented to the Garrison Commander for his approval.

In an effort to minimize the impacts of training on the maneuver training lands, the ITAM program conducts maneuver damage training classes. Classes are held once a month at the Range Division headquarters building and are focused at educating Maneuver Damage Officers from the training units on how to minimize the impacts to the land. Topics such as heavy maneuver, neutral steering, digging of fighting positions, areas of limited use and identification of off limits areas are covered during the classes.

In short, ITAM is a real, vital, and effective program to effect environmental stewardship of training areas at the PCMS.

#### **4.2.3 CULTURAL RESOURCES**

In late summer 2010, the 2<sup>nd</sup> BCT conducted the first relatively large-scale maneuver exercise at the PCMS in a number of years. That exercise resulted in the breach of the site boundary on 39 historic properties. Fort Carson Cultural Resources Management Program personnel have completed an After Action Report and assessment of the impacts to these sites. The report and assessment findings will be forwarded by January 28, 2011 to the Colorado State Historic Preservation Office (COSHPO), the Native American Tribes with a cultural affiliation to PCMS land, and other consulting/interested parties under Section 106 of the National Historic Preservation Act (NHPA) regarding resolution of adverse effects (36 CFR 800.6). During the assessment, it was determined that these sites experienced varying degrees of impact, ranging from site boundaries being breached with no archaeological features affected or new features exposed, to a feature or features being clipped or run over by a tracked vehicle. Of the 39 sites, six sites contained a feature or features affected by the 2010 military training, and an impact from a 1990s training event was recorded on one

additional site. No archaeological sites or individual features were destroyed during this training event, and the remaining 32 sites inspected experienced no adverse effects.

As stated in Section 3.4.3, above, unfortunately, that exercise revealed a number of areas for improvement in Fort Carson's exercise of its responsibilities with regard to protection of historic properties, including identification of the exercise as an undertaking, pre-exercise consultation with the requisite parties, coordination between the maneuvering units and cultural resources personnel, and marking and protection of historic sites. However, Fort Carson has faced each of these flaws openly and has taken or is taking responsible actions to remedy them to the extent possible and, more important, to avoid repetition in the future.

## **SECTION 5.0 FINDINGS AND CONCLUSIONS**

Based on information compiled in this EA, the Proposed Action may be approved and implemented without significant adverse, unmitigated environmental impacts. As a result, proceeding with an EIS is not necessary. Instead, a Finding of No Significant Impact may be prepared and approved.

As explained in this EA, the extent of environmental impacts from the increased training that is the Proposed Action cannot be calculated with any precision. Further, the amount of increased training cannot be precisely stated or predicted. As a result, this EA explains the types of the impacts that may occur and concludes that more of these impacts may occur as a result of increased training.

However, the Proposed Action does not allow unlimited training or the incurrence of unlimited damages. Instead, a central part of the Proposed Action is the process for determining when and where training will be allowed; i.e., the amount of training may not exceed the sustainability of the environmental resources of the PCMS.

Given this overall restraint on the amount and location of training to be conducted, the adverse environmental impacts that may occur will be sufficiently mitigated by the measures described in this EA to avoid rising to the level of significant.

The effect of approving the Proposed Action involves no substantial change to the operation of the PCMS. This facility will continue to be used for the purpose for which it was acquired; i.e., as a training facility for troops and units assigned to and supported by Fort Carson. Both the PCMS and Fort Carson have operated for years under the same process of balancing training needs against environmental considerations, and the conditions at both facilities reflect the effectiveness of this process. Preparation of this EA has revealed no reason to doubt that this balancing process will continue to be effective.

This EA and the 2007 PCMS EIS state that the PCMS does not have sufficient land to meet doctrinal maneuver training requirements. The Proposed Action provides that this shortfall does not authorize unlimited increases in training. Again, training is to be

constrained by the limits of sustainability of the environmental resources. Pages 2-29 and 2-30 of the 2007 PCMS EIS, adopted as part of this EA, show the adaptive training measures that can and will be taken in order to maintain sustainability as a necessary, and paramount, condition in determining the amount of maneuver training to be allowed under the Proposed Action,

Examples of decisions that could be made to address land constraints include reducing the size of the areas used for training (that is, maneuver boxes), reducing the duration of training exercises, alternating unit readiness by training less than all of the four BCTs, or a combination of these. To maintain operational flexibility on the part of military commanders and land managers, this EIS assumes that training could occur at any location at the PCMS in accordance with the appropriate training land uses (for example, maneuver training areas). Specific training scenarios would only be known after training needs are evaluated in the real-world context of identified needs (based on when troops are realigned to Fort Carson during the implementation period) and the assessment of land conditions and sustainability.

Whether these “work-around” measures will allow for adequate training over the short or long term is a matter the Army will have to assess. If they prove to be inadequate, other alternatives may have to be examined and developed such as, for example, reduction of the number of troops assigned to Fort Carson or expansion of the size of the PCMS. Any such actions, though, would require decisions at the Department of Defense and Department of the Army levels, as well as Congressional approvals and funding. As a result, they are not reasonably foreseeable at this time and, thus, are not within the scope of this EA.

The mitigation described in the 2007 PCMS EIS and this EA is, primarily, preventive; i.e., that training would be approved and conducted only when and where environmental resources have been assessed as capable to support it in a sustainable manner. The other mitigation measures described were developed in that context and, in that context, are considered sufficient.

## **SECTION 6.0 REFERENCES**

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## **SECTION 7.0 AGENCIES AND PERSONS CONTACTED**

Benford, James D., Chief, Training Division/Range Control Officer, U.S. Army Garrison Fort Carson

Bunn, Richard, Wildlife Biologist, U.S. Army Garrison Fort Carson

Martin, David, Asbestos Program Manager, U.S. Army Garrison Fort Carson

Miller, Pamela, Cultural Resources Manager, U.S. Army Garrison Fort Carson

## **SECTION 8.0 ACRONYMS AND ABBREVIATIONS**

AAP – Army Alternate Procedures

AARs – After Action Reports

AC – Active Component

AMF – Army Modular Force

AR – Army Regulation

ARTEP – Army Resource Training Exercise Plan

ATTACC - Army Training and Testing Area Carrying Capacity

BCT – Brigade Combat Team

BMPs – Best Management Practices

BRAC – Base Realignment and Closure

CAB Combat Aviation Brigade

CEQ – Council on Environmental Quality

CFR – Code of Federal Regulations

COSHPO – Colorado State Historic Preservation Office

DECAM – Directorate of Environmental Compliance and Management

DEENR – Directorate of Environmental, Energy and Natural Resources

DEIS – Draft Environmental Impact Statement

DoDD – Department of Defense Directive

DPTM – Directorate of Planning, Training, and Mobilization

DPW – Directorate of Public Works

EA – Environmental Assessment

EIS – Environmental Impact Statement

EOs – Executive Orders

f – feet

FC – Fort Carson  
FNSI – Finding of No Significant Impact  
G-3 – Operations, Planning and Training  
GDPR - Global Defense Posture Realignment  
GIS – Geographic Information Systems  
GTA EIS – Grow the Army Environmental Impact Statement  
HQDA – Headquarters Department of the Army  
HWMP – Hazardous Waste Management Plan  
IBCT – Infantry Brigade Combat Team  
IGPBS – Integrated Global Presence and Basing Strategy  
INRMP – Integrated Natural Resources Management Plan  
ITAM – Integrated Training Area Management  
LCTA – Land Condition and Trend Analysis  
LRAM - Land Rehabilitation and Maintenance  
LTG – Lieutenant General  
LUMP – Land Use Management Plan  
LUTAC - Land Use Technical Advisory Committee  
m – meter  
NEPA – National Environmental Policy Act  
NHPA – National Historic Preservation Act  
NOA – Notice of Availability  
PA – Programmatic Agreement  
PCMS – Pinon Canyon Maneuver Site  
RC – Reserve Component  
RCRA – Recourse Conservation and Recovery Act of 1976  
ROD – Record of Decision  
RTLA - Range and Training Land Assessment  
RTLTP - Range and Training Land Program  
SAR – Species at Risk  
SHPO – State Historic Preservation Office  
SPCC – Spill Prevention Control and Countermeasures  
SRA – Sustainable Range Awareness  
SRP – Sustainable Range Program  
TC – Training Circular  
TRI - Training Requirements Integration  
USAEC – U.S. Army Environmental Command



## APPENDIX

### Table 3-24 reproduced from the 2007 PCMS Transformation EIS

**TABLE 3-24**

Summary of Environmental Impacts and Mitigation Measures

*PCMS Transformation EIS, PCMS, Colorado*

Impacts of No Action Alternatives	Impacts of Proposed Action	Standard Practice/Mitigation
<b>Land Use, Plans, and Policies</b>		
Increased training could degrade training lands and affect the long-term availability of training lands for military use.	Same as the No Action alternative, but the magnitude would be greater because of increased frequency of training actions.	Continue the use of the Army's land management and environmental programs to provide for sustainable land management.
Increased training activities would reduce the availability of training areas for hunting.	Same as the No Action alternative.	No mitigation is required because other publicly accessible hunting grounds are available in southeast Colorado and additional methods can be used to maintain hunting as a viable management tool.
Noise increases outside the installation boundaries from training activities could preclude locating residences or other sensitive receptors in these areas in the future.	Same as the No Action alternative.	Follow Army Regulation (AR) 200-1 and the <i>Installation Environmental Noise Management Plan</i> (USACE, 2006a) to monitor noise.
<b>Air Quality</b>		
Air emissions would be below established air quality thresholds.  Current procedures for prescribed burning would continue to be implemented.	Increased training under the Proposed Action would increase convoy traffic on existing paved roads between Fort Carson and the PCMS. Potential impact to air quality from additional training activities would result from increased traffic on dirt roads and trails. Existing prescribed burning would continue.	No mitigation is required because emissions from the increase in training would not exceed threshold values. Prescribed burning would continue to follow Colorado Air Quality Control Commission's Regulation No. 9 and the annual prescribed burn plan.
Construction of the Proposed Action facilities would not occur; therefore, no impacts would result.	Construction activities could result in impacts to air quality because of wind-blown dust created by construction equipment, exhaust emissions from construction equipment, and the increased number of vehicle trips by construction workers.	Disturbed areas over 25 acres or areas that have been disturbed 6 months or longer are subject to site-specific state permits, which implement best management practices (BMPs). Visibility impacts from construction would not exceed thresholds.
Additional combustion equipment would be neither installed nor operated.	Operations emissions would be generated by using additional combustion equipment.	No mitigation is required because construction at the PCMS would not alter the PCMS' classification as a minor source. Operation of new stationary sources would not exceed regulatory thresholds; therefore, operation of the proposed facilities would not require permitting pursuant to prevention of significant deterioration regulations.
<b>Noise</b>		
Increased training would not result in a perceptible increase in noise from increased convoy traffic.	Increased convoy movements would not result in a perceptible increased traffic noise.	No mitigation is required because impacts would be imperceptible.
Increased training would result in a negligible increase in noise from	Training activity at the proposed hand grenade range could increase	No mitigation is required because no known noise-sensitive receptors (for

**TABLE 3-24**  
 Summary of Environmental Impacts and Mitigation Measures  
*PCMS Transformation EIS, PCMS, Colorado*

Impacts of No Action Alternatives	Impacts of Proposed Action	Standard Practice/Mitigation
increased training activities.	noise levels outside the installation.	example, residences, schools) are located in the noise-affected areas outside the PCMS boundaries (i.e., noise contours are well outside any residences).
Noise increases off post could discourage future development.	Same as the No Action alternative, but the magnitude could be greater because of increased frequency of training actions.	Follow AR 200-1 and the <i>Installation Environmental Noise Management Plan</i> to evaluate noise.
No increase in existing noise levels from construction.	Increase in noise levels from building construction and road maintenance would be temporary, and they would occur within the PCMS boundary.	No mitigation is required because noise associated with construction would not extend off site.
<b>Geology and Soils</b>		
Increased training under the No Action alternative could result in, direct impacts to soils, such as compaction resulting from repeated vehicle passes and bivouacking, ruts resulting from tank pivot turns (turns from a stopped position), hull and turret defilades, and tank traps. These impacts result in soils that are susceptible to erosion by water and wind.	Same as the No Action alternative, but the magnitude could be greater because of increased frequency of training actions.  Use of live hand grenades (only permitted on 150m x 150m [492 ft x 492 ft] hand grenade range) could cause localized soil disturbance that could increase erosion.	Continue to implement erosion control projects, BMPs, maneuver damage repair, and reclamation projects for areas damaged by training activities. If these programs are insufficient to mitigate adverse impacts, additional mitigation measures could be implemented.
Training on wet soils could increase rutting.		
Increased wind and water erosion in areas where vegetative cover is compromised.		
Construction of the Proposed Action facilities would not occur; therefore, no impacts would result.	Construction and demolition would temporarily increase the potential for erosion from ground disturbance.	Continue to implement existing programs and regulations to minimize the potential for soil erosion during construction and demolition activities.
		Minimize areas of disturbance during construction.
		Landscaping and reseeded upon construction would follow applicable standards for the Cantonment and the training areas.
<b>Water Resources</b>		
Increased erosion from increased training activities, including mechanized maneuvers, crossing dry drainages, and training in wet conditions, could result in increased erosion and subsequent sedimentation of surface waters.	Same as the No Action alternative, but the magnitude could be greater because of the increased frequency of training actions.	Continue to implement erosion control projects, BMPs, maneuver damage repair, and reclamation projects for areas damaged by training activities. If these programs are insufficient to mitigate adverse impacts, additional mitigation measures could be implemented.

**TABLE 3-24**

Summary of Environmental Impacts and Mitigation Measures  
*PCMS Transformation EIS, PCMS, Colorado*

Impacts of No Action Alternatives	Impacts of Proposed Action	Standard Practice/Mitigation
<p>Increased use of fuels and solvents during training increases the chances for accidental spills and releases into the environment that could adversely affect surface water or groundwater resources.</p>	<p>Same as the No Action alternative, but the magnitude could be greater because of the increased frequency of training actions.</p>	<p>Continue to implement all applicable hazards management plans and training to address leaks or spills of hazardous materials.</p>
<p>Personnel and equipment could be affected by floodwaters when training in flood-prone areas, especially during flash flooding.</p>	<p>Same as the No Action alternative, but the magnitude could be greater because of the increased frequency of training actions.</p>	<p>Continue to implement training procedures that direct troops to relocate from flood-prone areas when conditions are favorable for sudden storms and flash flooding.</p>
<p>Construction of the Proposed Action facilities would not occur; therefore, no impacts would result.</p>	<p>Ground disturbance from construction and demolition activities could result in erosion or sediment transport to surface waters.</p> <p>Spills of fuels, solvents, or other hazardous materials used during construction could adversely affect water resources.</p>	<p>Continue to implement existing BMPs, follow permitting requirements, and adhere to the Directorate of Environmental Compliance and Management's water resources management program.</p> <p>Continue to implement all applicable hazards management plans to address leaks or spills of hazardous materials.</p> <p>Develop and implement a stormwater pollution prevention plan for each construction project larger than 1 acre to avoid or minimize the potential for impacts attributable to stormwater runoff during construction.</p>
<p>Construction of the Proposed Action facilities would not occur, therefore, no impacts would result.</p>	<p>Dewatering could be required during construction and could result in minimal impacts to surface waters.</p>	<p>Implement dewatering in accordance with the requirements of the Clean Water Act.</p>
<p>Construction of the Proposed Action facilities would not occur; therefore, no impacts would result.</p>	<p>Because floodplains have not been mapped for the PCMS, new facilities in the training areas could be located in areas subject to flooding conditions.</p>	<p>Locate new facilities in the training areas outside of known flood-prone areas, including areas immediately adjacent to arroyos.</p>

**Biological Resources**

Soil compaction from mechanized vehicles and foot traffic, and damage from ammunition impacts related to small-arms firing could result in soil and vegetation disturbances; disturbance to migratory birds, raptors, or other wildlife, and their habitats; and a potential increase in noxious weed infestations.

Accidental wildfires could result from mechanized and live-fire military training.

Dismounted military training could flush or startle small mammals, ground nesting birds, and reptiles.

For training, impacts to vegetation, wildlife, and sensitive species would be similar to the No Action alternative, but the magnitude of impacts could be greater because of increased training frequency.

Continue prescribed burning to create buffer areas to provide additional protection from wildfires.

Continue weed prevention and control. Avoid nesting birds by restricting mowing of road shoulders and prescribed burns to the extent possible during the nesting season.

Continue surveys of power lines to minimize bird electrocutions and other infrastructure for potential structural failures that may harm birds, and make necessary repairs efficiently. Continue practice of identifying golden eagle nest sites annually, establishing 1,640-foot (500-meter) buffers around each nest site, and restricting training in buffer

**TABLE 3-24**  
 Summary of Environmental Impacts and Mitigation Measures  
*PCMS Transformation EIS, PCMS, Colorado*

Impacts of No Action Alternatives	Impacts of Proposed Action	Standard Practice/Mitigation
The Proposed Action construction would not occur, therefore, no impacts to biological resources would occur.	For construction, activities in the Cantonment and training areas would cause temporary ground disturbance and result in permanent loss of small areas of native vegetation.	zones from April through June.  Areas of vegetation disturbed by construction activities would be reclaimed and revegetated with native or other suitable vegetation, as appropriate.
<b>Cultural Resources</b>		
Construction of the Proposed Action facilities would not occur, and no impacts would result.	Construction activity in the Cantonment would have no effect on known cultural or prehistoric resources.	No mitigation required for use of areas inventoried for cultural resources that contain no National Register-eligible historic properties.
All training activities could result in adverse impacts to cultural resources. The extent of the impact is contingent on two factors, the type of training and the landform on which the training will take place.	Construction activity in the training areas that have not been surveyed could adversely affect cultural resources.  For training, same as the No Action alternative but potential for impacts could be greater because of increased frequency of training activities.	Any activities with the potential to adversely affect cultural resources will be evaluated and resolved under the Section 106 effect determination and mitigation processes.  Areas that contain known National Register-eligible historic properties or that have not yet been surveyed will be used for dismantled training only until the proposed use area has been evaluated to determine that cultural resources can be protected against adverse impacts. If impacts cannot be avoided, further consultation with the Colorado State Historic Preservation Office, Advisory Council on Historic Preservation, and/or Native American Tribes, if applicable, regarding mitigation would occur prior to ground-disturbing activities.
Potential for inadvertent impact to previously unidentified cultural materials and/or human remains uncovered in the course of training or construction activities.	Same as the No Action alternative but potential could be greater because of increased frequency of training activities.	The "Inadvertent Discovery of Archaeological Resources or Burials" standard operating procedure (SOP) and "Native American Graves Protection and Repatriation Act" SOP will be applied and enforced.
<b>Socioeconomics</b>		
No change to socioeconomic conditions.	No change to socioeconomic conditions as a result of increased training activities or operations.	No mitigation is required because socioeconomic conditions would not change.
The Proposed Action construction activity would not occur.	Temporary economic benefits to the region of influence associated with construction expenditures and employment. Temporary influx of construction workers from outside the region of influence.	No mitigation is required because socioeconomic impacts would be beneficial.
No adverse impacts to low-income and minority communities.	No adverse impacts to low-income and minority communities.	No mitigation is required because socioeconomic conditions would not

**TABLE 3-24**  
 Summary of Environmental Impacts and Mitigation Measures  
*PCMS Transformation EIS, PCMS, Colorado*

Impacts of No Action Alternatives	Impacts of Proposed Action	Standard Practice/Mitigation change.
<b>Transportation</b>		
<p>Increased traffic on regional roadways from training deployments to the PCMS.</p> <p>Impacts to regional traffic or rail transportation would be negligible.</p> <p>No impacts to aviation would occur.</p>	<p>Increased traffic on regional roadways from training deployments to the PCMS. Some of the increased traffic would be on regional roadways operating at or near capacity.</p> <p>No impacts to aviation would occur.</p>	<p>Schedule all PCMS-related traffic movements to occur during off-peak periods on roadways operating near capacity.</p> <p>Stagger convoy vehicles into groups of no more than 24 vehicles each, spaced at least 15 minutes apart.</p> <p>Schedule all roadway and rail convoy movements through the Installation Transportation Officer at least 60 days in advance of the training rotation.</p> <p>Coordinate with state and federal officials for the addition of passing lanes on U.S. 160 and U.S. 350 as recommended in the <i>2006 PCMS Traffic Study</i>.</p>
<p>Minor additional use of the rail line connecting Fort Carson and the PCMS.</p>	<p>Increased frequency of rail shipments of up to 100 days per year.</p>	<p>All rail shipments would be scheduled through the Installation Transportation Officer at least 60 days in advance of the training rotation to allow adequate coordination with the rail lines.</p>
<p>The Proposed Action construction activity would not occur and no impacts would result.</p>	<p>Temporary increase in traffic from construction. Temporary road closures on the PCMS could occur.</p>	<p>Schedule construction activities so that they would not interfere with training. Use traffic control procedures, such as detours, when appropriate.</p>
<b>Utilities</b>		
<p>Increased training activities could result in an increase in potable water demand above the current system design for 5,000 personnel per day.</p> <p>Deteriorated water supply and distribution lines could result in adverse effects to water supply.</p>	<p>Similar training impacts as the No Action alternative, but the magnitude could be greater because of the increased frequency of training actions.</p> <p>Repair and upgrade of the distribution pipeline system would result in beneficial effect to the potable water system.</p>	<p>Truck additional potable water to the PCMS if more than 5,000 personnel are present in the Cantonment and training areas.</p> <p>Implement planned upgrades of water lines.</p>
<p>Increased training activities could result in increased generation of wastewater that could exceed the capacity of existing septic systems.</p>	<p>Similar training impacts as the No Action alternative, but the magnitude could be greater because of the increased frequency of training actions.</p> <p>Includes installation of new sewer mains to provide sufficient collection capacity for increased wastewater and storm water volume.</p>	<p>Arrange for septic systems to be serviced at a greater frequency and contract for additional portable toilets.</p> <p>No mitigation is required because the recently completed treatment/oxidation pond upgrade provides sufficient wastewater treatment capacity.</p>

**TABLE 3-24**

Summary of Environmental Impacts and Mitigation Measures  
*PCMS Transformation EIS, PCMS, Colorado*

Impacts of No Action Alternatives	Impacts of Proposed Action	Standard Practice/Mitigation
Increased frequency of training would result in increased power demand.	Increased frequency of training would result in increased power and gas demand. Similar training impacts as the No Action alternative, but the magnitude could be greater because of increased frequency of training actions.	No mitigation is required because electricity demand on the Cantonment would be met by the available electrical supply; demand in the training areas would be met with continued use of batteries and portable generators.  Installation of power distribution lines under the Proposed Action to provide electricity to training facilities located on the west side of the training areas and installation of natural gas lines, new electrical distribution, and transformer upgrade for the Cantonment to support increased demand for energy.
Increased training could increase the quantity of heating oil and propane used.	Similar training impacts as the No Action alternative, but magnitude could be greater because of increased frequency of training actions.	Available supply of heating oil or propane is adequate to meet increased demand. No mitigation is required.
Existing training communication needs would continue to be unmet.	Installation of communication facilities would result in an improved communication system for training activities. Because the PCMS would have an improved ability to carry out its training mission, this would be a beneficial effect.	No mitigation is required because the impacts to the communication system at the PCMS would be beneficial.
Increased training could increase solid waste generation at the Cantonment and the training areas.	Similar training impacts as the No Action alternative, but magnitude could be greater because of increased frequency of training actions.	Continue to implement appropriate policies and practices in the existing <i>Integrated Solid Waste Management Plan</i> to address increased solid waste generation.
The Proposed Action construction activity would not occur, and no impacts would result.	Impacts could occur to underground utilities at unknown locations during ground-disturbing activities associated with construction.	Implement standard engineering practices to locate utilities precisely prior to construction to avoid inadvertent utility damage.
<b>Hazardous and Toxic Substances</b>		
A hazardous waste management plan (HWMP) has not been required for the PCMS.  Increased training activities would result in an increase in the use of hazardous materials associated with routine vehicle and equipment maintenance, specifically fuels, batteries, lubricants, and pesticides.	Similar types of training impacts as with the No Action alternative, but magnitude could be greater because of increased frequency of training actions and the addition of facilities (for example, vehicle maintenance and hazardous material pharmacy).	Document the PCMS as a Conditionally Exempt Small Quantity Generator under the Resource Conservation and Recovery Act (RCRA).  Prepare and implement a HWMP for hazardous waste potentially generated at PCMS.  Continue to implement the <i>Integrated Pest Management Plan</i> for transporting, storing, and handling additional pesticides. Wastes would continue to be properly disposed of at an off-post, permitted hazardous waste facility.

**TABLE 3-24**  
 Summary of Environmental Impacts and Mitigation Measures  
*PCMS Transformation EIS, PCMS, Colorado*

Impacts of No Action Alternatives	Impacts of Proposed Action	Standard Practice/Mitigation
<p>An SPCC plan has not been developed for the PCMS.</p> <p>Increased training would result in an increase in the use of munitions at the ranges.</p> <p>Increased training could result in an increase of lead wastes at the small-arms live-fire ranges.</p> <p>There is the potential that lead-contaminated soils would need to be remediated in the future.</p> <p>The Proposed Action construction activities would not occur and no impacts would result.</p>	<p>An SPCC plan has not been developed for the PCMS.</p> <p>Similar types of training impacts as with the No Action alternative, but the magnitude could be greater because of the increased frequency of training actions.</p> <p>Additionally, live grenades could be used on the proposed hand grenade range.</p> <p>Implementation would result in an increase in the use of petroleum-based products.</p> <p>Increased generation of medical waste from one new medical facility and storage of hazardous materials at one new hazardous materials pharmacy.</p>	<p>Prepare and implement an SPCC plan to prevent oil and petroleum spills in compliance with 40 CFR 112.</p> <p>Continue to implement the “Ammunition Supply Point” SOP for storage and transportation of additional munitions and targets.</p> <p>Detonate all live grenades prior to leaving the proposed hand grenade range.</p> <p>Remediate lead-contaminated soils to mitigate effects to human health and the environment.</p> <p>Continue to implement the <i>Underground Storage Tanks and Aboveground Storage Tanks</i>, and FC 200-1 for accidental leaks and the storage of additional petroleum products.</p> <p>Document the PCMS as a Conditionally Exempt Small Quantity Generator under the RCRA.</p> <p>Prepare and implement a HWMP for hazardous waste potentially generated at the PCMS.</p> <p>Wastes would continue to be properly disposed of at an off-post, permitted hazardous waste facility.</p>
<p>Due to the increased numbers of Soldiers training at the PCMS, additional medical waste could be generated.</p>	<p>Similar types of training impacts as with the No Action alternative, but the magnitude would be greater because of the increased frequency of training actions.</p>	<p>Continue to implement the Evans Army Community Hospital Hazardous Material/Hazardous Waste Management Program and Fort Carson Management of Regulated Medical Waste to address any medical waste generated.</p>