







FINAL

Programmatic Environmental Impact Statement (PEIS)

For the

Realignment, Growth, and Stationing of Army Aviation Assets

February 2011

Prepared by: U.S. Army Environmental Command

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FINAL PROGRAMMATIC ENVIRONMENTAL IMPACT STATEMENT FOR THE REALIGNMENT, GROWTH, AND STATIONING OF ARMY AVIATION ASSETS

FEBRUARY 2011

Prepared by
U.S. Army Environmental Command

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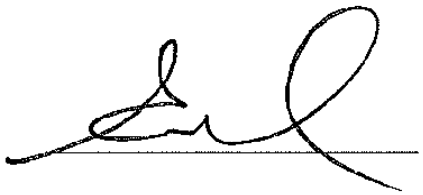

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Commanding

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EXECUTIVE SUMMARY

ES 1. OVERVIEW

This final Programmatic Environmental Impact Statement (PEIS) provides an analysis of the proposed action and alternatives for the growth, realignment, and stationing of new and existing Army aviation assets. To meet high operational demand for aviation units, the Army is considering forming up to two new Combat Aviation Brigades (CAB) by realigning existing aviation assets to establish a CAB and creating one additional new CAB to meet high operational demand for aviation units. The PEIS compares and evaluates the environmental impacts associated with the stationing and training of new CABs at Fort Carson, Colorado, and Joint Base Lewis-McChord (JBLM), Washington. As part of alternatives evaluated in this PEIS, each location may only receive up to one additional new CAB. In addition to training at Fort Carson and JBLM, training of newly stationed CABs will occur at maneuver training sites to include the Piñon Canyon Maneuver Site (PCMS) and YTC if a decision is made to station CABs at either Fort Carson or JBLM.

ES 2. PURPOSE AND NEED

The need for consolidation, growth, and stationing of aviation assets is generated by the imbalance between mission requirements and available aviation forces. This imbalance is currently forcing aviation units to be deployed too often, which is negatively impacting training, readiness, and Soldier and Family Quality of Life for those assigned to aviation units. Aviation units must be able to execute a full range of combat and stability operations, such as humanitarian relief, to ensure mission accomplishment. The Army is currently meeting the demand for trained and ready aviation forces, but limited time at home station is adversely impacting Quality of Life for the all-volunteer force, as units at home station spend the bulk of their time training and preparing for deployment.

The purpose of the Army's proposed action is to optimize aviation unit readiness by improving opportunities for air-ground integration training, while increasing time between aviation unit deployments and enhancing the overall Quality of Life for aviation unit Soldiers and their Families.

ES 3. DECISIONS TO BE MADE

The decision being sought from this National Environmental Policy Act (NEPA) process is the selection of one of the proposed action alternatives described below. The decision will include identifying the installations, if any, on which a CAB will be stationed, whether a CAB will be formed by realigning existing aviation units or establishing new units, and whether to create a Heavy CAB or Medium CAB. For purposes of impact analyses, the Army is assuming the larger of the two types of CABs. In addition, there is no environmental impact differential between realignment and building a new CAB. Therefore these variables (formation method and CAB type) are part of the decision to be made but not reflected in the impacts analysis.

ES 4. ALTERNATIVES

Alternative 1 – Realign, Consolidate, and Station Existing Aviation Elements of Up to a Full CAB or Grow, Station, and Activate a New CAB at Fort Carson (CO)

Under this alternative, the Army will consolidate existing aviation units not currently assigned to a CAB into a standard CAB structure at Fort Carson or activate a new CAB at Fort Carson. As part of this alternative, aviation units will conduct training on existing land at PCMS in order to maintain training proficiency and support integrated training with ground units. Land acquisition is not being considered as part of this action.

Alternative 2 - Realign, Consolidate, and Station Existing Aviation Elements of Up to a Full CAB or Grow, Station, and Activate a New CAB at Joint Base Lewis-McChord (WA)

Under this alternative, the Army will either consolidate existing aviation units not currently assigned to a CAB into a standard CAB structure at JBLM, or activate a new CAB at JBLM. As part of this alternative, aviation units will conduct training on existing training land at YTC in order to maintain training proficiency and support integrated training with ground units. Land acquisition is not being considered as part of this action.

Alternative 3 –Implement Alternative 1 and 2 (Preferred)

Under this alternative, the Army will implement both Alternatives. Under this alternative, the consolidated units forming a CAB would be stationed at one installation, and the new CAB would be activated and stationed at the other installation. Fort Carson and JBLM would each gain up to one CAB. As part of this alternative, aviation units would conduct training on existing training land at the installations' training maneuver area (PCMS for Fort Carson and YTC for JBLM) in order to maintain training proficiency and support integrated training with ground units. Land acquisition is not being considered as part of this action. Alternative 3 is the Army's preferred alternative.

As part of this preferred alternative, the Army is considering the realignment and consolidation of aviation elements from active component forces not currently in a modular configuration into a CAB at JBLM. In addition, the Army would establish a new CAB under this alternative at Fort Carson. As part of this alternative, Fort Carson would gain one new CAB consisting of up to 2,700 new Soldiers and 120 helicopters. JBLM would receive most of the realigned units required to complete a CAB to complement aviation units already stationed there. The Army is considering a reduction in the number of Soldiers to be stationed at JBLM from a full CAB equivalent of Soldiers and equipment to approximately 1,400 new Soldiers and 44 helicopters. Units comprised of these Soldiers and equipment would provide a CAB training capability and complement Active Army aviation units already stationed at JBLM. A final decision on stationing will be included in the Record of Decision (ROD) for this proposal.

No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. The No-Action Alternative includes Base Realignment and Closure (BRAC)-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of Fiscal Year (FY) 2013 (October 1, 2012). The No-Action Alternative will not enable the Army to increase or to realign available rotary-wing assets to meet current and future national security requirements. Implementation of the No-Action alternative will not address the imbalance between aviation unit deployments and time at home station, degrading Soldier and Family Quality of Life. In addition, opportunities to maximize air-ground integration training will not be fully realized. The site-specific Final Environmental Impact Statements (FEIS) for Fort Carson and JBLM (Fort Carson, 2009;

JBLM, 2010a) indicate that "no action" includes construction and other changes associated with previously approved growth and transformation activities.

ES 5. PUBLIC INVOLVEMENT

During the preparation of the site-specific Environmental Impact Statements (EISs) for Army growth and force structure realignment, both Fort Carson and JBLM analyzed CAB stationing implementation options. Both determined that is was reasonable that the Army may make a decision to move forward on realigning and growing the Army's rotary-wing assets and for each to potentially be selected as a location for the stationing of a CAB. The Fort Carson analysis and public comments received as part of the EIS process are documented in the *Final Environmental Impact Statement for Implementation of Fort Carson Grow the Army Stationing Decisions*, February 2009 [Fort Carson *Grow the Army* FEIS] (Fort Carson, 2009). The JBLM analysis and public comments are documented in the *Final Environmental Impact Statement for the Fort Lewis Army Growth and Force Structure Realignment*, July 2010 [JBLM *Grow the Army* FEIS] (JBLM, 2010a). These EIS efforts and the public comments received on CAB stationing as part of these analyses are being considered by Army decision makers for CAB stationing. These installation level EISs are incorporated into this PEIS by reference. The Army conducted multiple public meetings at locations of potentially affected stakeholders as part of efforts to receive the public and stakeholder comments and concerns associated with CAB stationing. Public meetings were held both as part of scoping and to receive comments on the draft EIS for these analyses.

In addition to these CAB stationing comments, the Army published a Notice of Intent (NOI) to prepare this draft PEIS in the Federal Register (FR) on September 10, 2010. The Army also published advertisements (or notices) in local newspapers announcing the NOI. The NOI specified that interested parties were welcome to comment on the Army's proposal and had 30 days to submit comments to help shape the Army's environmental impact analysis.

Members of the public, including local communities and federally recognized Native American tribes, and Federal, State, and local agencies are invited to submit written comments on the environmental analysis contained in the draft PEIS. Interested parties have a 45-day comment period within which to submit comments to this draft PEIS. The draft PEIS can be viewed at: http://aec.army.mil/usaec/nepa/topics00.html.

Comments may be sent by e-mail to APGR-USAECNEPA@conus.army.mil, by fax to (410) 436-1693, or mailed to the address below.

Public Affairs Office,

U.S. Army Environmental Command

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Fort Sam Houston, TX 78234-2686

The Notice of Availability (NOA) for the Final PEIS will be published in the FR and local news media, announcing both its availability and where copies of the document may be obtained. A final decision on the Proposed Action will be documented in a ROD. The Army will issue the ROD after a 30-day waiting period following publication of the final PEIS. The NOA of the ROD will then be published in the FR and local media.

ES 6. PUBLIC INVOLVEMENT

The draft PEIS describes the potential environmental and socioeconomic impacts of constructing new facilities, utilizing training ranges, and conducting aviation maneuvers and flight operations training as part of the Proposed Action. The PEIS evaluates whether and to what extent implementing these actions will impact the environment and surrounding community. Knowledge of these impacts will help the Army make an informed decision. For each environmental resource analyzed in this PEIS, a threshold level of significance is defined. The use of the term "significant" (and derivations thereof) in this document is consistent with the definition and guidelines in the Council on Environmental Quality (CEQ) regulations (40 Code of Federal Regulations [CFR] 1508.27), which require consideration of both the context and intensity of impacts. The draft PEIS does not recapitulate the proposed mitigation measures listed in more detailed installation level EIS analyses, but incorporates these EISs and the mitigations proposed for CAB stationing by reference. Mitigation measures to be implemented as part of the decision will be listed in the final ROD along with those that the Army will not be able to implement as part of the decision.

Environmental impacts associated with the implementation of the proposed action include significant impacts to transportation on the Interstate Highway (I-) 5 corridor near JBLM and to fish and water

quality in Puget Sound. At JBLM, there are also significant socioeconomic impacts as well as disproportionate impacts of aviation noise on the Nisqually Indian Reservation population when compared to demographics of the JBLM area as a whole. At JBLM, there are also significant impacts from aviation noise. There are potentially significant impacts to biological resources at YTC from increased potential for wildfire and habitat degradation associated with aviation training. Impacts will also include significant but mitigable impacts to soils at Fort Carson, PCMS, and YTC, as well as significant but mitigable impacts to water resources at YTC. Impacts to air quality at Fort Carson are significant but mitigable. At PCMS, cumulative impacts to soils are predicted to be manageable with current dust control mitigation techniques. Impacts to cultural resources, air quality, noise levels, and public land use were all determined to be less than significant. Table 1 below provides a summary of the No-Action Alternative impacts and Table 2 provides an overview and summary of the direct and indirect environmental impacts that are anticipated if a new CAB were stationed at Fort Carson or JBLM.

373 **Table 1. Anticipated Impacts to VECs Under the No-Action Alternative at Each Potential Site**
374 **(Baseline Condition)**

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VEC	Fort Carson	PCMS	JBLM	YTC
Land Use	Less than significant	Less than significant	Less than significant	Less than significant
Air Quality and GHG	Mitigable to less than significant	Less than significant	Less than significant	Less than significant
Noise	Less than significant	Less than significant	Significant	Less than significant
Geology and Soils	Less than significant	Less than significant	Less than significant	Mitigable to less than significant
Water Resources	Less than significant	Less than significant	Mitigable to less than significant	Mitigable to less than significant
Biological Resources	Less than significant	Less than significant	Significant	Significant
Cultural Resources	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Socioeconomics	Less than significant	Less than significant	Significant	Less than significant
Transportation and Airspace	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Utilities	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Hazardous and Toxic Substances	Less than significant	Less than significant	Less than significant	Less than significant

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Table 2. Anticipated Direct and Indirect Impacts to VECs from a CAB stationing at Each Potential Site

VEC	Fort Carson	PCMS	JBLM	YTC
Land Use	Less than significant	Less than significant	Less than significant	Less than significant
Air Quality and GHG	Mitigable to less than significant	Less than significant	Less than significant	Less than significant
Noise	Less than significant	Less than significant	Significant	Less than significant
Geology and Soils	Mitigable to less than significant	Mitigable to less than significant	Less than significant	Mitigable to less than significant
Water Resources	Less than significant	Less than significant	Mitigable to less than significant	Mitigable to less than significant
Biological Resources	Less than significant	Less than significant	Significant	Significant
Cultural Resources	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Socioeconomics	Less than significant	Less than significant	Significant	Less than significant
Transportation and Airspace	Less than significant	Less than significant	Significant	Less than significant
Utilities	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Hazardous and Toxic Substances	Less than significant	Less than significant	Less than significant	Less than significant

Cumulatively, environmental impacts associated with CAB stationing, when considered along with other past, present, and foreseeable future actions, include significant impacts regarding noise, biological resources, transportation networks, and socioeconomics at JBLM. Significant cumulative impacts to biological resources from wildfire risks at YTC are assessed. A summary of cumulative impacts is provided in Table 3.

390 **Table 3. Anticipated Cumulative Impacts to VECs from a CAB stationing at Each Potential Site**

VEC	Fort Carson	PCMS	JBLM	YTC
Land Use	Less than significant	Less than significant	Less than significant	Less than significant
Air Quality and GHG	Less than significant	Less than significant	Less than significant	Less than significant
Noise	Mitigable to less than significant	Less than significant	Significant	Less than significant
Geology and Soils	Mitigable to less than significant	Mitigable to less than significant	Less than significant	Mitigable to less than significant
Water Resources	Less than significant	Mitigable to less than significant	Mitigable to less than significant	Mitigable to less than significant
Biological Resources	Mitigable to less than significant	Mitigable to less than significant	Significant	Significant
Cultural Resources	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Socioeconomics	Less than significant	Less than significant	Significant	Less than significant
Transportation and Airspace	Less than significant	Less than significant	Significant	Less than significant
Utilities	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Hazardous and Toxic Substances	Less than significant	Less than significant	Less than significant	Less than significant

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PEIS for the Realignment, Growth, and Stationing of Army Aviation Assets

1. PURPOSE, NEED, AND SCOPE

1.1. Introduction

This PEIS provides an analysis of the proposed action and alternatives for the growth, realignment, and stationing of new and existing Army aviation assets. To meet high operational demand for aviation units, the Army is considering forming up to two new CABs by realigning existing aviation assets to form a CAB and creating one additional new CAB to meet high operational demand for aviation units. The proposed action matches aviation force structure requirements with increasing global and national security threats as outlined in the Quadrennial Defense Review (QDR), February 2010 (DoD, 2010), and allows the Army to organize existing aviation assets to promote more effective force training and management. The PEIS will provide a top-tier perspective that will provide decision makers, regulatory agencies, and the public with information on the potential environmental and socioeconomic effects resulting from the implementation of aviation stationing decisions. This information will allow the Army to evaluate installations for the potential stationing of aviation assets and to assess environmental and socioeconomic impacts associated with the related stationing.

The Army is in a period of critical transition. On October 12, 1999, the Secretary of the Army and the Army's Chief of Staff presented a vision for the Transformation of the Army to ensure it remained an effective and relevant operational force in the 21st century. The leadership of the Army recognized the emerging need to shift away from a Cold War focus to meet new unconventional threats to national security. A decision was made to begin the 30-year process of transforming the Army as described in the 2002 ROD for the PEIS for Army Transformation. Since this decision, the Army has continued to implement actions necessary to field a force that is best configured to meet the emerging national security requirements of the 21st century.

The Army continues to conduct detailed planning to carry out Transformation and Modularity (standardization of the organization of its forces) by addressing capability shortfalls of the Cold War force and is in the process of implementing the guiding recommendations of the QDR. The Army's guiding

document for the implementation of this plan is the Army Campaign Plan (ACP). The ACP directs the detailed planning, preparation, and execution of a full range of Transformation tasks that are underway to ensure the synchronization of Transformation activities across all facets of the Army.

As part of the overall Army Transformation effort, the Army continues to transition to a modular, or standardized, force structure. The implementation of the proposed action will further Army Transformation and Modular force objectives by consolidating and further standardizing the Army's aviation force structure around standard CABs. This in turn will improve efficiencies and enhance the Army's ability to manage its aviation forces.

The Army's proposed action will better match aviation force structure assets with increasing global national security threats that require more aviation units than are currently in the existing force. Growth, realignment, and consolidation of aviation units will allow the Army to meet current mission requirements and give Soldiers and Families more time between deployments. Adding aviation force structure will increase time available for home station training and provide more stability for Soldiers and Families. In accordance with (IAW) the Army's goals and vision, a CAB will typically deploy once every three years. Currently CABs are deploying after only a little more than one year at home station. In the future, it is hoped that a sustainable rate of one year of deployment per two years of home stationing training can be attained as part of the Army Force Generation (ARFORGEN) deployment cycle.

This PEIS is structured to enable the public and the Army to understand the need for and purpose of the action, be aware of factors that helped determine the development of alternatives, obtain an understanding of the alternative actions being considered, and be aware of the environmental and socioeconomic consequences of each alternative, all of which are to enable an informed decision.

1.2. Purpose and Need of the Proposed Action

This section of the document presents and discusses the Army's need and purpose for taking action to realign, station, and grow the Army's rotary-wing assets. The manner in which Army growth and restructuring is implemented must be considered in the context of Army Transformation and should align with Department of Defense (DoD) and Department of Army strategies, such as the QDR, *Grow the Army*, and ACP.

1.3. Need for Army Aviation Growth and Realignment

The need for the proposed action is generated by the imbalance between current mission requirements and available aviation forces. This imbalance is currently forcing aviation units to be deployed too often. This imbalance was recognized in the February 2010 QDR, which stated that in order to better enable mission success, the DoD must "increase the availability of rotary-wing assets" (DoD, 2010). The 2010 QDR identified increasing the availability of rotary-wing assets as a key enhancement required to meet a capability that has been consistently in high demand and has proven to be one of the key enablers of tactical and operational success. Specifically, the QDR states that the Army will reorganize remaining separate Active Component (AC) units by forming a twelfth AC CAB from existing aviation structure and creating a thirteenth AC CAB to help meet global demand for these assets (DoD, 2010). There are currently 11 AC CABs. Establishing two additional aviation brigades will more effectively support current and future missions.

As reported to the House Appropriations Committee – Defense Subcommittee (HAC-D) in March 2010, "the addition of CABs to the Army force structure allows the Army to meet demands for combat while relieving stress on Army Aviation Soldiers and Families" (Headquarters, Department of the Army [HQDA], 2010b). Army aviation is among the most frequently deployed assets within the Army with dwell times (periods of time between deployments) of 1.1 to 1.3 years. The Army goal for active units is two years of dwell time for each year deployed (HQDA, 2010b).

The need for this action is to efficiently add aviation force structure so as to address the imbalance between aviation unit deployments and time at home station. While addressing this shortfall in aviation force structure, the Army has a need to station aviation units where readiness through air-ground integration training can be optimized, while enhancing Quality of Life for Soldiers and their Families.

Aviation units must be able to execute a full range of combat and stability operations, such as humanitarian relief, to ensure mission accomplishment. The Army is currently meeting the demand for trained and ready aviation forces, but limited time at home station is adversely impacting Quality of Life for the all-volunteer force as units at home station spend the bulk of their time training and preparing for deployment.

Readiness is a critical factor for stationing aviation units. Readiness includes CAB supporting ground forces through air-ground integration training. Locations selected for the stationing of aviation units must possess or be able to accommodate the construction of range facilities so that the unit can adequately train to meet doctrinal training readiness standards. Range specifications and standard designs are based on Army Training Circular (TC) 25-8 *Army Training Ranges*, which serves as the definitive source document for training range requirements. Range requirements for CAB stationing are presented in Section 2.5. CAB units must have adequate maneuver training land, including controlled airspace, to conduct and rehearse training operations.

Stationing of an Army unit requires garrison operations and facilities support, which include dedicated administrative office space for its Soldiers, motor pools, vehicle and aircraft maintenance facilities and hangars, weapons armories, and the appropriate utility services. Sites considered for the stationing of new aviation units must also provide housing and living space, schools, medical facilities, and recreational opportunities for Soldiers and their Families.

Although some installations have available ranges and training areas, few have existing facilities that can accommodate a CAB now or within the next few years. Accommodating these CABs quickly is imperative to balancing the force structure and improving Quality of Life for Soldiers and Families. Stationing locations must have adequate existing facilities to accommodate the rapid stationing of a CAB in the near term, while allowing the Army to subsequently improve and expand facilities in the long term.

1.4. Purpose of the Proposed Action

The purpose of this action is to efficiently add aviation force structure so as to address the imbalance between aviation unit deployments and time at home station. While addressing this shortfall in aviation force structure, the Army has a need to station aviation units to optimize readiness through air-ground integration training while enhancing Quality of Life for Soldiers and their Families.

1.5. Scope of the Analysis

This PEIS has been developed IAW the NEPA, the NEPA regulations issued by the CEQ, 40 CFR Parts 1500-1508 and the Army's implementing procedures published in 32 CFR Part 651 *Environmental*

Analysis of Army Actions. This PEIS addresses the proposed Army realignment and growth of aviation force composition into CABS, as well as the suitability of stationing locations for these brigades.

The Army intends to comply with the requirements of Global Defense Posture Review (GDPR) decisions, which focuses on an expeditionary Army with units stationed at installations in the United States (U.S.) that deploy to locations around the world. Therefore, overseas installations are outside the scope of this action.

Installations carried forward for analysis in this PEIS are those sites that meet the Army's screening criteria (see Section 3). For the reasons stated in Section 3, the two installations under consideration for CAB stationing are Fort Carson, Colorado, and JBLM, Washington. Included are each installation's satellite training area, PCMS for Fort Carson and YTC for JBLM.

This PEIS assesses the environmental capacity of Army installations to accommodate the stationing of a consolidated or new CAB. It conducts a broad, programmatic analysis to examine the potential environmental and socioeconomic impacts associated with the stationing of additional aviation units on Army installations. Therefore, this document is intended to inform senior Army Leadership at the Headquarters (HQ) level and decision makers of environmental impacts from proposed alternatives rather than serving as the NEPA documentation to support local installation-level actions. In addition, this programmatic environmental analysis is intended to inform the public and interested stakeholders.

Normally site specific analysis will follow the decisions made at the end of this PEIS. In this case, however, installations anticipated the potential requirements for a CAB because they recognized their requirements shortfalls and the likelihood that they could be chosen for a CAB stationing. Fort Carson prepared an EIS in 2009 for growth and transformation that included a CAB. JBLM issued a Final EIS in 2010 that also analyzes a CAB. This PEIS incorporates the analyses in these site-specific EISs, to include their proposed mitigations for CAB stationing. This PEIS also looks at whether there have been changes to the affected environment or expected impacts since the site specific documents were completed. Before implementing a stationing decision, further site-specific NEPA analysis may be necessary at either or both installations based on any such changes.

The comparison of current training activities, current environmental and socioeconomic climates, and proposed stationing activities will provide decision makers with the appropriate tools and information to make an informed decision. Information on each element is presented in the sections that follow.

The scope of this PEIS analysis also factors in four major groups of Army activity:

Garrison Construction: This activity group involves all types of construction activities including construction and/or modification of buildings and garrison infrastructure. The construction activity group includes construction, repair and maintenance, and demolition of buildings and facilities.

Training Infrastructure Construction: This activity group involves training infrastructure construction activities needed to support unit training activities. This includes construction of firing ranges, simulations facilities, and training support facilities. The training infrastructure construction activity group includes new construction, repair, and maintenance of existing ranges and facilities, and demolition of buildings and facilities.

Live-Fire Training: This activity group involves achieving and maintaining readiness to perform assigned missions through weapons qualification and coordinated live-fire activities. Live-fire training includes everything from individual small arms to crew-served weapons systems such as tanks and artillery to aviation weapons such as missiles. Live-firing requires ranges and large safety zones around them. Army doctrine for individual and collective (unit) training is based on Mission-Essential Task Lists (METLs). These lists identify all types of training activities that are needed by individuals and units to be ready to perform their missions.

Maneuver and Flight Operations Training: Units conduct maneuver training IAW Army doctrine for individual and collective (unit) training based on METLs. Maneuver training allows units to effectively coordinate and integrate force capabilities in a simulated operational environment. This activity group includes the management of the Army's inventory of maneuver areas and controlled airspace. For the purposes of this PEIS, maneuver training includes aerial maneuvers by helicopters and aviation units, and maneuver areas include the controlled airspace in which aviation forces train. Maneuver training also includes the use of the CAB's wheeled vehicles to support aviation operations such as logistics and field maintenance.

1.6. Public Involvement

Under NEPA, the public is afforded the opportunity to comment and is encouraged to participate at various stages during the analysis and decision-making process. Public participation provides for open communication between the Army and interested parties and the identification of important issues of environmental concern, enabling more informed decision making. IAW the CEQ (40 CFR Parts 1500-1508) and Army regulations (AR) (32 CFR Part 651), the Army issued NOI to prepare a PEIS (Published in the FR) on September 10, 2010). The NOI announced the Army's intent to prepare this PEIS and desire to receive public comment. Local announcements were published in local newspapers at potentially affected installations and training sites.

During the public scoping period for this PEIS, the Army received a number of comments from the public and other potentially affected stakeholders. Before any final decision is made, Army decision makers will consider these comments along with comments received as part of the Fort Carson and Fort Lewis *Grow the Army* site-specific EIS efforts, which pertained to CAB stationing.

Public scoping comments received as part of the PEIS process included:

- Concerns of how flight operations and noise will impact local residents, wildlife, and sensitive species
- Concerns over the potential increased traffic impacts and increased traffic congestion on major thoroughfares surrounding stationing locations
- Concerns that flight routes and noise might negatively impact residents along the transit corridor from stationing sites to satellite installations and requests that air corridor maps be included in the draft PEIS
- Concerns pertaining to air quality and requests that the draft PEIS include information on air quality, environmental justice for disadvantaged populations, and include a projection of school-aged children that will accompany the stationing action
- Request that the Army work with local planners on issues such as schools and roads

- Concerns over potential damage to cultural resources
- Concerns over the potential impacts to I-5 and other State roads near JBLM and requests for an appropriate level of traffic analysis over a long-term time horizon
- Questions regarding public meetings and opportunities for comment
- Concerns about the impact of CAB stationing on renewable energy generation potential

Appendix F includes the comments received by the Army during the public scoping period for this PEIS.

1.7. Army Decision Making Process

The Army's decision makers will consider all relevant environmental information and stakeholder issues of concern raised as part of the PEIS process. Decision makers will also give serious consideration to many non-environmental factors including the professional judgment of senior military leaders, maximizing air-ground integration training opportunities, and the Quality of Life of Soldiers and their Families. After thoroughly evaluating this information, decision makers will document the decision in a ROD, selecting one of the proposed action alternatives, which will be signed no earlier than 30 days from the publication of the NOA of the Final PEIS. The ROD will articulate the decision made, provide a supporting explanation, and identify mitigation measures. It will explain both the pertinent factors relied on in making a selected decision and why the final alternative best meets the purpose and need. Decision makers will also acknowledge the comparative environmental impacts and benefits resulting from the decision, particularly if the alternative chosen is not the environmentally preferred alternative. Once the ROD is finalized, the Army will forward an NOA to the FR, making the ROD available for public review.

1.8. Assumptions Regarding Ability to Execute the Decision

Installations must have existing facilities and ranges to support the stationing of new CABs or have buildable space to construct such facilities in a timely manner within reasonable cost parameters. Section 1.3 discusses the need for specific activity groups, which include facilities and ranges, to support Soldier training, operations, maintenance, and Quality of Life. With cost considerations being a factor in the decision, the Army assumes that applicable appropriations will be programmed and budgeted to execute the stationing decision.

If facilities do not currently exist at the installation to accommodate a new CAB, facilities construction will be required. Facilities for training, garrison operations, and Soldier and Family Quality of Life are critical for supporting the operations of new units that will be stationed at installations as part of Army growth and force realignment. Not having the adequate facilities or the ability to construct them will not adequately support the needs of the proposed action.

1.9. Decision to be Made

The decision being sought from this NEPA process is the selection of one of the proposed action alternatives described in Section 3. The decision will include identifying the installations, if any, on which a CAB will be stationed, whether a CAB will be formed by realigning existing aviation units or establishing new units, and whether to create a Heavy CAB or Medium CAB. For purposes of impact analyses, the Army is assuming the larger of the two types of CABs. In addition, there is no environmental impact differential between realignment and building a new CAB. Therefore these variables (formation method and CAB type) are part of the decision to be made but not reflected in the impacts analysis.

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2. DESCRIPTION OF THE PROPOSED ACTION

2.1. Introduction

This section provides a description of the proposed action and those supporting steps the Army will undertake to implement the proposed action. The proposed action addresses the need for Army aviation growth, realignment, and stationing. As described in Section 1.3, activities the Army will implement that are anticipated to have an environmental or socioeconomic impact at stationing locations are garrison construction, training infrastructure construction, live-fire training, and flight and maneuver training. This section describes the proposed action and site-specific activities that will be associated with CAB stationing actions.

2.2. Proposed Action

The proposed action is to realign existing aviation units into a CAB and/or grow another CAB and use a combination of existing and new facilities to support their stationing and operations.

2.3. CAB Force Structure

Currently the Army has established 11 AC CABs within its force structure. Of these CABs, nine are consolidated with HQ units and supported elements at U.S.-based stationing locations. The primary mission of the CAB is to deploy to support Mission Commander aviation needs in the operational theater, and when at home station, to train on critical tasks to enhance readiness. A key component of CAB readiness is training with ground units to integrate air and ground operations. In training with ground units on complex maneuver and live-fire tasks, aviation Soldiers and leaders also enhance their effectiveness in understanding the requirements and expectations for ground unit support. Training together, units are able to enhance each other's readiness and reach optimal effectiveness as a combined arms team.

The vast majority of Army aviation forces are organized into two standard CAB unit configurations. CAB designations are the Medium CAB and the Heavy CAB. The difference between a Medium CAB and Heavy CAB is that a Heavy has more attack helicopters (i.e., the AH-64D), giving it more fire-power. Standardization of aviation assets into these two types of aviation brigades ensures that ground commanders know which aviation assets are under their command without the need to assess the forces

within each CAB attachment. Standardization into two CAB designs also ensures the Army can more easily supply, equip, deploy, and provide logistics support without having to assess needs and evaluate logistics requirements for various aviation units.

Configurations of Medium CAB and Heavy CAB units are similar. Both the Medium CAB and Heavy CAB consist of between 110 to 120 helicopters. Units consist of either 2,597 or 2,670 Soldiers and have between 600 to 700 wheeled vehicles and trucks to support aviation operations, such as logistics and troop transport, maintenance, and supply. In addition, each CAB utilizes the same types of aircraft to include the UH-60 Black Hawk, AH-64 Apache, OH-58 Kiowa, and CH-47 Chinook helicopters.

The primary difference between standardized CAB units is the fact that the Heavy CAB consists of two AH-64 attack aviation battalions (total of 48 AH-64 Apaches) and the Medium CAB consists of one reconnaissance and attack battalion of 30 OH-58 Kiowa aircraft and one attack aviation battalion of 24 AH-64 Apaches. The Medium CAB therefore has a different combination of aircraft within the brigade, a total of six more airframes, and a slightly increased number of vehicles and Soldiers to support its operations. Currently the Medium CAB consists of 2,670 Soldier authorizations, while the Heavy CAB has 2,597. Actual numbers fluctuate through time as force management decisions are made to account for mission requirements. In addition to more Soldiers, the Medium CAB also has a total of 119 helicopters, while the Heavy CAB has 113 aircraft. Figures 1 and 2 below provide a summary of the force structure of the CAB. Each CAB consists of five battalions and a HQ company. Battalions include two attack reconnaissance battalions per CAB, an assault battalion, a support battalion, and a general support aviation battalion. This PEIS uses a baseline assumption of approximately 2,700 Soldiers for the purposes of analysis as it represents the larger of the two types of CABs that could be stationed and to account for minor fluctuations and variations in force structure in the future.

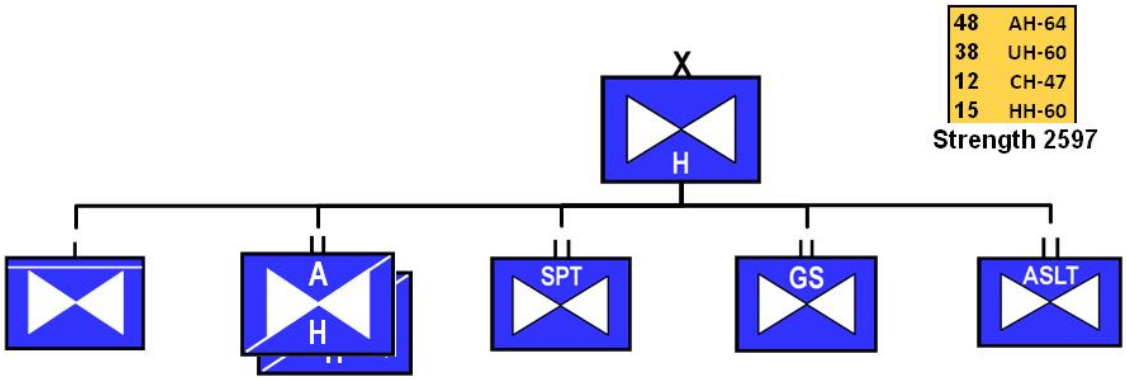


Figure 1. Heavy CAB Force Structure

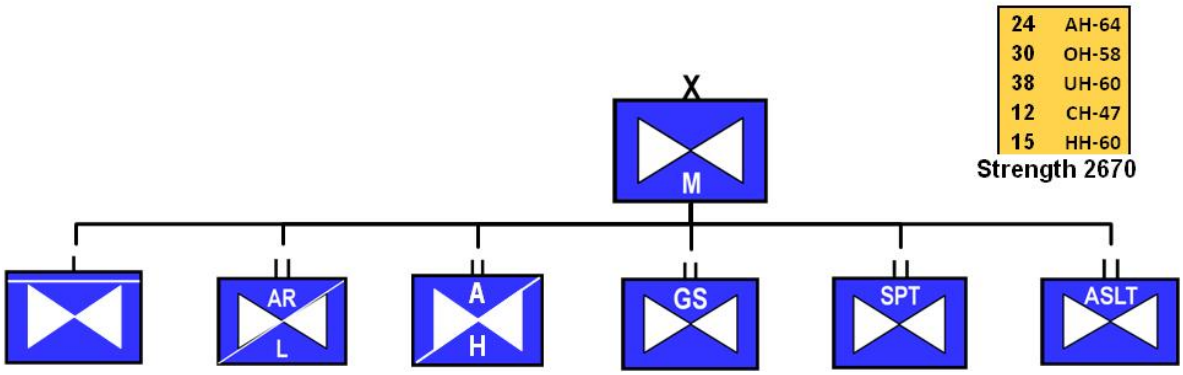


Figure 2. Medium CAB Force Structure

There are also differences in the number of flight hours required for each CAB to maintain proficiency. Flight hours are based upon a model that assumes all aviation training required to meet individual aviator qualification training, aircrew training, and collective training at the flying company and battalion level. These differences are noted in Tables 4 and 5.

Table 4. Heavy CAB Critical Flying Hours, Full Spectrum Operations Training Strategy

Combat Aviation Brigade (H) Critical Flying Hours, Full Spectrum Operations Training Strategy				
Unit (aircraft)	**ARFORGEN Training Year**			**Average**
	Year 1	**Year 2**	**Year 3**	
AHB (UH-60)	4,422	6,017	5,726	**5,388**
ARB (AH-64D)	8,718	11,568	10,972	**10,419**
GSAB-CAC (UH-60)	1,343	1,831	1,739	**1,638**
GSAB-Hvy Hel Co (CH-47)	1,940	2,651	2,518	**2,370**
GSAB-MEDEVAC (15 UH-60)	2,524	3,551	3,352	**3,142**
Total	**18,947**	**25,618**	**24,307**	**22,957**

Table 5. Medium CAB Critical Flying Hours, Full Spectrum Operations Training Strategy

Unit (aircraft)	**ARFORGEN Training Year**			**Average**
	Year 1	**Year 2**	**Year 3**	
AHB (UH-60)	4,422	6,017	5,726	**5,388**
ARB (AH-64D)	4,359	5,784	5,486	**5,210**
GSAB-CAC (UH-60)	6,109	7,712	7,302	**1,638**
GSAB-Hvy Hel Co (CH-47)	1,940	2,651	2,518	**2,370**
GSAB-MEDEVAC (15 UH-60)	2,524	3,551	3,352	**3,142**
Total	**20,697**	**27,546**	**26,123**	**24,789**

2.4. Introduction to Brigade Training

This section provides an introduction to Brigade Training. This information is provided in order to facilitate an understanding of the need (Section 1.2) and primary activities (Sections 1.3 and 2.5) as related to environmental effects of CAB stationing.

Training is the Army's number one priority for units, and commanders train their units to be combat ready. "Battle Focus" is a concept used to derive training requirements, and units train according to their METL. This is derived from wartime operational plans (why they fight), specific (to unit) combat capabilities (how they fight), the operational environment (where they fight), directed missions (what they must do) and any external guidance. The Army trains Soldiers in individual skills, units on collective

tasks, and different levels of units through multi-echelon training. The Army trains as it fights, as a combined arms team. Combined arms training is a doctrinal approach to training, which seeks to integrate critical combat forces, ensuring they are trained together as a single team to accomplish mission objectives

Training ranges, training lands, and training airspace are the Army's classroom, and "Commanders take every opportunity to move Soldiers out into the field, to fire weapons, maneuver as a combined arms team and incorporate protective measures against enemy actions." (Field Manual [FM] 7-1, Battle Focused Training).

All Soldiers qualify with their individual weapon (rifle or pistol) at least twice annually; crew-served weapons qualification varies by type of unit. This training is usually accomplished at the company level on fixed ranges described in TC 25-8. Weapons system training consists of a series of "tables" and occurs on large range complexes.

All units train in "field-craft," which includes establishing logistical and command and control operations in the installation's maneuver areas. Aviation units will establish Forward Arming and Refuel Points (FARP) to service their helicopters during field training exercises. From those maneuver area locations the units will train on their METL.

2.5. Installation Specific Activities Required to Implement the Proposed Action

Alternatives to station CABs will ultimately involve four installation-specific activities (garrison construction, training infrastructure construction, live-fire training, and maneuver and flight operations training) that must be integrated and synchronized by the Army to support the execution of the proposed action. These activities, described in Section 1.3, are necessary components of the proposed unit stationing action. This section provides the details of CAB-specific requirements related to each activity group in order to provide an understanding of the direct, indirect, and cumulative environmental effects that may result from CAB stationing decisions. For the reasons stated in Section 3, the two installations under consideration for CAB stationing are JBLM and Fort Carson. Requirements specific to those installations are set out in the following sections.

2.6. Garrison Construction

Administrative offices, housing, vehicle and aircraft parking and maintenance facilities, equipment storage, recreational facilities, roads, and other infrastructure is required to support a CAB. Critical facilities required by Army CABs include office space for brigade, battalion, and company HQ units; barracks space for single enlisted Soldiers; Family housing; dining facilities; maintenance shops for both helicopters and vehicles; hangars for helicopters; rotary runway parking aprons; parking for vehicles; and storage space. CAB readiness capabilities and Soldier and Family Quality of Life will be negatively impacted at garrisons unable to provide appropriate and adequate infrastructure and services.

Army facilities planners and the U.S. Army Corps of Engineers (USACE) are each involved in setting policy and guidance related to Army facilities requirements. In support of improving quality and efficiencies, USACE has developed standard design sets for many facilities needed to support garrison operations, unit operations, and Soldiers and Families. Army facilities planners determined the specific number of buildings and square footage/yardage for modular CABs. Standard garrison facilities and square footage requirements, excluding Family housing, are detailed in Table 6 below.

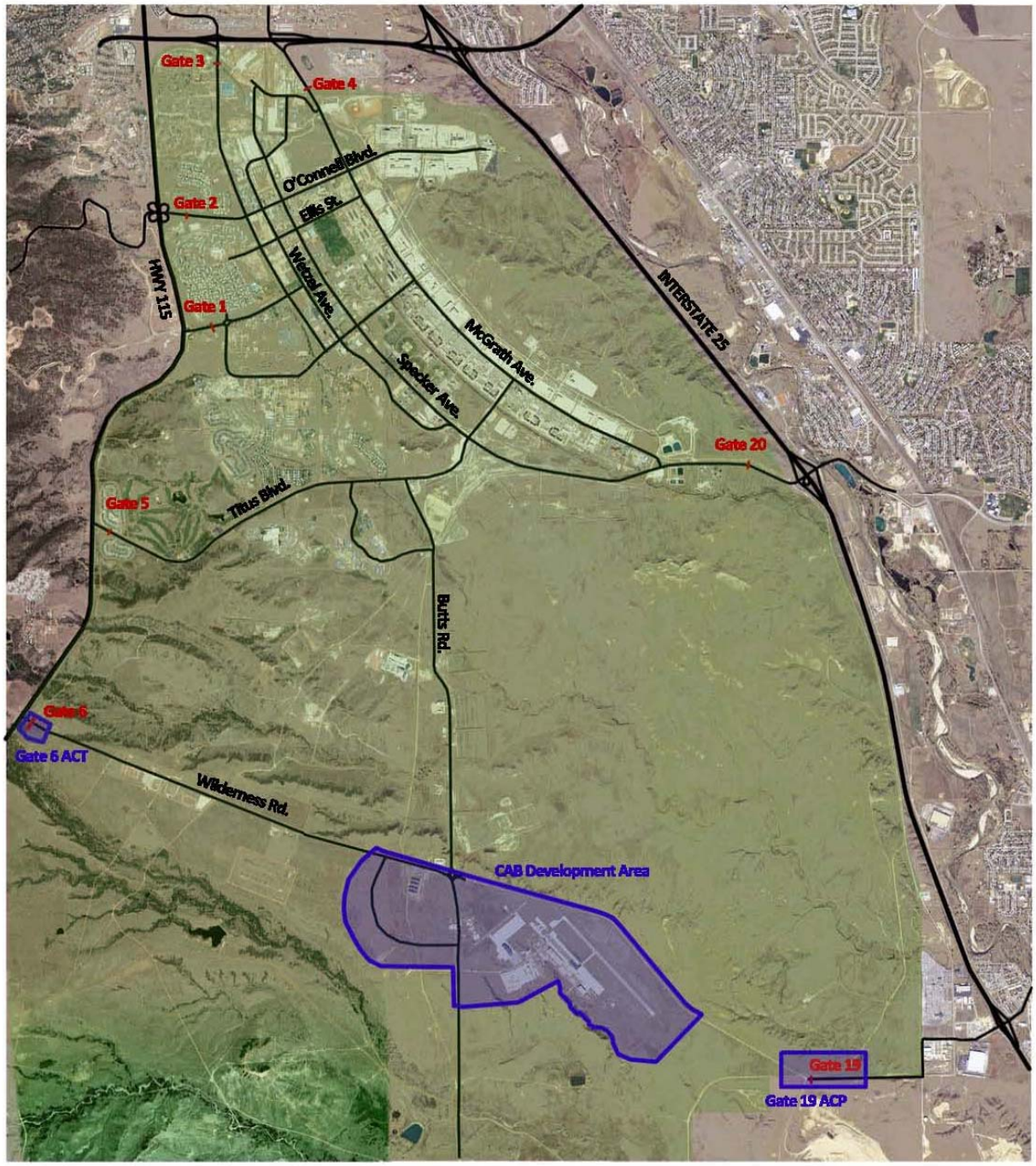
Table 6. CAB Garrison Facility Requirements

Garrison Facility	CAB Requirement
Rotary Runway Parking Apron Surfaced	224,134 SY
Aircraft Maintenance Apron Surfaced	14,000 SY
Aviation Unit Company Operations Buildings	34,038 GSF
Brigade HQ	20,656 GSF
Battalion HQ	63,305 GSF
Company HQ	302,623 GSF for 32 companies
Battalion Classrooms	22,925 GSF
Aircraft Maintenance Hangar	295,370 GSF
Vehicle Maintenance Shops	84,265 GSF
Unit Storage	34,050 SF
Unaccompanied Enlisted Housing	346,602 GSF (947 spaces)
Enlisted Dining Facility	27,505 SF
Organizational Vehicle Parking	164,090 SY
NOTE: SY = square yards SF = square feet GSF = gross square feet	

Source: USACE COS, 2010

Requirements for other facilities, such as medical facilities, recreation, and shopping will be based on the available capability of the existing facilities to accommodate the increased population on the installations being considered for the stationing of a CAB. Specific construction requirements will be determined at the installation depending on these factors and what facilities are available to support CAB stationing.

At Fort Carson, CAB facilities will be located at Wilderness Road near Butts Army Airfield (BAAF), the site selected in the 2009 EIS (Figure 3). Of the facilities in Table 6, Fort Carson will need to build a runway extension, aviation unit company operations facilities, additional aircraft maintenance hangars, vehicle maintenance shops, and unaccompanied enlisted housing (barracks). This proposed action will also require the construction of an additional fire station. Existing facilities at Fort Carson include BAAF runway, helipads, motor pools, hangars, wash racks, and administrative space. For family housing, as identified in the Fort Carson *Grow the Army* FEIS, although new on-post construction is needed to meet housing requirements, the off-post market has the capacity to absorb the additional housing needs. No CAB facilities construction is planned or needed at PCMS.



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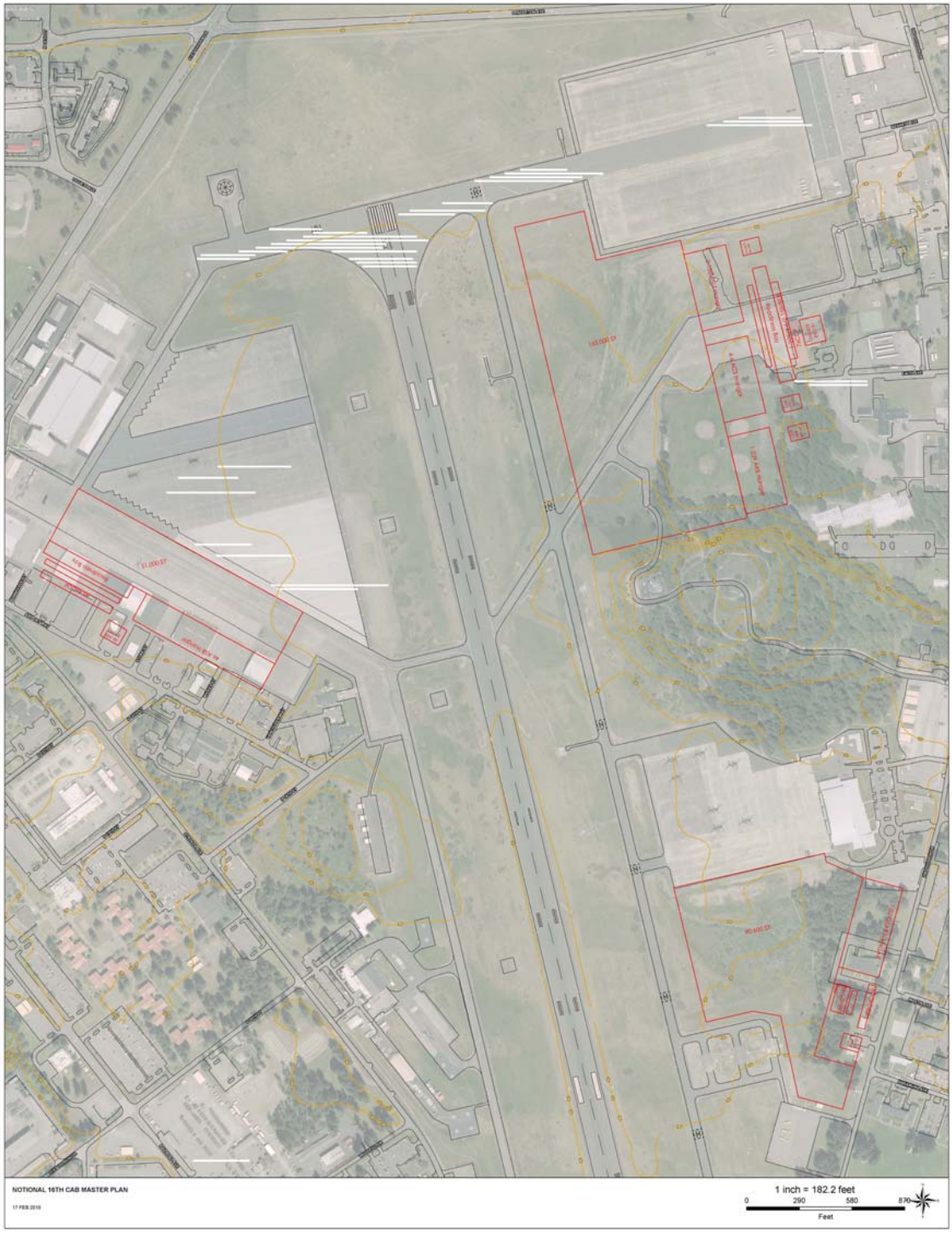
749 **Figure 3. Fort Carson CAB Development Area**

At JBLM, the Final EIS showed Gray Army Airfield (GAAF) and East Division Area Development Plan (ADP) areas as the location for these facilities as the preferred alternative. A plan for CAB facilities siting is provided in Figure 4. JBLM will have to build additional aircraft maintenance hangars, brigade HQ, battalion HQ, additional aviation unit company operations facilities, and additional unaccompanied enlisted housing. Existing facilities at JBLM include GAAF runway, helipads, control tower, motor pools, wash racks, aviation unit company operations facilities, and unaccompanied enlisted housing or family housing, as identified in the JBLM *Grow the Army* FEIS. A limited number of on-post family housing units will be constructed with the balance of new Soldiers with Families living in the local community, which has the capacity to absorb the additional housing needs.



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760 **Figure 4. JBLM CAB Facilities Siting Plan**

2.7. Training Infrastructure Construction

Per Section 1.3, (TC) 25-8 guides Army range specifications, standard designs, and maneuver land training and airspace requirements. A suite of ranges is required to meet all predeployment training requirements. Some ranges are required to support small arms training of CAB support units and some ranges are needed to support aviation gunnery and integrated air/ground live-fire training. Access to the proper training range infrastructure is a critical need for the proposed action.

In order to meet the needs of the proposed action, the permanent stationing location for CABs must either have the following training ranges in operation or suitable substitute ranges that meet training requirements, or they must be able to accommodate the construction of required new ranges.

2.8. Individual/Crew Qualification Ranges

The following describes the difference in individual and crew qualification ranges.

25-Meter Zero Range: This range is used to train Soldiers in basic marksmanship. This range teaches Soldiers techniques to engage stationary targets and sighting adjustment techniques. It can support M16 or M4 rifle firing, as well as that of crew served machine guns.

Modified Record Fire Range: This range is used to train support unit Soldiers in basic marksmanship tasks. The range teaches Soldiers to quickly aim and engage stationary infantry targets.

Combat Pistol Qualification Course: This range is used to train Soldiers to identify, engage, and defeat an array of targets using the 9 millimeter (mm), .38-caliber or .45-caliber pistol.

Multi-purpose Machine Gun Range: This range is designed to train Soldiers to engage stationary infantry and mobile vehicular targets with the full range of Army machine guns to include the M249, M60, M240, and .50-caliber arms. Both Fort Carson and JBLM have the above required ranges.

2.9. Aerial Gunnery and Integrated Aviation/Ground Maneuver Qualification Ranges

The following describes the types of training that occurs on the aerial gunnery and integrated aviation and ground maneuver qualification ranges.

Multi-Purpose Range Complex or Digital Multi-Purpose Range Complex: This range is used to train and test aviation, armor and infantry crews, sections, squads, and platoons on skills necessary to detect, identify, engage, and defeat stationary and moving infantry and armor targets in a tactical array. This complex also accommodates training with sub-caliber and/or laser training devices. All targets are fully automated, utilizing event-specific, computer-driven target scenarios during scoring.

Aerial Gunnery Range or Digital Air to Ground Integration Range: This range is used to train aviation crews, teams, platoons, and companies on skills necessary to detect, identify, and effectively engage stationary and moving infantry and/or armor targets in a tactical array. Company combined arms live fire exercises (CALFEX) and fully integrated advanced gunnery tables may also be conducted on this facility.

Combined Arms Collective Training Facility or Urban Operations Training Range: This range is used to train aviation units on skills necessary to detect, identify, and engage targets in an urban setting in support of ground maneuver operations.

Fort Carson has the above required ranges. JBLM also has the necessary ranges to support CAB stationing in order to adequately train a CAB. The Army has considered construction of a DAGIR at YTC as a potential future range modernization project. This need has not been validated and is not currently a funded project. If and when validation and funding of this project occurs, environmental impacts will be considered.

2.10. Live-Fire Training

Live-fire training is an essential component of Army training and of the implementation of the proposed action. To be operationally effective, Soldiers must have the skills and experience necessary to operate and maintain their weapons. Live-fire involves both munitions and explosives that will be used in combat and non-explosive training rounds designed to meet Soldiers' training needs. Soldiers must "train as they fight" in order to properly prepare for combat situations. At a minimum, all Soldiers must qualify on individual and crew weapons per their METL at least twice a year. In addition, platoons, companies, and battalions of CABs must conduct collective live-fire training exercises on firing ranges to ensure they have rehearsed and coordinated battle procedures and are prepared to deploy to support wartime operations. Various weapons systems use different types of munitions. Live-fire training of CAB units

primarily includes small arms weapons to include the use of M-4 rifles with 5.56mm munitions, 9mm pistols, and M240 machine guns loaded with 7.62mm munitions. The CAB must also fire larger caliber weapons systems as part of live-fire training to include the M2 .50mm and M230 .30mm weapons systems. In addition, attack aviation units, such as Apache longbow helicopters, fire 2.75-inch rockets and Hellfire guided missiles as part of live-fire training activities. Depending on ammunition availability and deployment cycles, the actual use of training ammunition for a CAB fluctuates from year to year.

CAB units must conduct live-fire training in a variety of settings to ensure unit readiness for deployment. Reconnaissance and attack aviation must conduct integrated training with combat maneuver ground units in both urban and open terrain settings, and attack aviation units of the CAB must execute specific "diving-fire" tasks to engage ground targets in support of ground maneuver units.

2.11. Maneuver and Flight Operations Training

Army units regularly conduct collective training to prepare for operations. Collective training is done at the team or aircrew level up through the highest levels of Army tactical organizations and normally at the brigade or CAB level. When Army combat arms units (such as infantry, armor, and aviation) conduct collective training that involves the movement of troops and the use of firing (live or simulated), it is termed "maneuver training." When collective training is conducted in concert with two or more types of combat arms units, it is termed "combined-arms" training and is done to ensure that all of the units' capabilities can be integrated and synchronized to execute missions under stressful operational conditions.

By definition, combined-arms training is a type of maneuver training. Aviation maneuver training consists of collective training of the constituent units of the CAB working together to integrate their combined capabilities and skills. It is a critical component of the unit collective training plan to train units on how to synchronize the execution of battle tasks and shoot, move, and communicate on the battlefield. CABs must conduct and rehearse maneuver training at every echelon from platoon through brigade level to ensure they can accomplish their mission-critical tasks.

Units of a CAB are normally employed in support of ground maneuver Brigade Combat Teams (BCT) as a part of the combined arms team. The CAB must train regularly with ground maneuver BCTs at home station prior to deploying in support of operations. Such training is termed "air-ground integration training". Air-ground integration training with CAB units and ground units allows each type of unit to

more effectively maneuver with the other, understanding key limitations and requirements, while promoting increased training readiness and effectiveness. Large-scale battalion and brigade maneuver training events that conduct air-ground integration operations are often the capstone training exercise that tests and certifies units for operational deployments abroad.

CAB units stationed at Fort Carson or JBLM will utilize associated maneuver training areas (PCMS and YTC) to conduct some aviation unit training. A majority of flight hours conducted at these locations will be associated with training in support of air-ground integration training exercises at the battalion and brigade levels.

For the purposes of this analysis, it has been reasonably assumed that an aviation task force consisting of approximately one third of the CAB (900 Soldiers, 40 helicopters, and 250 wheeled support vehicles) will deploy from its home station to satellite maneuver training areas once per year for each BCT stationed there. This aviation task force will provide approximately two weeks of support for each BCT brigade-level maneuver rotation. There are four AC BCTs stationed at Fort Carson and three AC BCTs stationed at JBLM. Accordingly, eight weeks of aviation task force support of BCT level maneuvers at PCMS and 6 weeks support at YTC have been assumed to support air-ground integration operations at the brigade level. Training assumptions are based on doctrinal training requirements.

In addition to supporting brigade-level training, the CAB will support some battalion-level ground unit training with smaller aviation elements. This training will consist of up to 10 aircraft deploying to PCMS or YTC five to six times per year for up to 10 days each time. Aviation support at PCMS and YTC will also include flights to these sites to support special forces and infantry unit insertions and equipment sling-loading operations at the team and squad level.

CAB units will also conduct aviation unit collective training at Fort Carson, PCMS, JBLM and YTC to maintain proficiency of flight skills.

In total it is estimated that up to one third of total estimated CAB flight time (see Tables 3 and 4) may occur at PCMS or YTC respectively. The stationing of a CAB at Fort Carson or JBLM will not result in a significant increase in use or scheduling of PCMS or YTC. Training by a CAB will not exceed historically authorized levels unless and until new levels are analyzed under NEPA, and authorized by

appropriate decision-makers. A majority of aviation operations at these maneuver sites will be conducted to support ground operations that will have otherwise occurred without aviation support.

CAB training at PCMS and YTC will also involve deployment of wheeled vehicles by convoy from Fort Carson and JBLM. When deployed to these sites, aviation unit ground elements will conduct rearm and refuel operations in the cantonment areas of PCMS and YTC and at designated improved sites in the maneuver areas. Wheeled vehicles at these sites will not be expected to conduct cross-county maneuvers and will mainly operate within the cantonment areas and on approved roads and trails in training areas to access designated arming and refuel points.

None of these actions will require expansion of PCMS or YTC.

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3. ALTERNATIVES AND SCREENING CRITERIA

3.1. Introduction

The primary purpose of this section is to discuss the alternatives the Army is considering for implementing the proposed action. Alternatives were developed according to criteria based upon the purpose and need described in Section 1. The purpose and need defines necessary elements of the proposed action and allows consideration of a broad range of alternatives for potential stationing decisions. The screening criteria are uses to assess whether an alternative is "reasonable" and will be carried forward for evaluation in the Draft PEIS. The screening criteria were developed based on the purpose and need for the proposed action.

3.2. Screening Criteria

The Army established four criteria for the implementation of the proposed action that are being evaluated as a part of the decision-making process. These criteria focused the Army's analysis of alternatives to those installations where aviation growth and realignment will be viable and support the Army's need. These criteria are:

Training Ranges: Installations must possess a majority of the training ranges and infrastructure required to maintain the training readiness of a CAB.

Existing Infrastructure and Cost Feasibility: To effectively station the CAB, installations carried forward for consideration must have existing airfields, helipads, runways, and some administrative facilities and garrison support facilities (e.g., office space and barracks) to support the stationing of a CAB. Building a new airfield and all new garrison infrastructure to support CAB stationing will not be feasible to implement from a cost perspective. Stationing locations must have adequate existing facilities to accommodate the rapid stationing of a CAB in the near term while allowing the Army to subsequently improve/expand facilities in the long term.

Training Land and Airspace: Installations' current acreage and airspace approved for military use must support CAB training and be capable of supporting brigade-level integrated training events of CAB and BCT ground units. Installations incapable of supporting the training land and military special use airspace (SUA) requirements for an additional CAB were not considered in the decision making process.

Installations Capable of Maximizing Air-Ground Integration Training Opportunities: CABs are often employed in support of ground maneuver BCTs; therefore, air-ground integration training opportunities are essential for readiness. In all cases, the Army will optimize training opportunities for CABs to train with ground maneuver BCTs. Stationing CABs at locations with multiple BCTs allows the Army to maximize air-ground integration training time and minimize cost and time away from Families. The Army has a limited number of CAB units that must support operations abroad and maintain their training readiness and the training readiness of the ground BCT units they support. The most effective places to do this are locations that have a high concentration of BCTs at an installation. Locations that have a high concentration of BCTs will ensure air-ground integration training opportunities can be maximized. Because of the importance of conducting integrated aviation-ground unit combined arms training, installations that do not have at least three AC BCTs to ensure training availability of ground units are not viable alternatives. Installations with fewer than three BCTs do not have the ground combat unit-to-aviation unit ratio necessary to ensure maximized air-ground integration opportunities. Therefore, installations considered for the stationing of a CAB must provide home-station training for three or more active component BCTs to support integrated air/ground maneuver and live-fire training to maximize the potential for integrated training. Conversely, installations considered for CAB stationing must not have an existing CAB already stationed there. At these locations, the ratio of aviation unit to ground maneuver units is already supporting integrated training, and therefore stationing another CAB at these locations will not serve to distribute aviation assets optimally to promote air-ground integration training across the Army.

3.3. Application of Screening Criteria to Potential Installation Stationing Locations

The first screening criterion applied is the Training Ranges criteria. The Army initially considered all Army installation stationing locations as alternatives for implementing the proposed action. In order to support aviation training requirements of CAB units, however, only installations that have undergone considerable amounts of range modernization and construction, and can support integrated aviation and ground BCT training have been carried forward as viable alternatives. Installations carried forward are defined as the Army's Tier 1 training sites, which meet screening criteria for CAB training. The Army's Tier 1 training sites are:

1) Fort Irwin, California

2) Fort Polk, Louisiana

3) Fort Bragg, North Carolina

4) JBLM & YTC, Washington

5) Fort Hood, Texas

6) Fort Benning, Georgia

7) Fort Bliss and Biggs Army Airfield, Texas

8) Fort Drum, New York

9) Fort Campbell, Kentucky

10) Fort Stewart and Hunter Army Airfield (HAAF), Georgia

11) Fort Carson and the PCMS, Colorado

12) U.S. Army Garrison (USAG) Hawaii, Schofield Barracks, and Wheeler Army Airfield, Hawaii

13) USAG Alaska and Fort Wainwright, Alaska

14) Fort Riley, Kansas

After considering the training ranges, those which have existing airfields and necessary infrastructure to support near term CAB stationing actions were considered. In applying the existing infrastructure and cost feasibility criterion, sites carried forward include:

1) JBLM and YTC

2) Fort Hood

3) Fort Bliss and Biggs Army Airfield

4) Fort Stewart and HAAF

5) Fort Carson and PCMS

6) USAG Alaska and Fort Wainwright

7) Fort Riley

After considering cost feasibility and availability of existing airfields and necessary infrastructure to support near term CAB stationing actions, suitable training land and SUA were considered as screening criteria for viable alternatives. Sites carried forward for analysis must have access to SUA and accessible sites for battalion and brigade air-ground integration training. Sites carried forward include:

1) JBLM and YTC

2) Fort Hood

3) Fort Bliss and Biggs Army Airfield

4) Fort Stewart and HAAF

5) Fort Carson and PCMS

6) USAG Alaska and Fort Wainwright

As stated in Section 1, air-ground integration training opportunities is essential for effective Army operations. Sites with three or more active component BCTs enable maximized air-ground integration training opportunities in a cost effective manner. Sites remaining which have three or more BCTs and don't currently have a CAB to support integrated ground-air operations include:

1) JBLM and YTC

2) Fort Carson and PCMS

These two installations are the only ones, along with their respective satellite maneuver training sites, which meet the screening criteria for the proposed action.

3.4. Alternatives Carried Forward for Analysis

In addition to the No-Action alternative, three action alternatives have been formulated that take into account the Army's need to realign and/or grow aviation assets. All alternatives consider BRAC-directed actions and those stationing actions that will occur prior to the start of FY 2013 (October 1, 2012) as part of the baseline condition for analysis. The Army has determined that the alternatives below meet the foregoing criteria and are therefore reasonable. Alternatives carried forward for full analysis are:

Alternative 1 – Realign, Consolidate, and Station Existing Aviation Elements of Up to a Full CAB or Grow, Station, and Activate a New CAB at Fort Carson (CO)

Under this alternative, the Army will consolidate existing aviation units not currently assigned to a CAB into a standard CAB structure at Fort Carson, or activate a new CAB at Fort Carson. As part of this alternative, aviation units will conduct training on existing land at PCMS in order to maintain training proficiency and support integrated training with ground units. Land acquisition is not being considered as part of this action.

Alternative 2 - Realign, Consolidate, and Station Existing Aviation Elements of Up to a Full CAB or Grow, Station, and Activate a New CAB at Joint Base Lewis-McChord (WA)

Under this alternative, the Army will either consolidate existing aviation units not currently assigned to a CAB into a standard CAB structure at JBLM, or activate a new CAB at JBLM. As part of this alternative, aviation units will conduct training on existing training land at YTC in order to maintain training proficiency and support integrated training with ground units. Land acquisition is not being considered as part of this action.

Alternative 3 – Implement Alternative 1 and 2 (Preferred)

Under this alternative, the Army will implement both Alternatives. Under this alternative, the consolidated units forming a CAB will be stationed at one installation, and the new CAB will be activated and stationed at the other installation. Fort Carson and JBLM will each gain up to one CAB. As part of this alternative, aviation units will conduct training on existing training land at the installations' training maneuver satellite area (PCMS for Fort Carson, and YTC for JBLM) in order to maintain training

proficiency and support integrated training with ground units. Land acquisition is not being considered as part of this action. Alternative 3 is the Army's preferred alternative.

As part of this preferred alternative, the Army is considering the realignment and consolidation of aviation elements from active component forces not currently in a modular configuration into a CAB at JBLM. In addition, the Army will establish a new CAB under this alternative at Fort Carson. As part of this alternative, Fort Carson will gain one new CAB consisting of up to 2,700 new Soldiers and 120 helicopters. JBLM will receive most of the realigned units required to complete a CAB to complement aviation units already stationed there. The Army is considering a reduction in the number of Soldiers to be stationed at JBLM from a full CAB equivalent of Soldiers and equipment to approximately 1,400 new Soldiers and 44 helicopters. Units comprised of these Soldiers and equipment will provide a CAB training capability and complement Active Army aviation units already stationed at JBLM. A final decision on stationing will be included in the ROD for this proposal.

No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The No-Action Alternative will not enable the Army to increase or to realign available rotary-wing assets to meet current and future national security requirements. Implementation of the No-Action alternative will not address the imbalance between aviation unit deployments and time at home station, degrading Soldier and Family Quality of Life. In addition, opportunities to maximize air-ground integration training will not be fully realized. The No-Action Alternative at Fort Carson and PCMS is represented by Alternative 1 in the 2007 HQDA *Final Programmatic Environmental Impact Statement for Army Growth and Force Structure Realignment*, where impacts are defined for the stationing of 1,000 additional Combat Support Soldiers. With the cancellation of the Grow the Army Infantry BCT stationing, announced in the updated ROD for Army Growth and Force Structure Realignment (2010), this alternative best reflects the actual number of additional Soldiers stationed at Fort Carson as part of the 2007 stationing decision. The No-Action Alternative at JBLM and YTC is represented by Alternative 2 of the 2010 JBLM *Grow the Army* FEIS, which include an analysis of impacts of units stationed as part of Grow the Army 2007 stationing decisions. The No-Action Alternative includes construction and other

changes associated with previously approved growth and transformation activities. The No-Action Alternative in site-specific *Grow the Army* FEISs incorporated existing aviation units and their training activities as part of the baseline condition. As part of the No-Action Alternative, Fort Carson and JBLM will retain the Army aircraft currently stationed at each installation and will continue to conduct existing aviation operations and training activities. Fort Carson currently has 30 Army aircraft assigned and JBLM currently has 99 Army aircraft assigned. The No-Action Alternative provides baseline conditions and a benchmark from which to compare environmental impacts from the proposed action.

3.5. Alternatives Eliminated from Further Review

Station CABs at installations with fewer than three active component BCTs, but deploy them to other locations to support training

Stationing CABs at locations with a reduced number of BCTs and deploying CABs to other locations will result in lost training time for units and equipment to travel, and increased costs to drive, fly, or rail equipment to other locations. This alternative will not implement the proposed action in a cost-effective manner and will reduce the availability of CAB units to support operations. It will also unacceptably increase the time Soldiers spend away from their Family members during the limited times the CAB isn't deployed overseas.

Permanently station new CABs at installations that already have a CAB

As part of this alternative, CABs will be stationed at installations that already have or are scheduled to receive a CAB. This alternative will not promote effective integrated training of air-ground units and has therefore not been considered for further analysis. Active Component installations that currently have or are scheduled to receive a full modular CAB include Fort Bliss, Texas; Fort Bragg, North Carolina; Fort Campbell, Kentucky; Fort Drum, New York; Fort Hood, Texas; and Fort Riley, Kansas.

Station the CAB at a National Guard or Reserve installation

This alternative will not allow the Army to fully utilize and train its units and complete air-ground integration training as well as the CAB to support ground operations. Deployments to Active Component installations will be required and will result in lost training time and increased cost of operations as

discussed above. National Guard and Reserve installations are not currently equipped or manned to support AC unit stationing.

4. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES INTRODUCTION AND SUMMARY

The subsequent sections consolidate the baseline information (the affected environment) and the environmental and socioeconomic impacts (environmental consequences) of the proposed action. Subsections divide analyses for the potential stationing locations, Fort Carson/PCMS (Section 5) and JBLM/YTC (Section 6), which resulted from the application of the screening criteria (see Section 3.3). The baseline for the proposed action is considered the installation's current condition through FY 2010.

The Army's CAB stationing analyses includes input from environmental and Army professionals familiar with CAB operations and Valued Environmental Component (VEC) resources, including installation staff at Fort Carson and JBLM. In addition to technical environmental analysis, the Army will consider those issues identified by the public and other organizations during the NEPA process.

4.1. Public Comments and Incorporation of Installations' Analyses

Although HQDA had not initiated this PEIS, both installations determined that it was reasonable that HQDA may make a decision to move forward on realigning and growing the Army's rotary-wing assets and for each to potentially be selected as a location for the stationing of a CAB. Therefore, both included CAB stationing implementation options when they developed their respective environmental impact analyses for Army growth and force structure realignment to ensure HQDA awareness of environmental impacts. As part of these site-specific EIS's, public meetings were held and comments received on CAB stationing. Another public comment period has been opened for this EIS process as well to ensure maximum public participation. For additional discussion of scoping comments received as part of this EIS process, see Section 1.4. Comments received as part of the scoping period for this PEIS are captured in Appendix F. Although this PEIS is programmatic in nature and the two installations' analyses were site-specific, this PEIS leverages appropriate information from each, to include proposed mitigations. The Fort Carson analysis is documented in the *Final Environmental Impact Statement for Implementation of Fort Carson Grow the Army Stationing Decisions*, February 2009 (Fort Carson, 2009) and is available at http://aec.army.mil/usaec/nepa/carson-feis_feb09.pdf. The JBLM analysis is documented in the *Final Environmental Impact Statement for the Fort Lewis Army Growth and Force Structure Realignment*, July 2010 (JBLM, 2010a) and is available at

http://www.lewis.army.mil/publicworks/sites/envir/eia_gta_final.htm. These installation level EISs are incorporated into this PEIS by reference.

4.2. VECs and Focusing the Analyses

To enable a managed and systematic analysis of environmental and socioeconomic effects at a programmatic level, these resources are categorized into VECs.

4.2.1. Valued Environmental Components

VEC categories are listed below. Appendix A provides VEC descriptions and regulatory drivers and standards.

1. Land Use
2. Air Quality and Greenhouse Gas (GHG)
3. Noise
4. Geology and Soils
5. Water Resources
6. Biological Resources
7. Cultural Resources
8. Socioeconomics
9. Transportation and Airspace
10. Utilities
11. Hazardous and Toxic Substances

4.2.2. VEC Significance Threshold

To maintain consistent evaluation of impacts in the PEIS, thresholds of significance were used for each VEC resource area evaluated. Army resource specialists and NEPA staff developed these thresholds as part of this and/or site-specific installation EIS analyses. Although some thresholds have been so designated based on legal or regulatory limits or requirements, other thresholds were determined through consultation with regulatory agencies or reflect discretionary judgment on the part of the Army in accomplishing their primary mission of military readiness, while also fulfilling their conservation stewardship responsibilities. Quantitative and qualitative analyses have been used in this PEIS or in supporting EIS analyses, if appropriate, in determining whether, and the extent to which, a threshold is

exceeded. Based in part on the results of this analysis, Army environmental subject matter experts determined whether a particular impact will be significant, mitigable to less than significant, or less than significant. Some ratings terminology presented in this PEIS are slightly different than impacts terminology presented in installation *Grow the Army* site specific EIS analyses that previously evaluated CAB stationing. The Army has recategorized some impacts, where necessary, to ensure a consistent comparison of environmental impacts is presented in this PEIS despite use of different impacts terminology in past EIS analyses. The following terms will be used throughout this EIS as a convention to indicate the relative degree of severity of predicted environmental impacts:

Less than Significant: The term used to indicate the relative degree of severity of an environmental impact that is not significant, but even so may be readily apparent. The level of anticipated impacts may range from minor to moderate in scope and intensity. Mitigating predicted consequences of implementing an action may require additional care in following standard procedures, employing best management practices (BMPs), or applying precautionary measures to minimize adverse impacts, however, significant impacts are not predicted in association with implementation of the proposed action.

Significant but Mitigable: A measure of either adverse or beneficial impact, in terms of the degree of severity of the environmental impact reflecting the context and intensity of the impact, as defined in the CEQ Regulations (40 CFR §1508.27). Predicted consequences of implementing an action will be significant without the implementation of mitigation measures that may take the form of standard operating procedures (SOP), employing BMPs, implementing specific mitigation measures and applying precautionary measures to minimize impacts that will otherwise be "significant" adverse impacts.

Significant: A measure of either adverse or beneficial impact, in terms of the degree of severity of the environmental impact reflecting the context and intensity of the impact, as defined in the CEQ Regulations (40 CFR §1508.27).

4.2.3. VEC Threshold Categories

Thresholds of significance for VECs include the following categories, which are broken out by each resource area.

1. Land Use

- Incompatible land use with existing military land uses/land use designations, or major conflicts with Army land use plans, policies, or regulations.

- Requirement to change current installation recreational or agricultural land use policies or loss of the ability to use large amounts of acreage used for agricultural purposes designated as Prime Farmland because of implementation of the military proposal.

2. Air Quality and GHG

- Increase in ambient air pollutant concentrations above Clean Air Act (CAA) National Ambient Air Quality Standard (NAAQS) causing a change to "nonattainment" status.

- Produce emissions of hazardous air pollutants (HAP) exceeding State or Federal emission levels.

- Violation of Title V or Synthetic Minor Operating Permits.

3. Noise

- Noise impacts causing reclassification of noise zones (NZ) to zone 2 or 3 around sensitive receptors (i.e., school, hospital, church or daycare).

4. Geology and Soils

- Result in loss of soil (through increased erosion) that exceeds the amount of soil loss at which the quality of a soil can be maintained to sustain existing vegetation.

- Impacts conflict with existing Federal, State, or local statutes or regulations.

5. Water Resources

- Exceedance of total maximum daily loads for sediments causing a change in surface water impairment status.

- Unpermitted direct impacts to waters of the U.S.

6. Biological Resources

- A long-term loss or degradation or loss of diversity within unique or high-quality plant communities.
- Unpermitted "take" of Federally listed species.
- Local extirpation of rare or sensitive species not currently listed under the Endangered Species Act (ESA).
- Unacceptable loss of critical habitat as determined by the U.S. Fish and Wildlife Service (FWS).
- Noncompliance with policies, regulations, and permits related to wetlands conservation and protection (including Executive Order [EO] 11990, Protection of Wetlands and Section 404 of the Clean Water Act [CWA]).
- High probability of increasing the frequency and intensity of wildfires, especially in sensitive ecological areas.

7. Cultural Resources

- Irretrievable or irreversible damage to a prehistoric or historic site (exclusive of data recovery) that is listed or is eligible/potentially eligible for listing on the National Register of Historic Places (NRHP).
- Violation of compliance with American Indian Religious Freedom Act (AIRFA) regulations by creating conditions that prevent the traditional use of sacred or ceremonial sites or resources, such as restricting access to times that conflict with their traditional use.

8. Socioeconomics

- Disproportionate environmental economic, social, or health impacts on minority or low-income populations (EO 12898).

- Input or loss of economic activity to the local region that exceeds the "Rational Threshold Value."

9. Transportation and Airspace

- Reduction in State or Federal highway function by more than two levels of service.
- Reduction in Level of Service (LOS) of State and Federal Highways from level D to Level E or below as a direct result of the proposed action.
- Construction, lane closures, or impediments will disrupt local traffic circulation patterns and cause exceptional delays, based on engineering judgment.
- Cause considerable reduction in access to or affect the use of airports or airfields available for public use, or affect commercial or private airfield or airport arrival and departure traffic flow.

10. Utilities

- The Proposed Action directly results in an increase in demand beyond the capacity of the utilities to the point that substantial expansion and additional facilities will be necessary.

11. Hazardous and Toxic Substance

- Causes considerable risk to human health or safety.

4.2.4. Region of Influence

The VECs, in turn, each have an identified region of influence (ROI) that narrows or widens the scope of analysis (see Table 7). The ROI for the affected environment includes a geographic area reflecting direct, indirect, and cumulative impacts.

Table 7. ROI of VEC

VEC	Region of Influence of Resource
Land Use	Community, County, Region, or State
Air Quality and GHG	Metropolitan Area, Air Shed, Global Atmosphere
Noise	Metropolitan Area
Geology and Soils	Cantonment and Range Areas
Water Resources	Streams, River Basin, Estuaries; Watershed-Based
Biological Resources	Habitat, Ecosystem; Wetland Watershed-Based Areas; For Migratory Birds, Includes Breeding Grounds, Wintering Areas, Migratory Routes, Total Range
Cultural Resources	Historic Properties or Districts/Prehistoric Areas
Socioeconomics	Community, Metropolitan Area, County or State (U.S. Census)
Transportation and Airspace	Metropolitan Area, County, or Region
Utilities	Community, County, Region, or State
Hazardous and Toxic Substances	Metropolitan Area

4.2.5. Joint Basing

On February 1, 2010, Fort Lewis and McChord Air Force Base (AFB) officially became JBLM and started the process of merging base operations management. Full operating capability was achieved on October 1, 2010. However, the U.S. Army and U.S. Air Force (USAF) continue to each be responsible for the management of their respective units‘ mission training activities. Even though the installation now is officially a joint base, the stationing, construction, and training for any future Army units, to include a CAB, will occur on the former Fort Lewis land base. When this document assesses the impacts from the stationing of a CAB, these impacts are largely limited to the former Fort Lewis land base and are reflected in the analyses. Additionally, because Joint Basing is still relatively new, airfield, administrative offices, and vehicle and aircraft parking and maintenance facilities needed to support a potential CAB will be on former Fort Lewis lands. As such, the potential impacts of a CAB stationing are largely limited to the former Fort Lewis and YTC, not the former McChord AFB. This will be reflected in the scope of the analyses of VECs.

4.3. Summary of Environmental Consequences by VEC

Table 8 depicts the No-Action Alternative and Table 9 depicts a summary of the results of the environmental consequences by VEC of a CAB stationing at each potential stationing site and the associated maneuver training site (Anticipated Direct and Indirect Impacts to VECs from a CAB stationing at Each Potential Site). The No-Action Alternative impacts summary reflects the baseline condition. For anticipated impacts other than "less than significant," the impact may be related to only one factor of a VEC (e.g., only to vegetation, a subset of biological resources). For specific details, see the write-ups under the applicable section above. Even further details can be found in each installation's *Grow the Army* FEIS documents. As mentioned in Section 4.1, the Fort Carson (and PCMS) environmental consequences are documented in the *Final Environmental Impact Statement for Implementation of Fort Carson Grow the Army Stationing Decisions*, February 2009 (Fort Carson, 2009), and the JBLM (and YTC) environmental consequences is documented in the *Final Environmental Impact Statement for the Fort Lewis Army Growth and Force Structure Realignment*, July 2010 (JBLM, 2010a).

This summary is a tool to help the Army (including the decision maker), regulatory agencies, and the public understand the relative impacts of the proposed action to the different VECs at a programmatic level.

Table 8. Anticipated Impacts to VECs Under the No-Action Alternative at Each Potential Site (Baseline Condition)

VEC	Fort Carson	PCMS	JBLM	YTC
Land Use	Less than significant	Less than significant	Less than significant	Less than significant
Air Quality and GHG	Mitigable to less than significant	Less than significant	Less than significant	Less than significant
Noise	Less than significant	Less than significant	Significant	Less than significant
Geology and Soils	Less than significant	Less than significant	Less than significant	Mitigable to less than significant
Water Resources	Less than significant	Less than significant	Mitigable to less than significant	Mitigable to less than significant
Biological Resources	Less than significant	Less than significant	Significant	Significant
Cultural Resources	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Socioeconomics	Less than significant	Less than significant	Significant	Less than significant
Transportation and Airspace	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Utilities	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Hazardous and Toxic Substances	Less than significant	Less than significant	Less than significant	Less than significant

Table 9. Anticipated Direct and Indirect Impacts to VECs from a CAB stationing at Each Potential Site

VEC	Fort Carson	PCMS	JBLM	YTC
Land Use	Less than significant	Less than significant	Less than significant	Less than significant
Air Quality and GHG	Mitigable to less than significant	Less than significant	Less than significant	Less than significant
Noise	Less than significant	Less than significant	Significant	Less than significant
Geology and Soils	Mitigable to less than significant	Mitigable to less than significant	Less than significant	Mitigable to less than significant
Water Resources	Less than significant	Less than significant	Mitigable to less than significant	Mitigable to less than significant
Biological Resources	Less than significant	Less than significant	Significant	Significant
Cultural Resources	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Socioeconomics	Less than significant	Less than significant	Significant	Less than significant
Transportation and Airspace	Less than significant	Less than significant	Significant	Less than significant
Utilities	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Hazardous & Toxic Substances	Less than significant	Less than significant	Less than significant	Less than significant

4.4. Cumulative Effects Analysis

The site-specific FEISs for Fort Carson and JBLM include lists of past, present, and reasonably foreseeable future actions. The one change is that the 5th BCT, anticipated to be added at Fort Carson, has been cancelled. The cumulative impact analysis sections in Sections 5 and 6 are based on the combination of the impacts of proposed CAB stationing and the other actions proposed or identified as past, present or reasonably foreseeable in the installation FEISs. Table 10 provides a summary of the results of the

cumulative impacts to VEC of a CAB stationing at each potential stationing site and the associated maneuver training site.

Table 10. Anticipated Cumulative Impacts to VECs from a CAB stationing at Each Potential Site

VEC	Fort Carson	PCMS	JBLM	YTC
Land Use	Less than significant	Less than significant	Less than significant	Less than significant
Air Quality and GHG	Less than significant	Less than significant	Less than significant	Less than significant
Noise	Mitigable to less than significant	Less than significant	Significant	Less than significant
Geology and Soils	Mitigable to less than significant	Mitigable to less than significant	Less than significant	Mitigable to less than significant
Water Resources	Less than significant	Mitigable to less than significant	Mitigable to less than significant	Mitigable to less than significant
Biological Resources	Mitigable to less than significant	Mitigable to less than significant	Significant	Significant
Cultural Resources	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Socioeconomics	Less than significant	Less than significant	Significant	Less than significant
Transportation and Airspace	Less than significant	Less than significant	Significant	Less than significant
Utilities	Less than significant	Less than significant	Mitigable to less than significant	Less than significant
Hazardous and Toxic Substances	Less than significant	Less than significant	Less than significant	Less than significant

4.5. Proposed Mitigation

The proposed mitigations to minimize the impacts of a CAB stationing at Fort Carson and/or JBLM have been identified as part of site specific environmental analyses performed by the installations (Fort Carson, 2009; JBLM, 2010a). Proposed mitigations identified in these analyses are also being proposed in this

PEIS impact analysis to off-set CAB stationing impacts. Detailed discussion of these mitigations can be obtained from each installations' *Grow the Army* FEIS. In addition to those mitigations, the Army will consider the following types of mitigation to minimize the impacts of CAB stationing.

Adherence to the "sustainable environment" ethic

The Army will continue to implement sustainability principles in both its extant and future infrastructure and environment and with respect to actions that affect natural resources.

Use of Best Management Practices (BMPs)

The Army will apply BMPs in site- and project-specific planning and execution in order to avoid or minimize adverse impacts to the environment and socioeconomic conditions.

4.5.1. Specific Proposed Mitigations for CAB Stationing at the Installation

The following sub-sections list specific mitigations measures proposed and discussed in the 2009 Fort Carson and 2010 JBLM site-specific *Grow the Army* FEISs. Environmental analysis in these documents included environmental impact analysis of CAB stationing, as well as proposed site-specific mitigations to address the impacts. Discussion of proposed mitigations for Fort Carson and PCMS can be found in Chapter 6 (Table 6-1) of the 2009 Fort Carson *Grow the Army* FEIS, which is available at http://aec.army.mil/usaec/nepa/carson-feis_feb09.pdf. Discussion of proposed mitigation for JBLM and YTC can be found in Chapters 4 (Tables 4-41 and 4-42) and 6 (Table 6-33 and 6-34) respectively, of the 2010 JBLM *Grow the Army* FEIS which is available at www.lewis.army.mil/publicworks/sites/envir/EIA_2.htm. These FEISs present a comprehensive list of mitigations for all stationing actions proposed in each installation's FEIS, including CAB stationing. Proposed mitigations from these EISs that mitigate the impacts of CAB stationing and training are included below. Only mitigations related to a potential CAB stationing and training contained in each installation's *Grow the Army* FEIS are carried forward for consideration in this PEIS; mitigations related to other *Grow the Army* actions are not carried forward for consideration in this PEIS. These proposed mitigations, along with on-going environmental programs and BMPs, will reduce environmental impacts of CAB stationing and training.

4.5.2. Fort Carson and PCMS Proposed Mitigations

Fort Carson employs the following primary mitigation processes throughout the installation (Fort Carson and PCMS) to minimize current and future environmental impacts caused by Army actions: (1) implementation of *25 Year Sustainability Goals in 2002*, implementation of the Sustainability and Environmental Management System (SEMS); and (2) environmental impact analysis.

Sustainability (25-Year Sustainability Goals): Fort Carson adopted 12 of the *25 Year Sustainability Goals in 2002*. These goals address training lands, energy and water use, procurement, transportation, land use, site and building design, solid and hazardous waste, and air emissions. These goals, by nature, are intended to mitigate current and future impacts of Army actions through strategic planning principles. The Garrison Commander supports these goals through incorporation into the Fort Carson Strategic Plan, which directs subordinate commands and directorates to support sustainability initiatives. The goals of the plan steer all Fort Carson sustainability initiatives towards achievement of 25-year goals.

Sustainability and Environmental Management System: Fort Carson adopted the International Organization for Standardization, Environmental Management Standard 14001 (ISO 14001) in 2002 and declared conformance in November 2007. IAW ISO 14001, the installation maintains an Environmental Management System (EMS) that includes a multitude of plans, policies, and procedures that support continual improvement. Fort Carson's EMS goes beyond conformance with ISO 14001 by incorporating sustainability principles, and is therefore appropriately titled SEMS. As part of the SEMS, Fort Carson sustainability and environmental professionals routinely analyze the installation's environmental aspects for significant impacts and ensure operational controls are in place to appropriately mitigate these impacts. Fort Carson's key operational controls are implemented through regulations, management plans, and permits of which are discussed more extensively in Appendix A of the 2009 Fort Carson *Grow the Army* FEIS.

Environmental Impact Analysis: Fort Carson Environmental Staff use the internal 2008 *NEPA SOPs for Fort Carson and the Piñon Canyon Maneuver Site* to assess environmental impacts of Army actions. In general, proposed projects are routed through Fort Carson NEPA coordinators to determine the level of NEPA analysis required. There are basically three levels of NEPA. Based on specific criteria, a project may be categorically excluded and documented with a Record of Environmental Consideration. If the action does not meet the criteria, an Environmental Assessment (EA) or an EIS will be performed (based

on the magnitude and/or potential significant impacts of the project). Fort Carson NEPA coordinators prepare the appropriate level of analysis and documentation for recordkeeping, Army review, and public review.

Proposed Mitigations: Proposed mitigations at Fort Carson and PCMS that will help to offset the impacts of CAB stationing at Fort Carson are presented below in Table 11 As noted in Section 4.5.1, these proposed mitigations are derived from Table 6-1 of the 2009 Fort Carson *Grow the Army* FEIS.

1323 **Table 11. Summary of Environmental Impacts and Proposed Mitigation Measures for Fort Carson and PCMS**

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
Land Use – Fort Carson – CAB Stationing: Alternatives 1 and 3		
• Adding more units and troops will create more demand for already limited training areas. • Increased training may result in reduced hunting opportunities.	• Continue to support Goal 11 – Training Lands objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002. • Units, G-3, and Range Control facilitate training area workarounds to meet training and mission requirements.	• Consult with the public and Colorado Division of Wildlife (CDOW) to maximize public hunting opportunities.
Air Quality and GHG – Fort Carson– CAB Stationing: Alternatives 1 and 3		
• Increased vehicular emissions on-post and off-post associated with additional personnel traveling around the installation and in the surrounding region.	• Continue pursuing alternative transportation methods through collaboration with the City of Colorado Springs Mountain Metropolitan Transit, Pikes Peak Area Council of Governments (PPACG), and other organizations to encourage transit ridership and carpooling to reduce vehicle travel miles. • Continue to support Goal 5 – Zero HAP objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002.	• None identified.
• Emissions associated with the Annual Prescribed Burn Program. (Prescribed Burn Program is influenced by environmental conditions and the level of training conducted.)	• Comply with the Fort Carson Prescribed Fire Management Plan to limit adverse effects of prescribed burns. • Continue to support Goal 5 – Zero HAPs objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002.	• In concert with prescribed burning, use alternate fuel reduction methods such as mowing, and use of reseeding mixtures that produce reduced biomass in comparison to current practices.
• Additional training could result in impacts to air quality from increased fugitive dust from more frequent off-road vehicle travel and aviation operations.	• All training activities are subject to Fort Carson's Fugitive Dust Control Plan. Military convoys must comply with a lower speed limit than regular traffic. Fort Carson applies chemical stabilizer (dust palliative) to tank trails parallel to I-25 and State Highway (SH) 115, as well as to unpaved areas within the cantonment and downrange areas.	• Collect additional data to determine impacts of fugitive dust generation and investigate need for additional dust control measures to control fugitive dust generation. Investigate and, if appropriate and affordable, use dust palliatives with longer effective life spans than currently used chemical stabilizers.
• Construction of facilities would result in impacts to air quality	• All construction activities are subject to Fort Carson's Fugitive Dust Control Plan. Site-specific dust control plans	• As available, practical, and affordable, use ultra low sulfur diesel fuel to further reduce SO_x emissions in

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
from exhaust emissions from construction equipment, fugitive dust from construction activities, and additional vehicle trips by construction workers. Construction impacts would be short-term and limited to the duration and area of construction activities.	are required for all projects greater than 25 acres or disturbed for six months or longer (State permit) and an El Paso County permit is required for disturbed land greater than one acre (.40 ha). Implementation of BMPs, including dust suppression and establishment of speed limits in construction areas. Use of low sulfur diesel fuel to reduce sulfur oxide ($SO_{x)}$ emissions. • Continue to support Goal 5 – Zero HAPs objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002.	equipment engines. • Update Title V Permit within 12 months of finalizing construction permits.
• Increased fugitive emissions from facility construction could impact Fort Carson's status as an area source for HAP and trigger major source status.	• Track all construction products including paints, thinners, sealers, coatings, adhesives, and similar to determine insignificant source contributions. • Continue to support Goal 5 – Zero HAPs objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002.	• If feasible, have contracts include language for contractors to submit Material Safety Data Sheets (MSDS) for all construction products used, with amounts and units to Fort Carson's Air Program to determine emissions estimates. Encourage use of Leadership in Energy and Environmental Design (LEED®) system to limit HAP and volatile organic compound (VOC) emissions by specifying Green Seal certification or similar product rating. • Investigate and, if appropriate and affordable, use dust palliatives with longer effective life spans than chemical stabilizers currently in use.
• Operation of additional external combustion sources has the potential to result in impacts to air quality emissions from proposed stationary sources.	• Installation of low nitrogen oxide (NO_x) burner systems for all boilers and hot water heaters to reduce emissions.	• Limit the use of indirect fired Make-Up Air Unit for stationary source heating, ventilating, and air conditioning (HVAC). Prior design and construction consideration and coordination with the Fort Carson Air Program will be required before specifying these units to ensure Prevention of Significant Deterioration (PSD) limits are not exceeded. Include similar coordination language in construction contracts as feasible.
• Increased GHG emissions generated as a result of CAB stationing	• Continue to support Goal 5 – Zero HAPs objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002.	

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
	• IAW the Energy Policy Act of 2005, EO 13423, the National Defense Authorization Act (NDAA) of 2007, and DoD policy, continue to reduce energy consumption and reliance on fossil fuels while increasing the amount of energy derived from renewable sources	
Noise – Fort Carson– CAB Stationing: Alternatives 1 and 3		
• Aircraft noise generated from helicopters.	• Continue to implement the installation "Fly Neighborly" program, which works to lessen the noise aircraft produce when flying in developed areas. • Continue to implement Army Compatible Use Buffer (ACUB) Program to maximum extent possible to reduce, or limit increases in, development around Fort Carson that would be incompatible with aircraft noise. • Adhere to Installation Environmental Noise Management Plan guidelines and procedures.	• Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise impacts. • Army aviators will adhere to Fort Carson's flight regulations, which outline policies and procedures for noise abatement and minimum altitudes. Flight regulations will be re-evaluated to identify external sensitive noise receptors.
• Increased munitions use by CAB units to support aviation gunnery and individual qualifications.	• Continue to implement ACUB Program to maximum extent possible to reduce, or limit increases in, development around Fort Carson that will be incompatible with weapons noise. • Adhere to Installation Environmental Noise Management Plan guidelines and procedures.	• None identified.
• Increased exposure to NZ II in barracks, and other noise-sensitive receptors.	• Adhere to Installation Environmental Noise Management Plan guidelines and procedures.	• Integrate, to the extent practical and affordable, noise mitigation techniques into construction of noise sensitive facilities (examples: brick/masonry construction, increased thermal insulation, sealing cracks, and spaces between wall layers). Noise mitigation techniques for construction are described in the Installation Environmental Noise Management Plan. • Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise impacts to installation facilities.

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
Geology/Soils – Fort Carson– CAB Stationing: Alternatives 1 and 3		
• Potential construction site instability. Constructing facilities outside of known geologically stable areas.	• Site-specific geotechnical analyses, in conjunction with area research and additional borings conducted.	• None identified.
• Temporary increase in potential for sedimentation and erosion due to ground disturbance associated with construction and demolition projects.	• Adhere to stormwater pollution prevention plan (SWPPP) and Municipal Separate Storm Sewer System (MS4) requirements, which include BMPs to maintain drainages and restore vegetative cover on the construction site as quickly as will be practicable. • Continue methods described in the Integrated Natural Resources Management Plan (INRMP) and Section 404 regional permit for erosion control methods.	• None identified.
• Accelerated soil erosion in training areas from increased flight activity and ground support units.	• Fund and implement land management practices and procedures described in the Integrated Training Area Management (ITAM) annual work plan to reduce erosion and geologic impacts. • Adhere to MS4 requirements.	• Increase funding of the ITAM program to address additional erosion.
• Erosion of range access roads.	• Maintain range roads and tank trails to minimize erosion IAW ITAM and facilities management program requirements. • Adhere to MS4 requirements.	• Increase levels of installation sustainment funding to address increased levels of wear and tear on roads and trails.
• Water Resources – Fort Carson– CAB Stationing: Alternatives 1 and 3		
• Construction of facilities could result in stormwater runoff from land disturbance, hazardous substances storage, and discharges of non-stormwater from the site. Construction impacts would be short-term and limited to the duration of construction activities; however, the extent of impacts may go	• Pursuant to provisions in the CWA, work being performed at Fort Carson that disturbs one acre (.40 ha) or more is subject to coverage under the U.S. Environmental Protection Agency's (EPA) Construction General Permit number COR10000F. IAW permit conditions, project proponents must submit a NOI to EPA and develop and implement a SWPPP for each project that includes mitigation strategies to reduce impacts associated with stormwater runoff during construction.	• Use of Low-Impact Development practices.

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
beyond the project site boundary.	• Continue use of BMPs. • Continue to manage hazardous materials IAW applicable Fort Carson regulations and management plans. These include: Fort Carson Regulation 200-1, Pollution Prevention (P2) Plan, Spill Prevention Control and Countermeasures Plan (SPCCP), Hazardous Waste Management Plan (HWMP).	
Biological Resources – Fort Carson– CAB Stationing: Alternatives 1 and 3		
• Loss of habitat due to construction.	• Minimize construction site footprint. • Adhere to SWPPP and MS4 requirements, which include BMPs to maintain drainages and restore vegetative cover on the construction site as quickly as will be practicable. • Continue recommendations outlined in management plans and the INRMP.	• None identified.
• Increase in nuisance species in vicinity of CAB facility sets.	• Limit construction of administrative and operational facilities in natural wildlife corridors. • Continue to educate Soldiers and civilians through venues such as Mayor and Town Hall meetings, EPO course, National Night Out, and Safety Days. • Use solid waste disposal practices that limit access by wildlife.	• Use design mitigation techniques in facilities in order to minimize nuisance species habitat; use xeriscaping, or other habitat denial techniques. • Use wildlife-proof dumpsters where necessary.
• Increase in bird airstrikes in/around BAAF and from increased aviation training.	• Limit nuisance species habitats in vicinity of airfields. • Exclude and/or relocate nuisance species from BAAF vicinity.	• Conduct wildlife hazard assessment and prepare Bird Air Strike Hazards (BASH) Plan. Implement appropriate mitigation measures as indicated in the plan. • Reduce nuisance wildlife habitat through design mitigation and wildlife-proofing dumpsters.
• Increased disturbance of breeding raptors.	• Continue to implement INRMP and Bald Eagle Management Plan. • Continue to prevent breeding season fires from encroaching on breeding habitat by burning adjacent areas in late winter or early spring.	• Study the impacts of aircraft training on breeding raptor populations and develop and implement mitigation strategies based on results, as appropriate. • Establish buffer zones around nests in which human activity is curtailed or reduced.

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
	• Continue to retrofit utility systems with avian protection devices and follow practices outlined in the Avian Protection Plan Guidelines.	
• Increased vehicular collisions with deer and other wildlife.	• Limit construction of administrative and operational facilities within vicinities of natural wildlife corridors. • Use lower speed limits in downrange areas to reduce safety and environmental hazards.	• Adjust speed limit on Wilderness Road as appropriate to minimize collisions. • Increase speed limit enforcement efforts on Wilderness Road. • Erect deer hazard signage.
• Increase in hazardous wildlife such as black bear, mountain lions, coyotes, and venomous snakes, as well as the potential spread of plague and hanta virus.	• Limit construction of administrative and operational facilities within vicinities of natural wildlife corridors. • Limit Soldier exposure to areas known to be frequented by hazardous wildlife or identified to potentially contain the plague and/or hanta virus. • Continue BMPs (land restrictions and habitat restoration based upon identifying and prioritizing critical areas and resources, maintain ecologically healthy grasslands, and development of water resources). • Continue to educate Soldiers and civilians on wildlife and their inherent risks.	• Use bear resistant trash containers to eliminate food sources for hazardous wildlife. • Use native vegetation that is not attractive to wildlife in landscaping.
• Increased impacts to big game populations from aviation training and other disturbance.	• Repair and maintenance of existing water sources and development of new sites on Fort Carson providing a water source for deer, pronghorn, and elk temporarily displaced. • Prescribed fire to rejuvenate habitat. • Seeding with native species/food sources.	• None Identified.
• Damage to vegetation and subsequent increase in noxious weed infestations due to more frequent tactical vehicle use and aviation training.	• Continue to manage training lands IAW ITAM, INRMP, Fort Carson Invasive Species Management Plan, and program requirements. • Continue to employ integrated weed management strategies (biological, chemical, cultural, and physical/mechanical control techniques).	• Authorize and hire additional staff necessary to accomplish increased field survey work, mapping, preventive education and awareness activities, record-keeping, and reporting requirements resulting from the addition of Soldiers, and their equipment and training requirements.

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
	• Continue to eradicate all Colorado A-list species when found. • Conduct mission activities in a manner that precludes the introduction or spread of invasive species. • Continue procedures for cleaning vehicles and equipment prior to shipment from one location to another, deployment, and/or redeployment.	• Increased herbicide and biocontrol agents will be used when and where appropriate, as determined by the installation Noxious Weed Management Team.
• Impacts on sensitive species from construction, maintenance, and training activities.	• Survey and monitor sensitive species habitat and conduct construction, maintenance, and training activities IAW the INRMP, which describes appropriate species management and impact mitigation techniques.	• None identified.
• Accidental wildfires caused by live-fire and maneuver training.	• Continue prescribed burning to create buffer areas and reduce fuel loads. • Continue to update the annual Fort Carson Fire and Emergency Services Prescribed Fire Plan. • Fort Carson fire response teams will continue to be available to respond to wildland fires. • The Army will continue to comply with cooperative agreements with the Colorado Springs Fire Department and U.S. Forest Service (USFS). • Continue with Burned Area Emergency Response/Rehabilitation (BAER) efforts.	• Investigate the feasibility of constructing an additional fire station downrange.
Cultural Resources – Fort Carson– CAB Stationing: Alternatives 1 and 3		
• Potential adverse impacts to cultural properties from renovation or new construction.	• Fort Carson's cultural resource program will continue to maintain cultural resources sustainability through existing management and procedures and policies (Integrated Cultural Resources Management Plan [ICRMP] and Programmatic Agreement [PA]) in coordination and development with the Colorado State Historic Preservation Office (COSHPO). Current procedures include evaluation of all historic properties for NRHP eligibility and continued consultations with Native American tribes to identify and evaluate traditional cultural properties (TCP) and Sacred	• None identified.

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
	Sites. • BMPs are used during project design and planning to avoid or minimize effects to all cultural sites. If a potential impact cannot be avoided, consultation with the COSHPO, Native American tribes, and other interested parties will be initiated.	
• Potential loss of unrecorded archeological resources during construction and training activities.	• Unsurveyed areas required for military use will be surveyed, and resources identified during survey will be evaluated for NRHP eligibility according to the Secretary of the Interior's Standards for Archaeology and Historic Preservation, as well as applicable Colorado standards. • Fort Carson will continue development and implementation of the cultural resources education and awareness programs for Army personnel, Families, civilians, and the public to enhance the conservation of historic properties on Fort Carson lands. If cultural resources are discovered or disturbed during any undertaking, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials SOPs will be implemented. • Continued implementation of the ICRMP.	• If subsurface cultural resources are discovered or disturbed during construction, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials SOPs or Native American Graves Protection and Repatriation Act (NAGRPA) SOPs and appropriate Section 106 consultation will be implemented.
• Accidental wildfires caused by live-fire and maneuver training.	• The Army will continue to comply with cooperative agreements with the Colorado Springs Fire Department and USFS. • Continue with BAER efforts.	• Investigate the feasibility of constructing an additional fire station downrange.
Socioeconomics – Fort Carson– CAB Stationing: Alternatives 1 and 3		
• Minor temporary economic benefits to ROI associated with construction expenditures and employment. • Minor long-term economic benefits associated with population increases such as	• Mitigation is not required as these impacts are favorable but not significant.	• None identified.

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
increased sales volume, employment, and income in the ROI.		
• Increased housing demand for Fort Carson personnel.	• Construct additional on-post housing. • Private construction is taking place in the off-post housing market to satisfy the increased demand.	• None identified.
• Increased student population in area school districts.	• Federal impact aid is provided on a per-student basis as an offset for the costs incurred by civilian school districts.	• None identified.
• Increased demand for hospital space and medical professionals.	• Increase capacity of Evans Hospital to accommodate additional staff and patients.	• None identified.
• Additional Soldiers and their Families would require more on-post services.	• The Army is continuing to plan for additional facilities to support Soldier services.	• Installation will receive increased funding to maintain facilities.
• Additional Soldiers and their Families would generate additional demand for off-post recreation and services.	• The services provided through the private sector can be expected to respond to the increased demand by increasing supply.	• The demand for facilities may be moderated by use of new on-post facilities.
• Potential increase in safety risk to children at construction sites.	• Continue safety measures outlined in 29 CFR Part 1926, "Safety and Health Regulation for Construction" and follow other applicable regulations and guidance.	• Barriers and no trespassing signs will be placed around construction sites to deter children from playing in these areas and construction vehicles, equipment, and materials stored in fenced areas and secured when not in use.
Transportation and Airspace – Fort Carson– CAB Stationing: Alternatives 1 and 3		
• Increased demand at access control points and additional traffic congestion throughout major roadway networks on the installation. • Increased use of airspace to and from PCMS.	• Alternative transportation modes are being explored in traffic demand management and low impact vehicle studies. • Continue to support Goal 2 – Sustainable Transportation objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002. • Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise impacts.	• Use the Fort Carson Comprehensive Transportation Study 2008 Update Action Plan, as amended and updated, to review and implement necessary roadway improvements. • Activate and expand gates, as appropriate, to absorb additional traffic entering and leaving the installation. • Coordinate with Colorado Department of

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
	• Army aviators will adhere to Fort Carson's flight regulations, which outline policies and procedures for noise abatement, minimum altitudes, and designate routes to and from PCMS.	Transportation (CDOT) to try to include SH 115 intersection improvements at Fort Carson gates. • Implement alternative transportation modes as appropriate. • Provide additional bus routes and more frequent bus service.
• On-post roadway closure due to construction activities.		• Use of traffic control procedures, including flaggers and posted detours to minimize impacts to traffic flow. • Minimize construction vehicle movement during peak rush hours on the installation and placing construction staging areas in optimal locations to minimize traffic within administrative, housing, and school areas.
Hazardous and Toxic Substances – Fort Carson– CAB Stationing: Alternatives 1 and 3		
• Demolition of existing facilities would require proper removal and disposal of asbestos containing materials (ACMs), lead-based paints (LBPs), and polychlorinated biphenyls (PCB).	• Continue to comply with asbestos and lead national emission standard for HAPs as well as Toxic Substances and Control Act (TSCA) requirements by adhering to applicable permits and the following Fort Carson management plans; Lead Management Plan, Asbestos Management Plan, Fugitive Dust Control Plan, PCB Management Plan.	• None identified.
• Exposure to petroleum contaminated soil at BAAF (1986 release of unleaded fuel, est. at 10,500 gallons) may occur as a result of construction adjacent to the footprint of the former hot refueling pad and former Building 9648.	• Site closure has been requested through the Colorado Division of Oil and Public Safety.	• Quarterly groundwater monitoring and reporting of contaminant concentrations in groundwater until closure is completed.
• Hazardous materials use and potential releases would increase commensurately with personnel and equipment.	• Continue to manage hazardous materials IAW Hazardous Materials Control Center (HMCC) and applicable Fort Carson regulations and management plans. These include: the installation's Regulation 200-1, P2 Plan, SPCCP, HWMP.	• None identified.

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
	• Continue to implement the Ammunition Supply Point (ASP) SOP for storage and transportation of additional munitions. • Designated installation Explosives Ordnance Detachment will continue to respond to discoveries of unexploded ordnance (UXO) for safe open detonation either in place or at Range 121.	
• Increased UXO generation as a result of additional live-fire training CAB units.	• Continue to implement management plans and SOPs for munitions handling, UXO removal, and maintenance and management of vegetation in impact areas to preclude surface water or wind transport.	• None identified.
• Potential exposure to elevated radon levels in buildings.	• Install radon mitigation systems in buildings with radon levels 4pCi/L or higher. Retest to confirm radon values are at an acceptable level.	• Construct new facilities to incorporate design mitigation techniques in areas with elevated radon levels IAW the Fort Carson Radon Management Plan.
Utilities – Fort Carson– CAB Stationing: Alternatives 1 and 3		
• Increased personnel and Family members at Fort Carson and in Colorado Springs would increase pressure on current water supplies from Colorado Springs Utilities.	• Implement planned upgrades to existing water lines. • Continue cooperative efforts with the surrounding communities. • Continue to implement water use reduction measures such as low-flow toilets and waterless urinals, xeriscaping, and use of gray water for irrigation. • Continue to support Goal 1 – Energy and Water, objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002.	• None identified.
• Additional wastewater generation from administrative and operational activities.		• Upgraded capacity and extend existing sanitary sewer lines are part of the proposed action. • Implement recommendations of the 2006 Wastewater Treatment Plant (WWTP) Capacity Evaluation, which includes aeration system and equalization basin channel improvements.
• Increased production of industrial wastewater.		• New industrial wastewater lines will be installed along Butts Road and along the southern portion of the

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
		Operational Readiness Training Center (ORTC), as part of the proposed action.
• Construction of facilities could result in stormwater runoff from land disturbance, hazardous substances storage, and discharges of non-stormwater from the site. Construction impacts would be short-term and limited to the duration of construction activities; however, the extent of impacts may go beyond the project site boundary.	• Pursuant to provisions in the CWA, work being performed at Fort Carson that disturbs one acre (.40 ha) or more is subject to coverage under the U.S. EPA's Construction General Permit number COR10000F. IAW permit conditions, project proponents must submit a NOI to EPA and develop and implement a SWPPP for each project that includes mitigation strategies to reduce impacts associated with stormwater runoff during construction. • Continue use of BMPs • Continue to manage hazardous materials IAW applicable Fort Carson regulations and management plans. These include: Fort Carson Regulation 200-1, P2 Plan, SPCCP, HWMP.	• Use of Low-Impact Development practices.
• Design and construction of facilities could result in impacts to Fort Carson's stormwater drainage system from sediment and other non-stormwater discharges and inadequate design of permanent stormwater controls.	• Fort Carson is an MS4 permitted facility. Therefore, any land disturbance on Fort Carson is subject to the terms of Fort Carson's Final Stormwater Management Plan in order to help mitigate negative impacts to water quality. • Continue to support Goal 1 – Energy and Water objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002.	• None identified.
• Solid waste generation would increase with additional personnel.	• Solid wastes and recyclable materials will continue to be managed IAW the existing Integrated Solid Waste Management Team (ISWMP) and P2 Plan.	• None identified.
• Increased peak electrical and natural gas demands.	• Follow Installation Design Guide for construction. Require the achievement of LEED® Silver on all new construction. • Continue to provide energy management training to Soldiers through the Building Energy Manager course. • Continue to inspect units, directorates and tenants in regard to energy use and conformance with the installation's Regulation 200-1. • Continue to support Goal 1 – Energy and Water, and Goal 7	• Construction of utilities infrastructure to satisfy the increased demand is part of the proposed action. • Require all facilities be connected to the Energy Management Control System to allow for remotely controlling HVAC systems to the extent practical and affordable. • Investigate and implement the use of renewable resources in new construction to reduce the demand

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
	– Platinum Buildings objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002.	for natural gas and electricity and increase use of renewable energy.
• Construction of electrical, gas and fiber optic line upgrades would disturb soil and vegetation within construction footprint in vicinity of the ORTC site.	• All new electric and gas lines are buried underground, and disturbed areas are graded and reseeded after construction to stabilize the soil.	• None identified.
Land Use – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
• Increased training may result in reduced hunting opportunities.		• Consult with the public and CDOW to maximize public hunting opportunities.
Air Quality and GHG – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
• Increased fugitive dust emissions from increased training.	• All training activities are subject to Fort Carson and PCMS Fugitive Dust Control Plan. Military convoys must comply with a lower speed limit than regular traffic. • Fort Carson applies chemical stabilizer to tank trails.	• Collect additional data on impacts of fugitive dust generation and implement additional control measures as required. • Investigate and, if appropriate and affordable, use dust palliatives with longer effective life spans than currently used chemical stabilizers.
Noise – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
• Noise from increased use of small arms ranges and live-fire ranges and increased aviation training of potential CAB.	• Continue to implement Installation "Fly Neighborly" program, which works to lessen the noise aircraft produce when flying in developed areas. • Adhere to Installation Environmental Noise Management Plan guidelines and procedures.	• Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise impacts to installation facilities. • Army aviators will adhere to Fort Carson's flight regulations, which outline policies and procedures for noise abatement and minimum altitudes. Flight regulations will be re-evaluated to identify external sensitive noise receptors.
Geology and Soils – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
• Increased soil erosion from maneuver and increased helicopter training of potential CAB.	• Continue to fund and implement the ITAM annual work plan and INRMP to reduce soil erosion and maintain sustainable use of its training areas. ITAM will continue to implement erosion management measures, site restoration, and continue to monitor training areas to mitigate damage	• Fund additional land rehabilitation projects necessary to control erosion impacts of additional training. • Create hardened designated landing areas, as necessary and appropriate, to limit soil erosion and sedimentation impacts.

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
	from unit training. • Continue to limit soil erosion by designating no-dig areas around drainages feeding the Purgatoire River and restricting mounted maneuver in areas susceptible to water erosion in the canyon drainage and northern training areas. • Continue to take measures to reduce the potential for wild fires. Prescribed burning and other measures will continue to be used to prevent fires and limit their severity when they do occur. • Continue to educate Soldiers on fire prevention procedures prior to conducting maneuver training at PCMS and require Soldiers to have a minimum amount of firefighting equipment on hand to extinguish small fires during maneuver training. • Maintain range roads and tank trails and continued use of dust palliatives to minimize erosion.	
Water Resources – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
• Increased impacts to stormwater runoff from land disturbance.	• Continued use of erosion control dams, reseeding, and other BMPs as required in the ITAM Annual Work Plan and INRMP.	• Conduct a Watershed Assessment of River Stability and Sediment Supply (WARSSS) assessment to aid in determining the health and stability of the major waterways within the western-most watersheds at PCMS (that were previously modeled). WARSSS is a geomorphology-based procedure for quantifying the effects of land uses on sediment relations and channel stability. The results of the WARSSS assessment will reveal any significant adverse influences of land use on stream channel stability, sediment sources, and sediment yield that may affect the material and beneficial uses of rivers and streams. WARSSS data can be used for watershed planning, TMDL assessments for non-point source pollution, and stability analysis for river restoration. • Develop a Stormwater Management Plan for PCMS.
Biological Resources – Piñon Canyon Maneuver Site		

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
• Impacts to Biological Resources, including destruction of sensitive species habitat, wetlands, and noxious weed infestation, from military training. • Impacts on sensitive species from training activities. • Damage to vegetation and subsequent increase in noxious weed infestations due to more frequent tactical vehicle use. • Increased impacts to big game populations from disturbance/training	• Continue to comply with all laws, regulations and Army policies governing natural resource protection. • Continue to comply with Fort Carson/PCMS regional permit (or other permit as necessary), identified by the Section 404 process. • Continue to manage training lands IAW ITAM, INRMP, and Fort Carson Invasive Species Management Plan and program requirements. • Survey and monitor sensitive species habitat and conduct maintenance and training activities IAW the INRMP. • Continue the practice of installing all new and replacement electric lines underground. • Buffer areas around raptor nesting sites. Disturbance activities (e.g., mowing, prescribed burns) are restricted during nesting seasons. • Repair and maintenance of existing water sources and development of new sites on Fort Carson providing a water source for deer, pronghorn, and elk temporarily displaced. • Prescribed fire to rejuvenate habitat. • Seeding with native species/food sources.	• Install a central vehicle wash facility to reduce the potential spread of weed seed. • Authorize and hire additional personnel necessary to accomplish increased field survey work, mapping, preventive education and awareness activities, record-keeping and reporting requirements. • Increased herbicide and biocontrol agents will be used when and where appropriate, as determined by the installation Noxious Weed Management Team. • Authorize and hire additional personnel necessary to monitor wildlife and vegetation. • Augmentation of, as appropriate, permanent environmental and/or ITAM staff at PCMS. Additional on-site staff will facilitate coordination of increased training activities as well as the protection of natural and cultural resources. • Study the impacts of aircraft training on breeding raptor populations and develop mitigation strategies based on results.
• Accidental wildfires caused by live-fire and maneuver training.	• The Army will continue to comply with cooperative agreements with the USFS and other agencies. • Continue with BAER efforts.	• None identified.
Cultural Resources – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
• Potential loss of unrecorded archaeological resources during training activities. • Potential impacts to archeological resources during increased training activities.	• Fort Carson's cultural resource program will continue to maintain cultural resources sustainability through existing management and procedures and policies (ICRMP and PA) in coordination and development with the COSHPO. Current procedures include evaluation of all historic properties for NRHP eligibility and continued consultations with Native American tribes to identify and evaluate TCPs and Sacred Sites.	• Increase awareness and education of Soldiers and the public by developing a plan for a Heritage Resource Center that will entail curation, scientific education, and construction of a heritage awareness facility located at PCMS. Explore making a select number of historic ranch sites more accessible to the public as examples of ranching heritage in Southeast Colorado.

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
	• BMPs during project design and planning will be used to avoid or minimize effects to all cultural sites. If a potential impact cannot be avoided, consultation with the COSHPO, Native American tribes, and other interested parties will be initiated.	• The Fort Carson Public Affairs Office and Morale, Welfare, and Recreation office will work to establish a tourism program for Fort Carson Soldiers and Families, focusing on selected historic points in and around PCMS. • Augmentation of, as appropriate, cultural resources staff at PCMS to help ensure the coordination of activities and protection of cultural resources.
Socioeconomics – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
• Potential economic benefit to ROI.	• Mitigation is not required as these impacts are favorable but not significant.	• Investigate ways to further enhance favorable economic benefit such as increase spending locally, and educate local businesses in government contracting processes. Additionally, explore contractual methods to buy locally whenever possible and feasible.
Transportation and Airspace– Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
• Increased convoy traffic. • Increased use of flight corridors to and from PCMS.	• Continue to schedule convoys to PCMS during off-peak road usage times. Continue to break larger convoys into smaller numbers of vehicles travelling together to facilitate traffic flow. • Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise impacts. • Army aviators will adhere to Fort Carson's flight regulations, which outline policies and procedures for noise abatement and minimum altitudes; Flight regulations will be re-evaluated to identify external sensitive noise receptors.	• None identified.
Hazardous and Toxic Substances – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
• Increased use of hazardous materials.	• Continue to follow Federal, State and AR for the use, removal, and disposal of regulated materials.	• None identified.
• Increased accumulation of lead	• Continue to implement ITAM and re-vegetation programs	• None identified.

Impact by Resource	*Existing Mitigation Measure*	*Proposed Additional Mitigation Measure*
in soils on firing ranges.	following maneuver and live fire training activities at PCMS to reduce the ability of lead to migrate from firing ranges. Re-vegetation will occur with grasses and vegetation that will stand up to small arms range use and also minimize the impact of range fires.	
Utilities – Piñon Canyon Maneuver Site– CAB Stationing: Alternatives 1 and 3		
• Increased water usage.	• Continue to monitor main water line from the city of Trinidad for necessary repairs.	• None identified.
• Increased impacts to stormwater runoff from land disturbance.	• Continued use of erosion control dams, reseeding, and other BMPs as required in the ITAM Annual Work Plan and INRMP.	• Conduct a WARSSS assessment to aid in determining the health and stability of the major waterways within the western-most watersheds at PCMS (that were previously modeled). [See Water Resources mitigation above for further detail on WARSSS.] • Develop a Stormwater Management Plan for PCMS.
• Increased solid waste generation with additional training activities.	• Continued waste pickup will be managed via private contractor and disposed of in permanent disposal facilities. • Continue to support Goal 10 – Zero Waste objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002.	• None identified.
• Increased use of heating fuel and propane due to increased facilities use.	• Continue to support Goal 1 – Energy and Water objectives and targets of Fort Carson's 25 Year Sustainability Goals in 2002. • IAW the Energy Policy Act of 2005, EO 13423, the NDAA of 2007, and DoD policy, continue to reduce energy consumption and reliance on fossil fuels while increasing the amount of energy derived from renewable sources.	• None identified.

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4.5.3. JBLM and Yakima Training Center Proposed Mitigations

JBLM is committed to sustaining and preserving the environment at JBLM and YTC. If selected for CAB stationing, JBLM will implement its environmental programs, BMPs, and mitigations IAW the installation's Regulation 200-1, *Environmental Protection and Enhancement*, and the installation's overarching long-range sustainability goals. JBLM implements a comprehensive environmental protection program as part of its standard operations. JBLM and YTC staff will continue to apply existing plans, programs, and BMPs during construction and training to avoid or minimize adverse environmental and socioeconomic impacts.

Proposed mitigations at JBLM and PCMS that will help to offset the impacts of CAB stationing at JBLM are presented below. As noted in Section 4.5.1, these proposed mitigations are derived from Tables 4-41, 4-42, 6-33, and 6-34 of the 2010 JBLM *Grow the Army* FEIS

Existing BMPs, Plans, and Programs at JBLM: Existing environmental programs, plans, and BMPs at JBLM that will mitigate the impacts of CAB stationing include:

1. Continue to follow resource protection practices required by the installation's Regulation 200–1, *Environmental Protection and Enhancement*, during field training, including but not limited to:

    - Avoiding maneuver, digging, or establishing assembly areas or bivouac sites in Seibert staked areas.

    - Using only established roads and trails during movement to and from maneuver areas and firing ranges.

    - Crossing rivers/streams only at approved, designated hardened crossing sites.

    - Staying at least 164.04 feet (50 meters [m]) from rivers/streams, wetlands, or other water bodies unless a maintained road or designated crossing exists for traversing the restricted area.

    - Conducting water purification training only at approved sites, and ensuring that wastewater and excess product water is discharged to a dug sump at least 164.04 feet (50 m) from the water source.

- Obtaining a permit for digging, and conducting digging only in the area specified in the permit;
- Locating assembly areas and bivouac sites at least 328.08 feet (100 m) from any water body.
- Establishing field refueling sites, field maintenance sites, field kitchens, and field showers at least 328.08 feet (100 m) from any water body.
- If authorized, the use of field latrines should be established at least 328.08 feet (100 m) from any water body, and should be closed and marking them per FM 21-10, *Field Sanitation and Hygiene.*
- Conducting vehicle washing only at installation designated wash facilities.
- Establishing hazardous material storage sites at least 328.08 feet (100 m) from any wetland or water body.
- Following requirements for accumulating and managing hazardous waste, and ensuring all hazardous waste is returned to the cantonment area for disposal.

2. Continue implementing the requirements of the installation's Regulation 420-5, *Procedures for the Protection of State and Federally Listed, Threatened, Endangered, Candidate Species, Species of Concern, and Designated Critical Habitat*. Current species and management include:

- Bald Eagle
    - Avoid construction of buildings, roads, trails, or power lines in primary zones (within 1,312.34 feet [400 m radius] of nesting sites) and secondary zones (within 2,624.67 feet [800 m radius] of nesting sites).
    - Avoid timber harvest in the primary zone unless enhancements are made to improve stand characteristics for the benefit of nesting eagles.
    - Avoid bivouacs in the primary zone during the nesting season (exception is Halverson Marsh where bivouac can occur east of the railroad tracks).
    - Avoid training in the primary zone during the nesting period.

- Avoid blasting and use of firearms during the nesting period.
- Avoid the use of pyrotechnics during 1 June to 31 October.
- Aircraft will fly no lower than 1,200 feet (365.76 m) above mean sea level (MSL) in the primary zone (no lower than 300 feet (91.44 m)above MSL for Nisqually Bluff, and any deviation in the approach zone to McChord Airfield over Spanaway Marsh will require consultation with the FWS); and avoid landing boats on Picnic Point (American Lake).

• Water Howellia

- See the installation's Regulation 200–1 mitigation measures listed above.

• Salmonids

- See the installation's Regulation 200–1 mitigation measures listed above.
- Off-loading and deployment of all float bridge bays and support vehicles between March 1 and June 30 will be limited to the existing boat ramp at Solo Point.
- Avoid deploying from the native beach or altering the native beach material at Solo Point between March 1 and June 30; and during the eight days of scheduled launch training activity between March and July, limit near shore activity to three hours per day.

• Northern Spotted Owl

- Consult with FWS on activities such as vegetation removal and ground disturbance that affect designated critical habitat, if such activities have not been addressed in previous consultations.

- Mardon Skipper
    - Training activities involving off-road maneuver and ground disturbing activities are prohibited in Johnson Prairie, Upper and Lower Weir Prairies, and limited on the 91st Division Prairie.
- White-topped Aster
    - Training activities involving digging or other ground disturbance are prohibited within Johnson and Weir Prairies.

3. Continue to implement management practices in line with goals and objectives identified in the ITAM program. These measures include, but are not limited to:
    - Deterring vehicle traffic from new trails and recently established roads.
    - Repairing (reseeding) maneuver damaged areas.
    - Use of existing hardened crossings in areas of riparian and wetland soils.
    - Use of Range and Training Land Assessment and other land condition maps when planning.
    - Training that may impact soils or vegetation.
4. Continue to implement noise level reduction features in the design and construction of noise-sensitive receptors (e.g., residential housing, schools, barracks, hospitals) that are located in areas where the average C-weighted day/night sound level (CDNL) is higher than 62 decibels (dB) but less than 70 db (NZ II).
5. Avoid locating noise-sensitive receptors (e.g., residential housing, schools, hospitals) in areas where the average CDNL is greater than 70 dB (NZ III).
6. Continue to implement the requirements of the installation's Regulation 360–5, *Noise and Vibration Complaint Procedure*, for management of noise complaints, public notification of nighttime firing, and the public notification of exceptions to firing hours.

7. Aircraft will continue to follow the "Fly Friendly" program as stated in the installation's Regulation 95–1, *Flight Regulations*, when flying over congested areas.

8. Reevaluate the need for modifications to the current Fort Lewis synthetic minor air operating permit based on final site selection and design prior to start of construction that includes new emission producing sources.

9. Continue to comply with requirements for new permitted stationary sources of emissions, including best available control technology review for each criteria pollutant, maximum achievable control technology review for regulated HAPs and designated categories, and meeting the new source performance standards and national emissions standards for hazardous air pollutants (NESHAPs) requirements.

10. Continue to obtain permits required by the Puget Sound Clean Air Agency (PSCAA) for demolition of structures at JBLM that contain asbestos material and/or LBP.

11. For all new construction requiring boilers greater than 10 million BTU/hr, use New Source Performance Standards boilers that will emit no more than 9 ppm NO_x (Low NO_x boilers).

12. Continue to conduct air quality permit compliance audits.

13. Air emissions associated with different levels of smoke training on JBLM will not exceed the limits identified in the *Final Environmental Assessment for the Fielding of M56 and M58 Smoke Generators at Fort Lewis and Yakima Training Center* (Army 1999), and in the *Final Environmental Assessment for Training with Smoke Munitions at Fort Lewis and Yakima Training Center, Washington* (Army 2001).

14. Continue to follow procedures that meet NESHAPs for all fuel storage and transfer activities and vehicle maintenance activities.

15. Continue restrictions on where tracers, pyrotechnics, and troop fires are authorized (installation's Regulation 350–30).

16. Finalize a mutual aid agreement with the Washington Department of Natural Resources (WDNR) for firefighting support; continue mutual agreements for firefighting support with I Corps and JBLM Soldiers, JBLM Fire Departments, and mutual aid agreements with local fire districts.

17. During high fire hazard conditions, continue to implement JBLM's fire management program including restrictions on where tracers, pyrotechnics, and troop fires are authorized (the installation's Regulation 350–30).

18. Continue to time the convoys traveling between JBLM and YTC to avoid the primary rush hours of 0600 to 0900 hours and 1500 to 1700 hours on I–5, I–405, and I–90.

19. Continue to increase utilization of renewable energy technologies in support of GHG reduction goals.

20. Continue coordination and scheduling to balance increased training requirements with the availability of airspace at JBLM.

21. Continue to balance training area use with area rotation schedules IAW ITAM goals for sustainable training lands.

22. For any construction project requiring an Environmental Protection Plan (EPP), implement the pertinent resource protection measures that are part of the EPP.

23. Incorporate water and energy conservation measures in new building and facilities designs to comply with AR 11–27, *Army Energy Program*; EO 13123, *Greening the Government through Efficient Energy Management*; EO 13123, *Greening the Government through Efficient Energy Management*; EO 13423, *Strengthening Federal Environmental, Energy, and Transportation Management*; and the requirements under the new Energy Independence and Security Act of 2007.

24. For any construction project requiring a storm water pollution prevention plan (SWPPP), implement the pertinent resource protection measures contained in the SWPPP. Government approval of the SWPPP is required prior to start of construction.

25. Continue to implement the ISWMP at the installation.

26. Construct all new facilities to achieve a minimum LEED® rating of Silver.

27. Continue to implement the following programs or plans to manage hazardous materials and wastes at JBLM: The Installation Restoration Program (IRP), Military Munitions Response Program (MMRP), Compliance-Related Cleanup (CC), P2 Plan, *Installation Spill Contingency Plan, Facility Response Plan*, and *Integrated Pest Management Plan.*

Existing BMPs, Plans, and Programs at YTC: Existing environmental programs, plans, and BMPs at YTC that will offset CAB stationing impacts include:

1. Continue to follow resource protection practices required by the installation's Regulation 200–1, *Environmental Protection and Enhancement*, during field training, including but not limited to:

- Avoiding maneuver, digging, or establishing assembly areas or bivouac sites in Seibert staked areas.
- Using only established roads and trails during movement to and from maneuver areas and firing ranges.
- Crossing rivers/streams only at approved, designated hardened crossing sites.
- Staying at least 164.04 feet (50 m) from rivers/streams, wetlands, or other water bodies unless a maintained road or designated crossing exists for traversing the restricted area.
- Conducting water purification training only at approved sites, and ensuring that wastewater and excess product water is discharged to a dug sump at least 164.04 feet (50 m) from the water source.
- Obtaining a permit for digging, and conducting digging only in the area specified in the permit.
- Locating assembly areas and bivouac sites at least 328.08 feet (100 m) from any water body.

- Establishing field refueling sites, field maintenance sites, field kitchens, and field showers at least 328.08 feet (100 m) from any water body.

- If the use of field latrines is authorized, establishing them at least 328.08 feet (100 m) from any water body, and closing and marking them per FM 21-10, *Field Sanitation and Hygiene.*

- Conducting vehicle washing only at installation designated wash facilities.

- Establishing hazardous material storage sites at least 328.08 feet (100 m) from any wetland or water body.

- Following requirements for accumulating and managing hazardous waste, and ensuring all hazardous waste is returned to the cantonment area for disposal.

2. Continue implementing the requirements of the installation's Regulation 420-5, *Procedures for the Protection of State and Federally Listed, Threatened, Endangered, Candidate Species, Species of Concern, and Designated Critical Habitat*. Current species and management include:

- Bald eagle

    · From December 8 to March 24, maintain a minimum flight altitude of 300 feet above ground level (AGL) (91.44 m AGL) on the Hanson Creek Route between coordinates GG190875 and GG280842.

    · Maintain a .62 mile (1 kilometer [km]) buffer to the north and south of Hanson Creek Road from December 8 to March 24, coordinate all flights along the Columbia River Route between coordinates KB830 and KB690 with the Rattlesnake Flight Following Facility.

    · There is no minimum flight altitude restriction, but flights must maintain a .62 mile (1 km) buffer to the west of the railroad right-of-way along the Columbia River from December 8 to March 24, river crossing exercises are prohibited on the Priest Rapids Reservoir from December 8 to March 24, travel on Hanson Creek Road between coordinates GG180875 and GG280842 is prohibited without coordination and authorization from ENRD and Range Control.

- Off-road vehicle traffic is prohibited in the Hanson Creek riparian zones.

- Golden eagle
  - Maintain a 1,640.42 feet (500 m) buffer between all military activities and nest sites.
  - Maintain a minimum of 300 feet AGL (91.44 m AGL) for overflights of nest sites.
  - Air traffic is prohibited below the rim of Selah Canyon between Badger Pocket Road (GG039731) and the I-82 Bridge (FG958740).

- Sage grouse
  - From 2400 to 0900 hours during March 1 to May 15 unless an earlier date is specified, comply with restrictions on military training and other land use within a 3,280.84 feet (1 km) radius of designated leks.
  - From 2400 to 0900 hours during March 1 to May 15 unless an earlier date is specified, aircraft overflights within a .62 mile (1 km) radius of designated leks are prohibited.
  - All off-road military activities are prohibited between March 1 and June 15 (24 hours a day) within the sage grouse protection areas. Exceptions within these areas include the following existing Firing Ranges: 4, 5, 10, 10Z, 16, 26, and 55. Vehicle travel is limited to MSR's and/or designated roads to the above Firing Ranges.
  - Bivouacs are not permitted at any time of the year in the sage grouse protection area.
  - Excavations are only permitted in the protection area on existing firebreaks. All excavations within the sage grouse protection areas are coordinated through YTC ENRD and carried out IAW the YTC dig permit process.

- Ferruginous hawk
    - Military activity is prohibited within 1,640.42 feet (500 m) of the nest sites.
    - Aircraft over-flights of all active nest sites will maintain a minimum of 1,000 feet AGL (302.8 m AGL).
- Salmonids
    - Protection measures in place for riparian areas on YTC provide direct protection for these species, and protect habitat that may be occupied.
- Burrowing owls
    - Known nest sites are protected by Seibert stakes.
- Columbia Milk-vetch, Basalt Daisy, Dwarf Evening-Primrose, Hoover's Desert Parsley, Hoover's Tauschia, Kalm's Lobelia, and White Etonella
    - Known populations are protected by Seibert stakes.

3. Continue to implement soil erosion mitigation and monitoring measures outlined in the YTC CNRMP/INRMP. These include, but are not limited to, the following:

- Demarcate areas that are naturally prone to soil erosion such as creek bottoms (YTC Land Use Zone 1).
- Minimize off-road maneuvers during periods of high soil moisture.
- Rest highly-utilized maneuver areas through training area rotations.
- Limit or exclude training in areas of steep slopes.
- Erosion control (e.g., erosion control blankets, loose rock structures, sediment traps and weirs) of highly erodible sites (e.g., unimproved roads, fire suppression lines, and intermittent channels) following disturbance.

4. Continue updating management prescriptions in various land use planning and management programs to address greater levels of stationing and training uses.

5. Continue the implementation of the GIS program and incorporation of the program into existing land management programs to increase the effectiveness of efforts to implement specific resource mitigation and monitoring requirements by reducing conflicts and redundancy among various programs.

6. For each new construction project (Military Construction, Army [MCA] by the USACE or military troop construction), evaluate need for air operating permit modifications based on final site selection and design prior to start of construction.

7. Submit a required EPP for all construction projects 1 acre (.40 ha) in size or larger. The EPP includes such things as a spill control plan, solid waste management plan, contaminant prevention plan, and a pesticide treatment plan.

8. For any construction project requiring an EPP, implement the pertinent resource protection measures that are part of the EPP.

9. Implement BMPs for new permitted stationary sources of emissions, including review for each criteria pollutant, regulated HAPs and designated categories, and meeting the new source performance standards and NESHAP requirements.

10. Prior to the demolition or renovation of an existing structure, a Notification of Demolition and Renovation application must be filed and the appropriate fee paid.

11. Prior to the start of any demolition, excavation, clearing, construction, or landscaping work, contractors must file a Dust Control Plan.

12. Conduct an annual air quality inspection.

13. Air emissions associated with different levels of smoke training on JBLM will not exceed the limits identified in the *Final Environmental Assessment for the Fielding of M56 and M58 Smoke Generators at Fort Lewis and Yakima Training Center* (Army 1999), and in the *Final Environmental Assessment*

for Training with Smoke Munitions at Fort Lewis and Yakima Training Center, Washington (Army 2001).

14. Quantities (numbers, gallons, or pounds) of smoke producing devices will stay within limits identified in previous environmental impact analyses.

15. Revegetate degraded areas to reduce the amount of dust produced during training exercises.

16. Implement the noise control plan from the EPP required for construction projects 1 acre (.40 ha) in size or larger.

17. Continue implementing the installation Operational Noise Management Plan, which includes noise complaint management.

18. The populated area west of Vagabond Army Heliport (VAH) is not to be flown over as part of JBLM flight procedures and regulation.

19. Identify potentially erosive sites that may require altered management practices such as upgrading firebreaks with gravel and water bars, and reseeding areas such as bivouac sites, dig sites, and temporary firebreaks.

20. Continue riparian restoration and watershed protection program. Riparian restoration will improve water quality through minimizing streambed and gully erosion and will aid in holding soils in place at stream crossings. Watershed protection will be achieved by using Seibert stakes to prohibit vehicle disturbance near streams, reducing sediment runoff to streams and wetlands.

21. Continue the practices of excluding certain type of training activities (e.g., mounted maneuvers) from sensitive areas, limiting activities near water bodies, and using inert environmentally friendly training rounds whenever possible.

22. Continue to conduct Sustainable Range Awareness training for all units training at YTC to educate them about the importance of minimizing the amount of damage caused to vegetation by off-road travel.

23. Continue and expand the ITAM Sustainable Range Awareness Program.

24. Implement the *Integrated Wildland Fire Management Plan*; complete annual reviews and annual fire summary report.

25. Establish Policy and Technical Committees that will oversee and implement the *Integrated Wildland Fire Management Plan* and monitoring and reporting of all fire related mitigation measures. Continue use of Fire Technical Team.

26. BMP - Awareness level training for Training Units: Add wildland fire emphasis to the SRA brief, fire emphasis during unit scheduling and during the daily 1500 Range Brief. Develop outreach products (posters and other products); recommend increasing education/awareness efforts at home station and during all local points of unit contact with variety of outreach methods/products.

27. BMP - Maximize YTC Fire Department Personnel down range: There is a need to maximize presence of YTC Fire Department Personnel down range (e.g., seasonal staff for roaming patrols, full time equivalent positions to conduct training and issuing of equipment, increased number of seasonal staff, improved hiring practices, and adjust work schedules). Accept and implement proposed recommendations to maximize fire department personnel downrange according to identified fire risk.

28. BMP - Mutual Aid Practice Review: Evaluate mutual aid practices and make adjustments to ensure adequate coverage is available at YTC during training activities; retain current mutual aid agreements that allows for dedicated wildland fire suppression response on YTC and ability to obtain additional suppression assets if needed.

29. BMP – Accountability: Consistent enforcement of laws and regulations for acts of negligence. Utilize existing process for acquiring funds to address damage to equipment, structures, and resources as a result of negligence or disregard for established procedures, policies, or laws.

30. The Army will continue to time the convoys traveling between JBLM and YTC to avoid the primary rush hours of 0600 to 0900 hours and 1500 to 1700 hours on I-5 and I-405.

31. New building and facilities will incorporate water and energy conservation measures in facilities designs to comply with AR 11–27, EO 13123, EO 13423, EO 13514, and the requirements under the new Energy Independence and Security Act of 2007.

32. For any construction project requiring a SWPPP, implement the pertinent resource protection measures contained in the SWPPP. Government approval of the SWPPP is required prior to start of construction.

33. Continue to implement the ISWMP at the installation.

34. Conduct more frequent waste pick up due to the increase in waste streams.

35. Prior to demolishing any structures, an asbestos survey must be done by a certified asbestos building inspector. Any asbestos found must be removed by a licensed asbestos abatement contractor prior to demolition. Disposal documentation must be provided to YTC.

36. Continue to follow all Federal, State, Army, and JBLM regulations and programs for managing, storing, using, and disposing of hazardous materials and wastes.

37. Continue to comply with YTC policies regarding hazardous materials inventory and hazardous materials procurement and turn-in. All YTC residents, tenants, and contractors are required to comply with these policies.

38. Continue to implement the following programs to manage hazardous materials and wastes at YTC: the IRP, MMRP, CC, P2 plan, ICP, and Integrated Pest Management Plan (IPMP).

39. Maintain adequate hazardous waste management capabilities (e.g., staff, supplies, and equipment) to support current and increased requirements based on training load.

40. Construct all new facilities to achieve a minimum LEED® rating of Silver.

41. IAW the Energy Policy Act of 2005, EO 13423, the NDAA of 2007, and DoD policy, continue to reduce energy consumption and reliance on fossil fuels while increasing the amount of energy derived from renewable sources.

Additional mitigations proposed for implementing Combat CAB stationing at JBLM under Alternatives 2 or 3. In addition to JBLM and YTC's existing programs, plans, and BMPs, the Army also has identified the following as proposed additional mitigation measures at JBLM to protect the

environment as part of the Proposed Action (Alternatives 2 or 3). At JBLM, proposed CAB stationing mitigations include:

Land Use

- None Identified

Air Quality and GHG

- Establish monitoring stations on JBLM to collect localized air quality sampling data to assess impacts of HAP including carbon monoxide (CO) monitoring at major entrance gates.

Noise

- Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise impacts to installation facilities.
- Adhere to Installation Environmental Noise Management Plan guidelines and procedures.
- Continue to implement Installation "Fly Neighborly" program, which works to lessen the noise aircraft produce when flying in developed areas.
- Restrict aircraft to a minimum of 2,000 feet AGL (609.6 m AGL) when flying over the Nisqually National Wildlife Refuge.
- Construct sound mitigating berms on applicable firing ranges at JBLM.
- Army aviators will continue to adhere to Federal Aviation Administration (FAA) and installation flight regulations, which outline policies and procedures for noise abatement and minimum altitudes.

Geology and Soils

- Implement ITAM program maintenance of sustainable training lands. Actions will include rehabilitating vegetation impacted by vehicle maneuvers, bivouac, digging, and other training activities. Conduct increased frequency of soil condition monitoring and reporting.

- Repair and maintain maneuver trails on JBLM to reduce anticipated increase in impacts to soils and vegetation due to increased travel related to CAB training.

Water Resources

- Construct a new WWTP to mitigate the impacts of the proposed action. The 2010 permit to be issued by the EPA for the existing WWTP will require compliance with more stringent effluent discharge limits, including the removal of biological oxygen demand (BOD) and total suspended solids (TSS) from 80 percent to 85 percent on a monthly average, and a reduction in the maximum daily concentration of chlorine in the effluent from 0.5 milligrams per liter (mg/L) to 0.36 mg/L. The next permit to be issued in 2015 will further increase restrictions on effluent. The WWTP is already near the current permit effluent discharge levels and with the increased population from implementation of the proposed action, will not be able to meet the more restrictive permit limits.

Biological Resources

- In coordination with the FWS, develop and implement additional protective measures for prairie candidate species in the Range 74/76 area. This will include preparing a JBLM Policy Statement listing the protective measures that will be incorporated in the next revision of the installation's Regulation 420–5, *Procedures for the Protection of State and Federally Listed, Threatened, Endangered, Candidate Species, Species of Concern, and Designated Critical Habitat*.

- Install aerial rope bridges at key road crossing points, and reduce vehicle speed limits within high squirrel population areas to protect western gray squirrels (Federal species of concern and State threatened species).

- Determine and mitigate training impacts on the western gray squirrel.

- Repair and maintain maneuver trails on JBLM to reduce anticipated increase in impacts to soils and vegetation due to increased travel related to CAB training.

- Conduct additional noxious weed control.

- Clean vehicles of noxious weed components from off-post training sites (YTC, National Training Center, etc.) or from deployment prior to returning to JBLM.

- Create and maintain suitable habitat for candidate species on JBLM (Mardon skipper, Taylor's checkerspot, Streaked horned lark, and Mazama pocket gopher).

- Develop and maintain habitat and protective buffers for all identified streaked horned lark nesting colonies, and restrict low level hovering by aircraft near nesting colonies and in buffer areas during the nesting period (exceptions to this mitigation are any nesting colonies identified at GAAF; suitable habitat for these colonies will be developed downrange).

- Enhance adjacent habitat and conduct translocations of pocket gophers from disturbed habitat on an as-needed basis to mitigate for loss of habitat due to range construction projects.

- Conduct monitoring and recording of the frequency, intensity, and location of wildfires on JBLM, and as necessary, implement additional fire prevention and control measures including firebreak maintenance, prescribed burning, and fire suppression activities.

Cultural Resources

- Assess the condition of at least 30 archaeological sites per year to determine accumulated training damage and prioritize NRHP-eligible sites for increased protection (i.e., Seibert staking) or data recovery excavations.

- Build and refine a GIS-based predictive model that will indicate the probability that a particular land parcel contains prehistoric archaeological resources, and will be used to avoid training and construction impacts to significant prehistoric sites and prioritize and focus future archaeological survey areas.

- Conduct archaeological surveys of proposed construction footprints and downrange areas that are being impacted by CAB operations and training.

- Evaluate a sample of downrange archaeological sites for NRHP eligibility before ongoing military training impacts results in the destruction of currently unevaluated sites (approximately twelve archaeological sites per year). Protection measures will be put in place for sites determined to be eligible for the National Register; ineligible sites will be opened to unrestricted military training or construction.

- Identify those National Register eligible sites that are being impacted by CAB stationing actions and prioritize sites for data recovery excavations to salvage important scientific and historical information that will otherwise be lost to ongoing military training impacts (approximately one archaeological site per year).

- Include one or more public education/outreach components (i.e., brochures, non-technical reports, web sites, public tours, public archaeology, multi-media CD-ROM, etc.) in inventory, evaluation, and data recovery projects.

Socioeconomics

- Continue coordination with local, State, and Federal agencies to discuss on-going concerns/issues with military growth affecting local education activities, both on and off the installation, and assist with planning for infrastructure requirements/improvements.

- Conduct enhanced outreach and coordination with surrounding school districts regarding near- and long-term potential stationing actions, which will help these districts plan for changes in enrollment.

- Continue coordination with local, State, and Federal agencies to discuss on-going concerns/issues with military growth affecting local education activities, both on and off the installation, and assist with planning for infrastructure requirements/improvements.

Transportation and Airspace

- Install a traffic signal, construct a traffic island, and remark lanes at the intersection of DuPont-Steilacoom Road and East Drive.

- Construct a northbound right-turn lane on A Street at the intersection of North Gate Road and East Drive.

- Continue ongoing coordination with local, State and Federal agencies to assist in addressing short- and long-term solutions to traffic congestion on I-5 in the vicinity of JBLM.

- Restrict aircraft to a minimum of 2,000 feet AGL (609.6 m AGL) when flying over the Nisqually National Wildlife Refuge.

Utilities

- Require the achievement of LEED® Silver on all new construction.

Hazardous and Toxic Substances

- Provide waste storage facilities, and conduct waste pick-up and on-site waste storage for hazardous waste generated at the installation.

- Conduct additional site surveys, development of process maps, and audit compliance with environmental operating permits.

- To support the increase in troop strength, expand the services provided by the HMCC in managing the purchase, storage, delivery, use, and recovery of hazardous materials.

Additional mitigation proposed for implementing CAB stationing at YTC under Alternatives 2 or 3. In addition to YTC's existing programs, plans, and BMPs, the Army also has identified the following as proposed additional mitigation measures at YTC to protect the environment as part of the Proposed Action (Alternatives 2 or 3). At YTC, proposed CAB stationing mitigations include:

Land Use

- Increase monitoring and enforcement of land use policies and assist in controlling avoidable training impacts to natural resources by identifying policy violations (e.g., encroachment within Seibert staked areas, digging without a permit or digging in unauthorized areas, bivouacking in unauthorized areas, refueling within the protective buffer for water bodies, and violating installation wildland fire management policies).

Air Quality and GHG

- Appropriate site rehabilitation (e.g., revegetation, restoration, erosion control, irrigation, and landscaping) will be accomplished following all construction related projects to provide the appropriate vegetative community or landscaping (including irrigation if necessary) to protect air resources for the affected project area.

- IAW the Energy Policy Act of 2005, EO 13423, the NDAA of 2007, and DoD policy, continue to reduce energy consumption and reliance on fossil fuels while increasing the amount of energy derived from renewable sources.

Noise

- Installation G-3 and Range Control schedule and coordinate aviation training to reduce noise impacts to installation facilities.

- Adhere to installation Environmental Noise Management Plan guidelines and procedures.

- Continue to implement Installation "Fly Neighborly" program, which works to lessen the noise aircraft produce when flying in developed areas.

- Army aviators will continue to adhere to installation flight regulations, which outline policies and procedures for noise abatement and minimum altitudes to be maintained around designated sensitive areas. Aviators will continue to use adhere to flight restrictions when flying designated flight routes.

Geology and Soils

- Continue implementation of ITAM program components (Land Rehabilitation and Maintenance, Range and Training Land Assessment, Sustainable Range Awareness, and Training Requirements Integration) to maintain and sustain lands.

- Evaluate high-use helicopter landing zones (e.g., ranges) that support CAB actions to determine if site hardening is required to prevent excessive soil erosion at these sites and where it is determined hardening is appropriate, install hover pads.

- Implement erosion control measures to address the anticipated increase in sediment delivery to the Yakima and Columbia Rivers following wildfire events caused by CAB-related increases and changes in training activities.

Water Resources

- Implement erosion control measures to address the anticipated increase in sediment delivery to the Yakima and Columbia Rivers following wildfire events caused by CAB-related increases and changes in training activities.

Biological Resources (including wildfire management)

- Realign sage grouse habitat and core use area protection boundaries to mitigate for reductions in available habitat and to protect areas consisting of core areas of sage grouse use on YTC, including realigning sage grouse habitat and core use area protection boundaries in applicable training areas used by the proposed CAB to incorporate sage grouse use information not considered in the current management plan and to manage primary containment areas to early seral conditions within the current sage grouse protection area.

- Provide a process to ensure that newly discovered leks (areas where male sage grouse gather for mating display behavior) receive designated area protection and that leks which may have become inactive are managed to land allocation standards in which they are contained.

- Provide designated area protection to two recently discovered leks in TA 16 and TA 8, and manage two inactive leks in TA 12 and TA 5, and one active lek in the CIA to the land allocation standards of the area they are in.

- Revise the sage grouse management plan to incorporate new information and mitigation measures as part of the YTC INRMP revision.

- Revise flight restrictions related to sage grouse protection areas and leks by extending existing flight restrictions to all newly proposed sage grouse protection areas and secondary sage grouse habitat areas that contain a primary flight route and/or are within .62 miles (1 km) of a protected lek.

- Increase West Nile Virus surveillance and control to reduce the susceptibility of sage grouse to West Nile Virus. Continue the current cooperative surveillance program and increase control efforts at all man-made sources of mosquito breeding habitat to include newly proposed aerial fire suppression water sources.

- Install forb (herbaceous flowering plant that is not a grass) restoration/greenhouse facilities to augment sage grouse habitat restoration efforts. Install/use previously acquired greenhouses and procure additional greenhouse/restoration supplies for annual forb growing for species not commercially available.

- Implement a genetic augmentation project to compensate for anticipated population declines caused by negative impacts from increases in military training activities.

- Participate in and provide support to the South Central Washington Shrub-Steppe Collaborative (SCWSSC) to promote/implement the conservation strategy of the SCWSSC to include developing conservation action proposals (acquisition, easements, a Candidate Conservation Agreement with Assurances for private landholdings) within the SCWSSC focal area, a regional fire prevention/suppression strategy for the focal area, pre-incident plans for all non-fire district jurisdictional areas within the focal area, a regional habitat restoration strategy and conference, and establishment of a cooperative agreement for the development of locally adapted plant materials for use in restoration.

- Establish a candidate conservation agreement with the FWS to ensure that YTC sage grouse management efforts to preclude the species from further listing are acknowledged. Work

cooperatively with the FWS in revising and including the YTC sage grouse management plan in a Candidate Conservation Agreement with the Service.

- Explore Candidate Conservation Agreement with Assurances for off-installation mitigation to provide added assurances and as an incentive to land owners for sage grouse and shrub-steppe conservation efforts, coordinate with the SCWSSC regarding their exploration of a Candidate Conservation Agreement with Assurances for private landowners within the Yakima Focal Area of the SCWSSC.

- For any regional habitat restoration/protection strategy developed for *Grow the Army* training-related impacts to sage grouse that extends beyond the installation boundaries, ensure strategy incorporates CAB training-related impacts. Strategy will be to ensure that stewardship responsibilities of sage grouse and shrub-steppe habitat extend beyond YTC boundaries at spatial scales appropriate for this species and its habitat. Also develop a Regional Habitat Restoration/Protection Strategy for all Federal and State agencies within the Yakima Focal Area of the SCWSSC.

- For any sage grouse predator assessment and management plan developed to address the negative impacts to habitat quantity and quality from *Grow the Army*-related military training and the resulting effect this has on local sage grouse predator-prey relationships, ensure strategy incorporates CAB training-related impacts.

- Remove fences no longer required and mark required fences to increase their visibility to sage grouse to address this source of mortality.

- Continue to implement the training land recovery program at a level that appropriately addresses impacts from CAB actions to meet a variety of resource (e.g., site repair and habitat recovery) and land use objectives (e.g., sustainable military training) for sites that have been impacted by CAB training (e.g., fire and mechanical disturbance).

- Develop and maintain pre-incident plans for designated locations or activities (e.g., containment areas, fire exclusion areas, and high-risk activities outside of containment areas) to improve efficiencies in fire prevention and suppression.

- Conduct periodic review and refinement of the wildland fire risk matrix to assist in reducing the potential fire ignition caused by training related events.

- Establish wildland fire containment areas where fires will be suppressed at minimal size within the containment area boundary to more effectively contain and suppress fires within areas where recurring fires are expected (e.g., established ranges and impact/dud areas).

- Establish fire exclusion areas on the installation that have increased fire prevention and suppression priority (e.g., land use constraints, enhanced prevention and suppression assets/capabilities) to protect high value resources (e.g., mature late seral shrub-steppe, sage grouse habitat, restoration sites, and riparian areas) and to allow restoration and rehabilitation to occur where applicable.

- Implement temporal constraints and other necessary training restrictions during the high fire danger period (May 15 through September 30) to reduce the risk of ignition during periods of highest potential for ignition and to minimize the occurrence of catastrophic fires, fires in exclusion areas, or fires leaving the installation.

- Increase support to the YTC wildland fire management program in response to increased occurrence of wildland fires resulting from CAB actions, particularly the simultaneous operation of all YTC ranges, and the need to reduce impacts to the military training mission and natural resources through effective containment of fires.

- Provide wildland fire suppression equipment to address the inadequacy of existing equipment to meet current requirements and projected pre-suppression and suppression requirements associated with CAB training activities.

- Continue aerial fire suppression capability (as described in the 2007 *Modification of Aerial Fire Suppression Requirements Environmental Assessment*) on an annual basis and pre-positioned prior to the fire season to ensure adequate fire suppression capability, particularly in areas of YTC where ground fire suppression is impractical (54 percent of YTC lands) or ineffective.

- Develop 12 additional water resources in areas where they currently do not exist or where enhancement of existing water resources is required to enable a maximum 12-minute turn-around time across the installation for fire suppression to address the lack of sufficient aerial fire suppression water resources (water storage or dip tanks at some existing sites, wells and storage tanks at new sites) to support current and increased training activities associated with CAB actions.

- Conduct firebreak update and maintenance to reduce fire-related impacts from increased training associated with CAB actions that result in degraded mission capabilities and natural resource conditions, and to ensure the maximum effectiveness of firebreaks.

- Conduct site restoration for wildland fire impacts to compensate for incremental annual loss or large-scale fire impacts to habitat and to meet increased site restoration requirements associated with fire damage from CAB related training.

Cultural Resources

- Archaeological re-evaluations of cultural sites that may be eligible for inclusion on NRHP as specified by Section 106 of the National Historic Preservation Act (NHPA). Conduct approximately 100 site re-evaluations per year for five years.

Socioeconomics

- Continue coordination with local, State, and Federal agencies to discuss on-going concerns/issues affecting local education activities, both on and off the installation, and assist with planning for infrastructure requirements/improvements.

Transportation & Airspace

- Army aviators will continue to adhere to installation flight regulations, which outline policies and procedures for noise abatement and minimum altitudes to be maintained around designated sensitive areas. Aviators will continue to adhere to flight restrictions when flying designated flight routes.

Utilities

- Require the achievement of LEED® Silver on all new construction.

Hazardous and Toxic Substances

- No additional mitigation identified.

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5. FORT CARSON AND PIÑON CANYON MANEUVER SITE, COLORADO AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

5.1. Introduction

Fort Carson is a divisional Army post that is responsible for meeting the training requirements of four active component BCTs, Special Forces, and a host of support units. Fort Carson also hosts units of the Army Reserve, Navy Reserve, and Colorado Army National Guard. Fort Carson's PCMS provides critical maneuver lands necessary to train large units from Fort Carson and other installations.

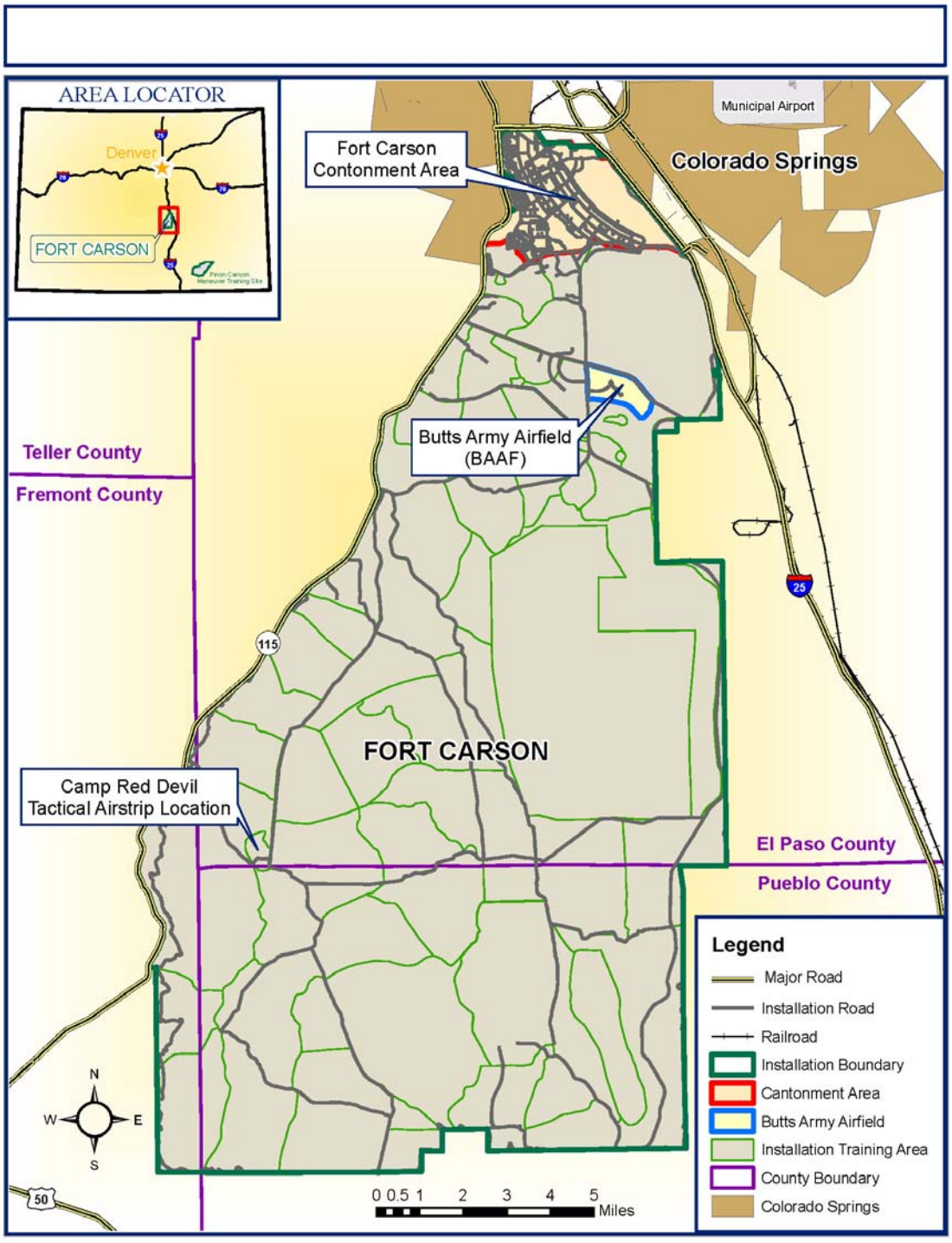
Fort Carson currently has a total of 30 aircraft, down from its historic numbers due to prior re-stationing actions. For example, prior to 2006, there were over 70 aircraft consisting of AH-64s, OH-58s, and UH-60s connected with one of Fort Carson's then-assigned units containing aircraft, the 3rd Armor Calvary Regiment's Aviation Squadron.

5.2. Location and Size

The following sections outline specifics related to the location and size of Fort Carson and PCMS.

Fort Carson

Fort Carson is located in central Colorado at the foot of the Rocky Mountains and occupies portions of El Paso, Fremont, and Pueblo counties (Figure 5). The installation is bounded by SH 115 on the west and I-25 and mixed development to the east. Colorado Springs and Denver lie approximately eight miles (13 kilometers [km]) and 75 miles (121 km), respectively, to the north; while the city of Pueblo is located approximately 35 miles (56 km) south of the cantonment area.



1948

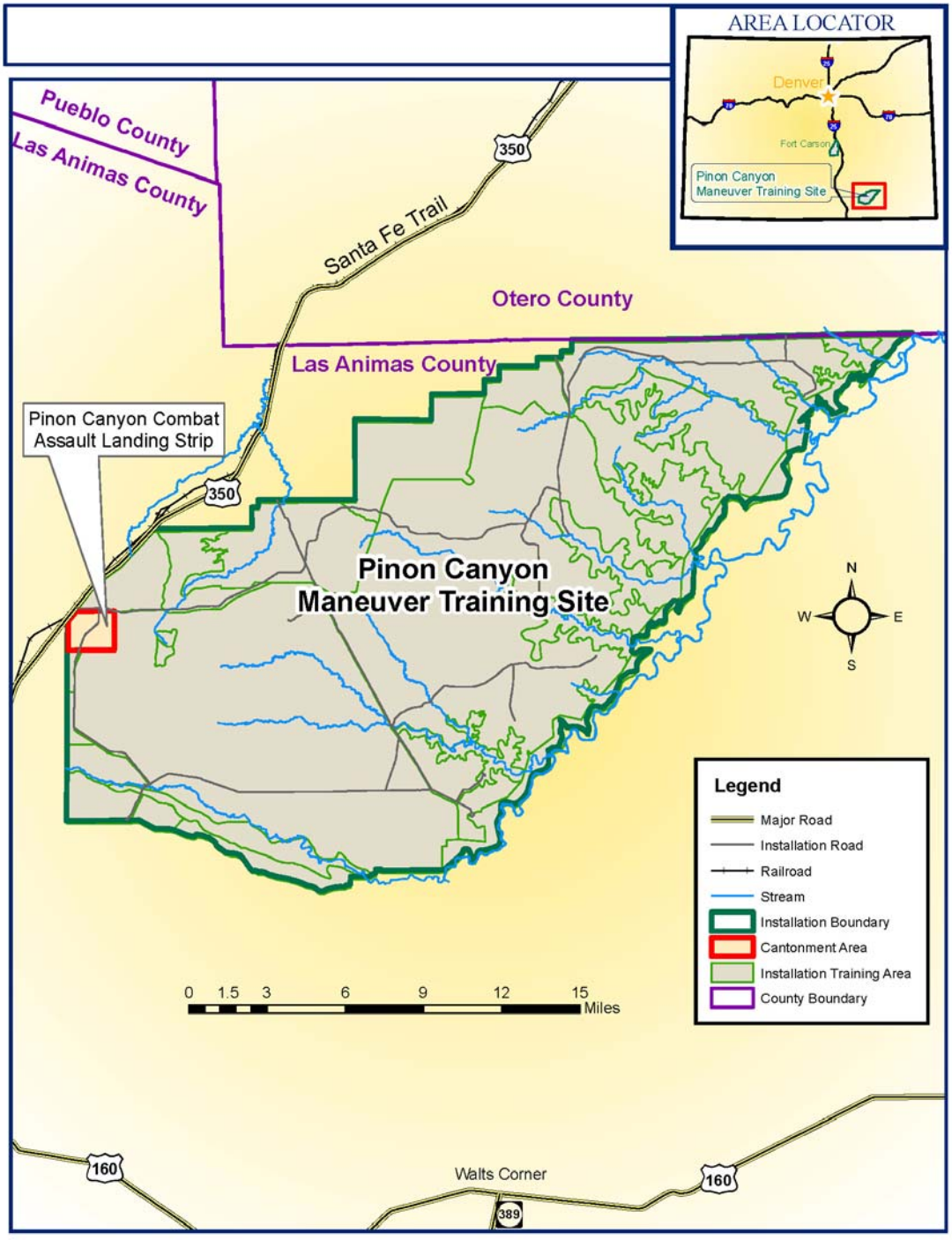
1949 **Figure 5. Fort Carson, Colorado**

Fort Carson covers approximately 137,000 acres (55,442 hectares [ha]), and extends between two and 15 miles, east to west, and approximately 24 miles (39 km), north to south. The cantonment area, located in the northern portion of the installation, covers approximately 6,000 acres (2,428 ha). Of Fort Carson's total acreage, more than half provides maneuver land suited for vehicle and non-vehicular military training (Fort Carson, 2010a).

Piñon Canyon Maneuver Site

PCMS is located in southeastern Colorado in Las Animas County, approximately 150 miles southeast of Fort Carson (Figure 6). It is bounded by U.S. Highway (US) 350 to the west, Purgatoire River Canyon to the east, Las Animas County Road 54 to the south, and Otero County to the north. Nearby cities include Trinidad to the southwest and La Junta to the northeast.

PCMS covers approximately 235,000 acres (95,101 ha), which includes a cantonment area of approximately 1,660 acres (672 ha). Of the 235,000 acres (95,101 ha), the majority is designated as maneuver land (Fort Carson, 2010a).



1963

1964 **Figure 6. Piñon Canyon Maneuver Site, Colorado**

5.3. Climate

The following section describes specifics related to the climate at Fort Carson and PCMS.

Fort Carson

The region surrounding Fort Carson is classified as mid-latitude semi-arid and characterized by areas with hot summers, cold winters, and relatively light rainfall. The mean temperature ranges from 70° Fahrenheit (F) (21° C) in July to 28° F (-2° C) in January. Mean annual precipitation is about 17 inches (43 centimeters [cm]) per year with about 80 percent falling between April 1 and Sept. 1. Average annual snowfall in the region is 42.4 inches (108 cm), usually occurring from September to May, with the heaviest snowfall registered in March. The yearly average daytime relative humidity is 39 percent and rises to 62 percent at night (Fort Carson, 2007a).

Piñon Canyon Maneuver Site

The climate around PCMS is classified as dry continental, semi-arid. The mean temperature ranges from 70° F (21° C) in July to 31° F (-0.5° C) in December and January. Although the average annual precipitation is approximately 16.5 inches (41.9 cm), actual precipitation fluctuates widely from year to year and between areas of the maneuver site. Approximately 80 percent of the precipitation that occurs at PCMS is received between March and October (Fort Carson, 2007a).

5.4. Land Use

The following section details specifics related to land use for Fort Carson and PCMS.

5.4.1. Affected Environment

Fort Carson

On-Post Land Use

The installation is divided into 56 training areas, three impact areas, the cantonment area, and areas from which training is restricted. Those lands outside of the cantonment area are also referred to, collectively, as the downrange area. Most of the developed land uses are located within the cantonment area (5,752

acres [2,328 ha]), BAAF (570 acres [231 ha]), ORTC (575 acres [233 ha]), and Camp Red Devil (1,166 acres [472 ha]). The cantonment area is located in the northern portion of the installation. BAAF lies approximately four miles (6.4 km) south of the cantonment area, in the northeast quadrant of the downrange area, near the eastern boundary of the installation. ORTC lies adjacent to the west side of BAAF. Camp Red Devil is located in the southwest corner of Fort Carson. Semi-developed land uses include 1,853 acres (750 ha) for the Olympic shooting range and Turkey Creek Recreation Area. Approximately 90 percent of the installation is generally unimproved, meaning it has either no permanent facilities or very limited facilities used by troops to complete training missions. These generally unimproved land use areas include activities such as live-fire artillery training, small arms practice, maneuver operations, and bivouac training. Unimproved land use areas also include impact area buffer zones.

Residential, recreational, commercial, and industrial facilities and operations occur in the developed land areas. Most are in the cantonment area such as administrative, maintenance, medical services, community support, recreation, supply and storage, classroom and simulation training, and deployment facilities; Soldier and Family housing; and utilities. Aviation-related facilities are at BAAF with a tactical airstrip also at Camp Red Devil. For the most part, industrial operations take place at the east side and north end of the cantonment area and at BAAF. As ORTC is developed per prior decisions unrelated to a CAB stationing, it will also contain some industrial operations. Principal industrial operations at Fort Carson have centered on the repair and maintenance of vehicles and aircraft.

The downrange area is used for large-caliber and small-arms live fire individual and collective training; aircraft, wheeled and tracked vehicle maneuver operations; and mission readiness exercises. Additionally, BAAF is used for command and control of flight operations, as well as maintenance and repair of aircraft. Remaining land is used for recreation and other purposes, including reservoirs and a protected species area.

Surrounding Off-Post Land Use

Most of the developed land and land planned for future development borders the northern one-third of Fort Carson. These lands are part of unincorporated areas in El Paso County to the west; the city of Colorado Springs to the north and west; Security-Widefield, a census-designated place; and the city of

Fountain to the east. The other developed land use area nearby is the town of Penrose, located south of Fort Carson's southwest corner.

Land bordering the southern and southeastern portion of Fort Carson is generally comprised of undeveloped agricultural and ranch land. Under the ACUB Program, a collaborative effort among the Army, The Nature Conservancy (TNC), El Paso County, and the FWS, a number of conservation real estate interests have been obtained in the area. These interests minimize land use that is incompatible with Fort Carson's mission and enhance preservation of valued environmental assets associated with the land involved.

Noise-sensitive land uses are discussed in more depth in Section 5.6.

Piñon Canyon Maneuver Site

On-Post Land Use

Developed land uses are located within the cantonment area, which is at the west central edge of PCMS. The cantonment area provides limited administrative and Soldier support facilities, including the Piñon Canyon Combat Assault Landing Strip, that are primarily used during training exercises. Military training is restricted in this developed area.

Undeveloped land uses are located on the rest of PCMS, otherwise referred to as the training area. Activities that occur within the training area are maneuver, dismounted, and small-arms live-fire training; recreation; and, in restricted areas, protection. Maneuver training areas comprise the majority of training land available at PCMS (Fort Carson, 2007a). To a large degree, the terrain – which varies widely from open, rolling prairies to semi-arid, basaltic hills – defines the suitability of training activities that occur within the training areas. Restricted areas protect lands that support wildlife, ecosystems, soils, facilities, and cultural resources. Varying degrees of training use are allowed in restricted areas. For example, in areas with known occurrences of buried cultural resources, digging is not permitted. Recreational uses include hunting and hunter-only camping, with some areas accessible to the public when training activities do not occur.

Surrounding Off-Post Land Use

PCMS is surrounded on three sides by land that is zoned for agricultural uses and dryland cattle grazing. The Comanche National Grassland, which is managed by the USFS, lies immediately north of PCMS and consists of undeveloped open land and recreation sites. Small communities are located near PCMS along US 350, including Model, Timpas, Thatcher, Houghton, and Delhi, all of which have populations of less than 50. Trinidad, which has a population of less than 10,000, is located approximately 40 miles southwest of PCMS, and La Junta, with a population of approximately 7,000, is located approximately 42 miles northeast.

5.4.2. Environmental Consequences

Alternatives 1 and 3

The impact from a decision to station a CAB at Fort Carson will be less than significant. Land use changes will impact internal use of military land, not use of private land. This decision will not change Fort Carson cantonment area land use, BAAF land use, or the land use at PCMS. The CAB facilities will be constructed at the ORTC site and BAAF (directly adjacent to the ORTC site) (Figure 3). No construction is planned or required at PCMS as part of this proposed alternative. Renovations to existing buildings at BAAF will also occur. The current BAAF land use and size will remain unchanged, with additional airfield-related facilities such as maintenance facilities, hangars, and office buildings for the CAB constructed within the current BAAF area. The CAB facilities footprint is planned to be approximately 574 acres (232 ha) and consists of renovated and new construction facilities. Of this total, 469 acres (190 ha) is east of Butts Road and 105 acres (42 ha) is west of Butts Road. There will be no change to nonmilitary land use on Fort Carson and PCMS, such as recreation and access by tribes to cultural and natural resources. Training area land use is expected to remain unchanged; however there will be an increased frequency and intensity of use involving CAB training, including integrated training with ground maneuver BCTs. Integrated training is expected to occur on appropriate ranges at PCMS. Land acquisition is not being considered as part of this action.

Effects to existing land uses will be an increase in the frequency of noise from helicopter training over current levels (see Section 5.6). An increase in the frequency of training could affect nonmilitary land uses of recreation and access by tribes to cultural and natural resources. Currently, maneuver training

areas are open to recreational uses when there is no scheduled maneuver training. However, the addition of CAB training at Fort Carson and PCMS may increase the number of operating hours for maneuver training. The opportunities for access to training areas for recreation will be reduced in those areas that support recreation. Although the effect will be to reduce the availability of training areas for recreation, the increase in maneuver training will not result in conflicts with existing land use zones. Consequently, effects to land use will be less than significant. This impact to nonmilitary users will be less than significant because the primary land use of meeting the military mission will not be affected.

Alternative 2 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in land use impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under Alternative 2 is other than Fort Carson.

5.4.3. Cumulative Effects

Regionally, a CAB stationing at Fort Carson will not result in a change of land use or present a conflict with existing land uses in areas adjacent to the installation. The actions and construction activities resulting from stationing, if implemented, will occur within Fort Carson. Some CAB facilities will result in some training areas becoming administrative and operational use areas, a change that has no impact on the community around Fort Carson. Any reductions in undeveloped land in and around Fort Carson caused by the stationing will present minor direct, indirect, and cumulative impacts to land use. As ranch and agricultural lands within the Colorado Springs area and other communities along the Colorado Front Range continue to be sold and developed, the downrange area of Fort Carson will constitute a growing percentage of remaining open space within the region. Army programs such as ACUB both prevent land use incompatibility issues with neighboring areas, as well as slow the reduction of undeveloped or open spaces in the region. CAB stationing actions that will affect PCMS will not change existing PCMS land use classifications, and will not pose a conflict with adjacent land uses. Increased maneuver training will not result in significant cumulative impacts to land use.

5.5. Air Quality and GHG

Below contains information regarding projected air quality impacts for Fort Carson and PCMS with regards to the proposed action.

5.5.1. Affected Environment

Fort Carson

The following paragraphs describe the NAAQS attainment status; pollutants and sources; and permits, management plans, and BMPs for Fort Carson.

NAAQS Attainment Status

Fort Carson is within the air quality control areas of El Paso, Fremont, and Pueblo counties, including the city of Colorado Springs. Both Fremont and Pueblo counties are in attainment for all criteria pollutants (EPA, 2010b). The Colorado Springs Urbanized Area in El Paso County is in attainment (meeting air quality standards) for all NAAQS criteria pollutants (PPACG, 2008a), but it was classified as a maintenance area for CO in 1999 due to a previous violation of the 8-hour CO standard in 1988. This CO maintenance area includes the majority of Fort Carson's cantonment area (north of Titus Boulevard and Specker Avenue). This designation is currently set to run through 2019 (Colorado Department of Public Health and Environment [CDPHE], 2009). In December 2009, the CDPHE approved *Revised Carbon Monoxide Attainment/Maintenance Plan, Colorado Springs Attainment/Maintenance Area*, the most current State Implementation Plan (SIP) for the maintenance area (CDPHE, 2009).

The Colorado Springs area, to include portions of Fort Carson, may become designated as a moderate nonattainment area for the ozone (O_3)standard once the U.S. EPA finalizes its review determination. Therefore, NO_x and VOC emissions will also be scrutinized to ensure future compliance with the general conformity rule.

Pollutants and Sources

Fort Carson stationary and fugitive emission sources, in general, include boilers, high temperature hot water generators, furnaces/space heaters, emergency generators, paint spray booths, fuel storage and use operations, facility-wide chemical use, and military smoke/obscurants.

Of Fort Carson's air pollutant emissions, the main generation occurs through the combustion of fossil fuels via equipment such as boilers (a stationary source) and motorized vehicles (a mobile source). Combustion products mainly include CO; NO_x; sulfur dioxide (SO_2); and particulate matter (PM), both as inhalable coarse particles (PM_{10}) and fine particles ($PM_{2.5}$), which is PM whose diameter is less than or equal to 10 and 2.5 micrometers (µm) respectively. Mobile source emissions (i.e., from cars, trucks, and other motor vehicles), a source of combustion products, are elevated during heavy travel times (e.g., open and close of business times). Traffic congestion typically raises the amount of CO exhaust emissions on the installation through an increase in the number of vehicles operating within a given area, as well as longer idling times due to vehicles sitting in traffic.

$PM_{2.5}$ is formed mostly in the atmosphere when gases from motor vehicles and industrial activities undergo chemical reactions. PM_{10} is directly emitted into the atmosphere from crushing or grinding operations, dust from construction sites, landfills, agriculture, wildfires and brush/waste burning, windblown dust from open lands and unpaved roads, etc. Tank and other military vehicle maneuvers on unpaved roads downrange contribute to PM emissions. PM emissions also occur from Fort Carson prescribed burn operations, a process that targets areas vulnerable to spontaneous fires due to range operations and areas with heavy natural fuel buildups in order to reduce the potential of wildfires.

VOCs and HAPs from Fort Carson operations largely result from painting and coating activities, fuel storage, fuel operations, and chemical usage. To a lesser extent, landfill-related emissions, military training activities, and fire training activities emit VOCs and various HAPs.

The source sectors generating the greatest amount of air pollutants in El Paso, Fremont, and Pueblo counties, cumulatively (the counties in which Fort Carson is located), are on-road vehicles, nonroad equipment, electricity generation, residential wood combustion, miscellaneous, road dust, industrial processes, solvent use, and fossil fuel combustion (EPA, 2010a).

Permits, Management Plans, and Best Management Practices

Fort Carson manages its air emissions per regulatory requirements, management plans, and BMPs. Key among these is its CAA Title V operating permit (No. 95OPEP110). This type of permit is required of facilities located in an attainment area with the potential to emit (i.e., the maximum emissions a facility could emit given physical, enforceable, and permitting constraints) more than 100 tons per year (tpy) of a criteria pollutant. A Title V permit limits the amount of pollutants from significant emission sources in various ways, depending on the source type (e.g., restricting operating hours, fuel type, throughput amount, and emission rates). As a major Title V source, Fort Carson must submit a permit application for renewal every five years. The current permit was received July 2007. Any net increase of criteria pollutants that will result in a "major modification" will subject Fort Carson to the PSD review requirements (40 CFR §52.21). As part of Fort Carson's Title V operating permit, the installation is permitted as a minor (area) source of HAPs as it does not emit more than eight tons of any single HAP (of 186 regulated HAPs) or 20 tons of total HAPs per year. Also of note, the permit limits use of smoke munitions and the generation of fog oil smoke for training exercises, activities that are typically unique to the military.

Prescribed fire is used as a management tool at Fort Carson to support the installation's readiness mission and ecosystem health. Fort Carson prepared and submitted a *Prescribed Fire Planning Document* to CDPHE in 2003, which expires every 10 years based on Colorado Air Quality Control Commission (AQCC) Regulation No. 9 (CDPHE, 2008b). This regulation requires significant users (those who own or manage more than 10,000 acres (4,047 ha) per year and plans to use prescribed fire that will generate more than 10 tons of PM_{10}) to submit a planning document. Fort Carson maintains a burn permit to carry out prescribed burning activities. It is estimated that air emissions from prescribed burning included N_2O, CO_2 and methane (CH_4) as primary emissions that contributed an estimated 349.77 tons of GHG equivalents of CO_2 in 2009.

Annually, Fort Carson staff prepares the CDPHE and El Paso County prescribed burn permit applications in the first quarter and submits the applications to the respective regulatory agency. The required notifications are filed with the State prior to and after each burn. The State then invoices Fort Carson each year for the previous year's actual acreage of burns and subsequent PM emissions.

Also, Fort Carson has an *Integrated Wildland Fire Management Plan* "to reduce wildfire potential, effectively protect and enhance valuable natural resources, integrate applicable State and local permit and reporting requirements, and implement ecosystem management goals and objectives on Army installations." This plan must be updated annually and revised at a minimum once every five years. Constant monitoring occurs during each prescribed burn to ensure that air quality and safety, among other concerns, are not compromised.

The *Fort Carson Fugitive Dust Control Plan* (Fort Carson, 2004a) was established, per Colorado AQCC Regulation No. 1 (CDPHE, 2007a), as part of a State enforceable BMP to minimize dust impacts to air quality. The plan was approved by the CDPHE in August 2005. The plan calls for implementing measures "to avoid off-property transport and to ensure the associated visible emissions do not exceed 20% opacity or create a nuisance problem" (Fort Carson, 2004a).

Fort Carson oversees numerous air quality related permits, in addition to the Title V operating permit, that are required prior to conducting any activity requiring such a permit. These permits, whether obtained by the Garrison or project proponents, include CDPHE/El Paso land development permits for excavation, land clearing, road grading, and construction activities (depending on the size and duration of the project); and permits for open burning, demolition, abrasive blasting, and asbestos. Additionally, Fort Carson oversees the filing of any reports or notifications required by air quality regulations, including, for example, the filing of notifications with the State prior to and after each prescribed burn.

Piñon Canyon Maneuver Site

NAAQS Attainment Status

PCMS is within the air quality control area of Las Animas County, which is in attainment for all NAAQS (EPA, 2010b). As a result, the General Conformity Rule does not apply and PCMS is not subject to the Nonattainment New Source Review (NNSR) permitting program. PCMS is a minor stationary source under the PSD program, but there is no requirement for a PSD analysis for PCMS, because it's located in an attainment area and it's not a major source of air pollutants under the provisions of the CAA.

Pollutants and Sources

Due to the maneuver training mission of Fort Carson, there are similarities between Fort Carson and PCMS in their air pollutants and sources. But, as evidenced in the Fort Carson cantonment area being more than three times larger than the cantonment area at PCMS, there are also dissimilarities. PCMS stationary and fugitive emission sources, in general, include boilers, furnaces/space heaters, fuel storage and use, military smoke/obscurants, prescribed burning, and fugitive dust from training activities (i.e., vehicle maneuvers and convoys on unpaved roads/areas). The major sources of PM emissions on PCMS arrive from burning and training exercises. These emissions contribute to inhalable PM emissions that have the potential to limit visibility and impact health. The combustion of fossil fuels in equipment, such as boilers and generators does not substantially contribute to the emissions generated at PCMS.

The source sectors generating the greatest amount of air pollutants in Las Animas County, the county in which PCMS is located, are on-road vehicles, nonroad equipment, fossil fuel combustion, and road dust (EPA, 2010a).

Vehicle exhaust is the major source for VOCs, NO_x, and SO_2. Combustion from wildfires is the major source for CO. And fugitive dust from unpaved roads is the major source for PM_{10}.

Permits, Management Plans, and Best Management Practices

Due to PCMS's location in an attainment area and its potential to emit less than 250 tpy, the facility only has two construction permits. Construction permit No. 96LA1082 (CDPHE, 2007b) limits the generation of DoD-approved obscurants for training exercises and No. 04LA0772 (CDPHE, 2006) is for a 20,000-gallon gasoline underground storage tank (UST) and its associated dispensing operation. All other stationary sources are exempt from filing Air Pollutant Emission Notices per Colorado AQCC Regulation No. 3 (CDPHE, 2008a) and PCMS remains an area source of HAPs.

With PCMS being managed by Fort Carson, prescribed burns are managed by and under the same planning and management documents, with appropriate permits obtained, as those regulations and plans applicable to Fort Carson (see above). The prescribed burn activity is responsible for the majority of PCMS's CO emissions.

Though it is not required for PCMS to have a State-enforceable plan, the above-mentioned *Fort Carson Fugitive Dust Control Plan* (Fort Carson, 2004a) is followed as a BMP to minimize dust impacts to air quality.

5.5.2. Environmental Consequences

Alternatives 1 and 3

Air quality impacts will occur from the construction and operation of stationary sources for the CAB facilities and the associated tactical equipment sets and weapons systems involved in training CAB units. Air emissions from construction activities at Fort Carson will include construction traffic and equipment and will be temporary in nature. Air quality impacts at Fort Carson and PCMS will be attributable to fugitive dust emissions connected with CAB training activities and SO_x from burning diesel fuels, like JP8, associated with CAB operations. Operations of the CAB (excluding the above-mentioned training) will result in air emissions from boilers, emergency generators, equipment maintenance, and traffic from employees and deliveries. Significant but mitigable impacts are projected at Fort Carson.. Impacts to air quality at PCMS are projected to be less than significant. Both locations will remain in compliance with existing air quality permits (Fort Carson, 2009). No violations of NAAQS are expected to result from CAB stationing.

Air quality impacts will occur as a result of an increased number of privately-owned vehicles in the region. Using traffic estimates from Section 5.12 and Appendix D, estimated emission levels potentially caused by the privately-owned vehicles of CAB Soldiers at Fort Carson were calculated (Table 12); however, this increase is not expected to cause a significant impact.

Table 12. Estimated Annual Vehicle Emissions Generated from Increased Population brought on by a CAB Stationing

Emission Per Mile		Total Emissions	
Emission	**Pounds Per Mile**	**Pounds**	**Tons**
CO	0.00765475	522,238	261.1
NOx	0.00077583	52,930	26.4
VOC	0.00079628	54,325	27.1
Sox	0.00001073	732	0.4
PM_{10}	0.00008979	6,126	3.1
$PM_{2.5}$	0.00005750	3,923	2.0
CO_2	1.10152540	7,5150,468	37,575.2
CH_4	0.00007169	4,891	2.4

With increased training, there is a risk that there may be an increase in fires, which emit PM_{10}. If additional fires occur, they are not expected to impact any PSD Class I areas. Effects to air quality will be temporary and are not expected to cause significant opacity effects outside Fort Carson or PCMS boundaries.

Additionally, combustion of JP8 fuel by helicopters will generate 163.57 tons of CO, 13.64 tons of NO_2, 4.71 tons of $PM_{10}/PM_{2.5}$, 4.75 tons of SO_2, and 133.15 tons of VOCs annually during training exercises.

As the CAB facilities are to be located outside of Fort Carson's main cantonment area, they are not in a CO maintenance area. This CAB stationing is expected to have indirect impacts on the CO maintenance area by employees and their transportation activities, but no significant degradation is anticipated. Fort Carson is currently classified as a major stationary source as are its boilers and hot water generators. Fort Carson demonstrated conformity in its Clean Air General Conformity Analysis and documented a Clean Air Act, Section 176(c) General Conformity Record of Nonapplicability, both of which are in Appendix C Fort Carson's *Grow the Army* FEIS (Fort Carson, 2009). This analysis included the CAB. Also documented in Appendix C of the Fort Carson FEIS, the installation demonstrated that proposed CAB activities will not be subject to the PSD permitting requirements under NSR regulations.

As mentioned above, EPA is expected to announce a new attainment standard that may result in the Colorado Springs area, to include portions of Fort Carson, becoming designated as a moderate

nonattainment area for O_3. If this occurs, NO_x and VOC emissions will be scrutinized to ensure future compliance with the general conformity rule.

Fort Carson is currently developing a fugitive dust management plan at the request of the CDPHE. The plan describes all of the fugitive dust sources and the technologically feasible and economically reasonable control measures and operating procedures that can be used to minimize dust on Fort Carson and PCMS. The goal of the plan and its implementation are to avoid creating visible emissions that are in excess of 20 percent opacity, or having any visible emissions go beyond the installation's boundaries creating a nuisance dust problem. Control of fugitive dust is regulated by the AQCC Regulation No. 1. Fort Carson is in the process of finalizing its fugitive dust management plan. Measures for fugitive dust mitigation proposed in the draft plan include restricting traffic speeds and flow over unpaved areas, use of water for short-term surface stabilization, and chemical stabilization for long term mitigations. Fort Carson staff, contractors, and Soldiers will implement these measures to avoid off-property transport of fugitive dust and to ensure the associated visible emissions do not exceed 20 percent opacity or create a nuisance problem. Additionally, this plan will serve as a planning tool that can be incorporated into project design and construction phases to help reduce fugitive dust emissions on Fort Carson and PCMS. The implementation of these mitigation measures and others outlined in the plan will ensure that impacts reduced to a less than significant level at each location.

For GHG and climate change, a rough estimate of the carbon emissions from CAB operations can be obtained by taking the hours that will be flown by the aircraft, determining the gallons of fuel to be used, and thereby determining the likely annual emissions (Table 13).

2289 **Table 13. Direct GHG Emissions from Aviation Asset Flight Operations**

Emissions Factor Data[1]

	Carbon Dioxide	Nitrous Oxide[2]	Methane[2]
EEF (LBS/GAL)	21.09	0.000683422	0.000595238
GWP[3]	1	310	21

GHG Emission Calculations									
Group ID	**Airframe Type**	**Total Annual Operational Time (hrs)**	**Max. Rated Fuel Use (lbs/hr)**	**Fuel Type**	**Fuel Density (lbs/gal)**	**Annual Fuel Use (gal)**	**CO_2 (tpy)**	**N_2O (tpy)**	**CH_4 (tpy)**
1	UH-60	5,388	1,200	JP-8	6.7	965,014.93	10,176.1	0.3	0.3
2	AH64-D	10,420	1,200	JP-8	6.7	1,866,268.66	19,679.8	0.6	0.6
3	OH-58D	7,041	320	JP-8	6.7	336,286.57	3,546.1	0.1	0.1
4	UH-60	1,638	1,200	JP-8	6.7	293,373.13	3,093.6	0.1	0.1
5	CH-47	2,370	2,200	JP-8	6.7	778,208.96	8,206.2	0.3	0.2
6	15 UH-60	3,142	1,200	JP-8	6.7	562,746.27	5,934.2	0.2	0.2
						Total Tons =	**50,636.0**	**1.6**	**1.4**
							Total Annual GHG Emissions as CO_{2e} = 51,174.7 tons		

CO_{2e} = Carbon Dioxide Equivalents[1] Source: Meister, 2010

NOTE:

1. Emissions factors calculated from data in: (1) Energy Information Administration, Documentation for Emissions of GHG in the U.S. 2005, DOE/EIA-0638 (2005), October 2007, Tables 6-1, 6-4, and 6-5.
2. Source: U.S. EPA. Inventory of U.S. GHG Emissions and Sinks: 1990-2005, EPA 430-R-07-002, Annex 3.2, (April 2007), web site: http://www.epa.gov/climatechange/emissions/usinventoryreport.html. Units converted from g/gal to lbs/gal.
3. GWP of gases (100-year time horizon) from the Intergovernmental Panel on Climate Change (IPCC) Second Assessment Report (SAR).

2290

2291 In addition to GHG impacts from helicopter training it is estimated that the tactical ground vehicles of the
2292 CAB will use approximately 148,400 gallons of JP-8 fuel annually. This will be estimated to contribute
2293 up to an additional 10,608 tons of CO_{2e} per year given a high use scenario for these vehicles and assuming
2294 they are not deployed and training at home station.

Section D.6 of Appendix D in this PEIS discusses the transportation impacts of CAB stationing. This appendix predicts that the addition of CAB Soldiers and their Families will be expected to increase vehicle miles driven in and around the installations by 70,750,880 miles at each location annually. Assuming a privately owned vehicle fleet fuel efficiency average of approximately 24 miles per gallon, an additional combustion of approximately 2,947,950 gallons of gasoline will be expected to result in an additional 26,207 tons of CO equivalents according to calculations and conversions used by the EPA (www.epa.gov/cleanenergy/energy-resources/calculator.html).

The cumulative impact from combustion of fossil fuels for tactical and privately owned vehicles, when combined, is anticipated to result in the release of an additional 87,989.7 tons of CO_2 GHG equivalents. This estimate includes additional use of helicopters, ground support vehicles and indirect impacts of commuter traffic. These GHG impacts will only be realized on a global scale if a new CAB is added to the Army's force structure, and not in the case that existing units are realigned to form the CAB.

It is recognized that additional energy for homes and offices will also increase the amount of GHGs produced as part of this action. Fort Carson is aggressively working towards installation sustainability goals IAW Department of the Army (DA) and DoD policy. For example, Fort Carson has an ambitious sustainability goal to obtain 100 percent of its energy needs from renewable energy sources by 2027. This goal exceeds Colorado's Climate Action Plan which articulates a goal of reducing GHG emissions 20 percent below 2005 levels by 2020 and 80 percent below 2005 levels by 2050. The installation already is using a few building that use ground source heat pumps to meet all of the building's heating and cooling needs. Currently, electricity and natural gas account for 99 percent of all scope 1 and 2 emissions for the installation and the goal is to drastically reduce these contributions. In efforts to meet EO objectives as well as State and Federal regulations for renewable energy use, Fort Carson is working toward deriving a much larger amount of their energy from renewable sources in the next decade.

For a CAB to be formed by consolidating existing units, there should be no net gain of carbon emissions. The aircraft are already flying somewhere and adding these carbon emissions to the global mix. For a CAB to be built, the emissions will be added to the global production of GHG. To put this in perspective, the 87,989.7 tons of $C0_2^e$ represent 0.000013 percent of the U.S. emissions total. In this case, this is not a significant increase, but it does add to the global GHG emissions and therefore could contribute to the climate change phenomenon.

If a new CAB is stationed at Fort Carson, it will contribute GHGs to the earth's atmosphere by adding vehicles, personnel, facilities, and their associated emissions. The global concentration of CO_2 in our atmosphere today far exceeds the natural range over the past 650,000 years. Global surface temperatures have increased about 33.33° Farenheit (0.74° Celsius) (plus or minus 32.32° Farenheit [0.18° Celsius]) since the late 19th century.

The increase in GHGs adds to the risk of changing climate, affects of which could include changes in species distribution, species viability, increased flooding, higher sea levels, population displacement, and increased risk of drought and desertification. For example, global climate change will have combined effects on the PCMS area because of continuing long-term drought. Changing patterns of precipitation could accompany climate change. PCMS could end up drier than its current state.

The direct and cumulative impacts of implementing this decision will not contribute significantly to the degradation of air quality in the region and will not require General Conformity mitigation, PSD permitting, or produce violations to air quality.

Alternative 2 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in air quality impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under Alternative 2 is other than Fort Carson.

Prescribed burn activities are anticipated to increase slightly over the next few years, dependent on uncontrollable climate factors, such as drought and meteorological conditions. The installation will continue to adhere to the regulatory requirements for Fort Carson and PCMS, ensuring conditions are acceptable for prescribed fires, and air quality is not compromised (CDPHE, 2008b).

5.5.3. Cumulative Effects

Fort Carson completed a conformity applicability and PSD analysis that included potential CAB stationing scenarios. Cumulative emissions from construction projects are unlikely to lead to a violation

of the NAAQS, because regional concentrations will have to double over the existing emissions to approach the regulatory threshold. The amount of emissions increase anticipated during construction, operations, and military training is not anticipated to have a significant adverse cumulative effect, and violations of NAAQS are not anticipated. Existing and foreseeable development within and surrounding PCMS is anticipated to be limited, causing a low chance of additional sensitive receptors or sources of air pollutants. Cumulatively, the projected increase in training maneuvers at PCMS resulting from the need to train more Soldiers is expected to create less than significant impacts. Fort Carson's air program (to include PCMS) has been implementing various initiatives to address air quality issues, like minimizing criteria and HAP emissions from stationary sources on the installation and reducing fugitive dust emissions.

The USAF has recently proposed the establishment of a Low Altitude Tactical Navigation (LATN) area in northern New Mexico and southern Colorado. The LATN will provide airspace to operate C-130 and CV-22 aircraft for training purposes. The LATN will allow the USAF to train aircrew members and conduct military flight activities which may include, but are not limited to, air combat maneuvers and low altitude tactics. The USAF will remain in compliance with FAA regulations and provisions governing airspace use in the LATN, including maintaining minimum flight altitudes of 1,000 feet AGL around developed areas. The LATN will provide training airspace for USAF Special Operation Forces at Cannon AFB. Cannon AFB is located in eastern New Mexico approximately five miles west of the city of Clovis. The training will consist of approximately three sorties per 24-hour period, or approximately 688 flights annually. Aircraft altitudes will remain between 200 and 3,000 feet AGL, with the majority of the sorties taking place at 500 feet AGL at airspeeds at or below 250 knots.

The USAF LATN proposal for use of low altitude airspace for military training will cumulatively increase air emissions in southern Colorado in conjunction with the Army's CAB stationing proposal if Fort Carson were selected for CAB stationing. Cumulatively, the USAFs proposal is not anticipated to contribute to fugitive dust issues that may be associated with helicopter use of PCMS, as flight altitudes of the USAF proposal will preclude such impacts. Emissions from the combustion of aircraft fuel will include NO_x, as well as other criteria pollutants, and select HAPs typically associated with the combustion process. The proposal will contribute GHGs to the atmosphere, as well, which will be quantified and assessed by the USAF in the future. The USAF continues to work to assess the air quality and other environmental impacts as they refine the LATN proposal and associated number of flight hours

that will occur as part of the proposal. Cumulatively, when considering the LATN proposal in conjunction with CAB stationing impacts at Fort Carson and PCMS, impacts are anticipated to be less than significant given the low number of sorties and wide geographic area covered by the USAF proposal.

5.6. Noise

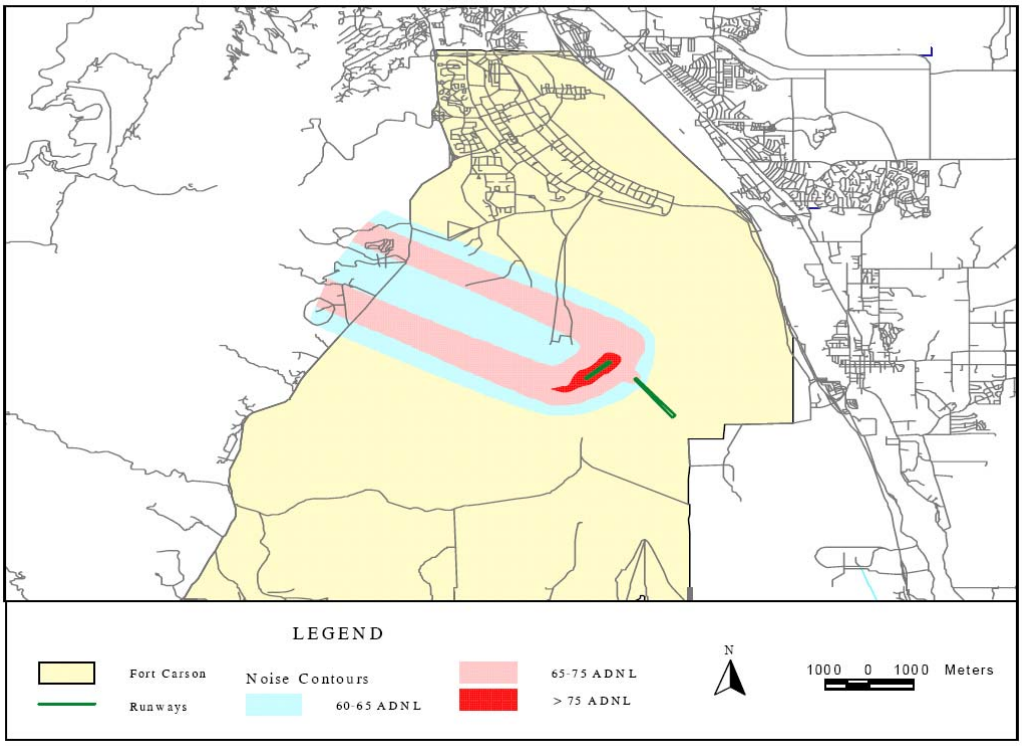
Potential noise impacts related to the stationing of a CAB at Fort Carson are discussed in the following section.

5.6.1. Affected Environment

Fort Carson

Noise-sensitive areas adjacent to Fort Carson include Cheyenne Mountain State Park to the west; Colorado Springs to the north and west; and Security, Widefield, and Fountain to the east. Other noise-sensitive areas include Turkey Canyon Ranch and Red Rock Valley Estates along the western boundary and El Rancho and Midway Ranch along the eastern boundary. Noise-sensitive locations near the southern boundary of Fort Carson include the communities of Penrose and Pueblo West, which are located to the southwest and southeast, respectively. Noise-sensitive areas within Fort Carson are primarily located within the cantonment area, which is where a majority of family housing, schools, office space, and child development centers are located.

Sources of noise associated with Fort Carson include aircraft and traffic as well as large- and small-caliber weapons. The primary sources of noise are the firing of weapons, specifically large-caliber weapons such as artillery and tank main guns, as well as the operation of military aircraft at BAAF. Secondary sources of noise include motor vehicle traffic, consisting of cars, trucks, and tracked vehicles. Fort Carson noise contour data is in Appendix D of Fort Carson's *Grow the Army* FEIS (Fort Carson, 2009), and a copy of the addendum for a CAB (also in Fort Carson's FEIS appendix) is provided in Appendix B of this PEIS. Noise contours extend beyond the installation boundary at BAAF (Figure 7).



Source: Fort Carson Noise Management Plan, 2006

Figure 7. BAAF Noise Contours

Fort Carson operates IAW the *Installation Environmental Noise Management Plan, Fort Carson, CO* (U.S Army Environmental Center [AEC], 2006) and Fort Carson Regulation 95-1, *Aviation : Local Flying Rules and Procedures* (Fort Carson, 2010c). The Environmental Noise Management Program (ENMP) (formerly known as the Installation Compatible Use Zone Program) outlines the policies and procedures for managing and limiting noise impacts to the surrounding communities. Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel, including minimum off-post altitudes, minimum slant range distances from sensitive areas. and restricted areas. Fort Carson also has established policies and procedures related to noise complaints.

Efforts to reduce potential noise impacts of military activities on surrounding communities include the ACUB activities mentioned in Section 5.4.1.

Helicopters routinely fly from Fort Carson to PCMS, though not all aircraft will fly the same pattern or route. However, all aircraft will comply with the local flying rules per Fort Carson 95-1 and AR 95-1, as well as all FAA guidelines under 14 CFR 91.155 for visual flight rules and AC 91-36D VFR operations for noise-sensitive areas. All aircraft will avoid over-flight of heavily inhabited areas and endangered species designated areas unless directed to do so in the performance of their mission. For Fort Carson and Colorado Springs, this means all rotary-wing aircraft will maintain a minimum of 1,000 feet (304.8 m) AGL, and 0.25 mile (0.4 km) standoff outside Fort Carson while flying through the mountain passes until clear of inhabited areas (weather permitting), unless they are operating in a designated low-level or Nap-of-the-Earth (NOE) training route (further discussed in this section with Route Hawk map in Appendix B). Special Use Permits and designated Landing Zones will be preapproved and coordinated through the USFS and U.S. Department of Agriculture (USDA) for current and future training events (Mullins, 2010).

Piñon Canyon Maneuver Site

Noise-sensitive locations adjacent to PCMS consist of a limited number of residences around the installation periphery. Although the population within the project area is increasing, the human presence within the project area remains low. No other noise-sensitive areas are located adjacent to the maneuver site.

The primary sources of noise at PCMS originate from short-term military training exercises at the small-caliber weapons ranges and from military aircraft operations at the combat assault landing strip by C-130 aircraft. Large-caliber weapons are not used at PCMS. The vast majority of live-fire weapons qualification takes place at Fort Carson.

Compatible-use-zone noise contours generated for the Combat Assault Landing Strip at PCMS and a supplemental annoyance buffer for the NOE flight corridor (e.g., where helicopter flight is very close to the ground surface) are on pages B-28 and B-29 in Appendix B. Although the NZ II and NZ III contours for the Combat Assault Landing Strip are contained within the installation boundary, there is the potential for aircraft to cause annoyance while entering or exiting the airspace. The two proposed Combat Landing Strips, identified on page B-30 of Appendix B, do not exist and are no longer being considered for construction by Fort Carson. Using a 0.25-mile-wide buffer on either side of the NOE flight corridor, the supplemental annoyance buffer extends past the installation boundary for a maximum of 0.25 mile. It should be noted that the 0.25-mile buffer does not surround the entire installation, because the NOE flight

corridor does not follow the full length of the installation boundary, but rather is located at varying distances from the boundary.

During all training operations at PCMS, units undergo resource protection and stewardship training, including procedures that alleviate their noise impacts, such as the adherence to aviation rules.

Fort Carson policies regarding noise abatement and noise complaints are also applicable to PCMS.

5.6.2. Environmental Consequences

Alternatives 1 and 3

The addition of CAB facilities at the ORTC and adjacent BAAF will be short term in duration and construction does not generate the peak noise levels (as do large-caliber weapons) that could be exceeded 15 percent of the time. Consequently, the increase in noise associated with construction of new facilities will be less than significant.

The addition of a CAB to the existing BAAF activity will be acoustically insignificant to the noise contours (U.S. Army Center for Health Promotion and Preventative Medicine [CHPPM], 2008a). The BAAF runway extension of 1,500 feet (472 m) that is programmed for FY 2016 will be to the southeast, where off-post land use is industrial and heavy commercial (Benford, 2010). The FY 2016 runway improvements are expected to result in widening the runway from 75 feet (23 m) to 100 feet (30.5 m). Per Section 2.3, the additional flight operations resulting from a CAB stationing at Fort Carson will increase Fort Carson and PCMS air time by an annual average of 24,800 flying hours. As detailed in Section 2.5.4, it is estimated that up to one third of total estimated CAB flight time (see Tables 3 and 4) may occur at PCMS. As of the end of FY10, Fort Carson (to include PCMS) had a total of 17,223 flying hours.

Preliminary plans exist, that may be altered, for a child development center and chapel to be built north of Wilderness Road near the proposed CAB facilities; both are noise sensitive uses that will be impacted by CAB operations out of BAAF. Currently, funding has not been appropriated for either facility.

The addition of a CAB will increase the frequency of aerial maneuver training at Fort Carson and between Fort Carson and PCMS. (See Appendix B for the flight path established for the purpose of conducting both day and night low-level tactical navigation operations between Fort Carson and PCMS.)

Even with this increase, peak noise levels will remain the same and the noise contours will not change from the current noise modeling predictions. There is a potential that individual overflights of aircraft using the airspace at Fort Carson and PCMS may cause some limited additional disturbance to those living nearby. However, Fort Carson Regulation 95-1's minimum flight altitudes and stand-off distances imposed for NOE operations will greatly reduce this potential.

Noise impacts from CAB activities potentially affecting large mammals and birds are expected to be less than significant. Deer and pronghorn respond to military training, i.e., CAB vehicles and helicopter maneuvers, by increasing or contracting home range size and moving out of their normal home range (Gerlach and Vaughan, 1990; and Stephenson et al., 1989). Pronghorn habituation to vehicles, aircraft noise, and visual stimuli was observed at PCMS during research conducted in the 1980's (Andersen and Rosenlund, 1991). Fort Carson, in partnership with University of Colorado, Colorado Springs, and the USAF Academy is conducting research investigating the relationship between training and deer on the installation. Results of this research will be used to establish additional mitigation management.

Response to continuous ambient noise can affect bird communities by reducing species richness (Francis 2009) and potentially affect individual species. However, whether noise can be isolated as a source of disturbance independent of other factors is not clearly demonstrated (Dooling et al 2007). Nesting birds, including raptors are subjected to various types of disturbance associated with military training, including helicopter overflights. Helicopter overflights are common on Fort Carson and during training rotations at PCMS. However, Fort Carson breeding bird communities in the major habitats (grasslands and pinyon-juniper) is equal to or greater than similar sites in the region (personal communication, Rick Clawges; personal observation, Richard Bunn). Both Fort Carson and PCMS have large expanses of unfragmented and vegetatively diverse communities supporting diverse bird communities. Fort Carson is currently monitoring grassland nesting bird communities to evaluate species persistence in training areas. The primary species of interest are FWS Species of Conservation Concern (FWS, 2008). Burrowing owl colony occupation and site disturbance data are collected annually for evaluating persistence within the military training environment. Stationing of the CAB will not qualitatively change associated impacts. However, frequency of overflights will increase. Fort Carson will continue to monitor persistence of bird nesting species. The effects of CAB stationing will be negligible on nesting birds.

Andersen et al., evaluated low-level helicopter flights over nesting red-tailed hawks at PCMS, concluding the species habituated to overflights (Andersen et al., 1989). Delaney et al. (1999) found 105 m to be the distance at which Mexican spotted owls flushed when approached by a Sikorsky HH-60G military helicopter, but this minimum distance is a product of aircraft type and prevailing conditions at their study site. In a Utah study, golden eagles were found not to require special management considerations in areas with frequent overflights by private and military helicopters (Grubb et al., 2010).

In 2008, Swainson's hawks nested and fledged three juveniles just outside the BAAF fence at site subjected to hundreds of low-level helicopter overflights (April Estep, personal communication). Prior to prairie dog control, bald and golden eagles were observed frequently throughout the winter for several years within the BAAF Aircraft Operations Area (AOA) and Small Arms Ranges, indicating habituation to live fire and helicopter overflights. Red-tailed, Swainson's, and Ferruginous hawks are frequently observed within the BAAF AOA, indicating habituation to live fire and helicopter overflights. Great horned owls roost in hangars and on ledges of hangars and other airfield buildings, indicating habituation to live fire and helicopter overflights. On Fort Carson, red-tailed hawks nested several years inside a Small Arms Range on Fort Carson and became habituated to the noise generated on the range (Richard Bunn, personal observation). Raptor response to helicopter overflights and noise are varied, resulting in habituation by some individuals. The effects of helicopter overflights on nesting raptors will be negligible.

Alternative 2 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in noise impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under Alternative 2 is other than Fort Carson.

5.6.3. Cumulative Effects

Noise contours will not change significantly as the result of a CAB stationing at Fort Carson. That being said, an adverse cumulative impact could result from the increased duration and frequency of training as

single noise events generated by CAB training will have the potential to generate a cumulative noise impact greater than the marginal increases in average weighted noise level contours. A CAB stationing will not result in a significant adverse change to noise outside Fort Carson. There will be an increase in frequency of aerial maneuver training between Fort Carson and PCMS, but the low number of operations, minimum flight altitudes, and stand-off distances imposed for NOE operations is expected to make the cumulative noise impact less than significant. A significant cumulative, but temporary, increase in noise generating activities within Fort Carson could occur from construction activities for CAB facilities due to the high level of additional construction activities already taking place at the fort.

Currently, the Army utilizes 16 landing zone sites in the Pike and San Isabel National Forests for mountain/high altitude training of Army aviation units preparing for deployment to rugged, high elevation areas such as Afghanistan. In October, 2007, the Army published the *Environmental Assessment for the Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training* (Fort Carson, 2007b). As discussed in this EA, sites in the National Forest are utilized an average of three to four times per week annually, though this varies from week to week based on weather, aircraft availability, use restrictions, and other factors. The average training event lasts for about 15 minutes. Aviation units from across the Army, not just at Fort Carson, conduct training on these National Forest System lands. Should a CAB be stationed at Fort Carson, there will be no change in the use of these areas from what was analyzed in the 2007 EA. In addition to aviation training at San Isabel and Pike National Forests, a transient aviation unit from Fort Hood has recently developed an agreement with the Bureau of Land Management (BLM) for the short-term use of BLM lands in the vicinity of Canyon City. This agreement allows the unit to use 20 landing zones for training of aircraft prior to their deployment. This type of short-term usage of BLM lands around Canyon City by transient units has occurred in the past and may continue intermittently in the future.

As mentioned in Section 5.5.3, the USAF has also recently proposed the establishment of a LATN area in northern New Mexico and southern Colorado. The LATN will provide airspace to operate C-130 and CV-22 aircraft for training purposes. The LATN will allow the USAF to train aircrew members and conduct military flight activities, which may include, but are not limited to, air combat maneuvers and low altitude tactics. The USAF will remain in compliance with FAA regulations and provisions governing airspace use in the LATN, including maintaining minimum flight altitudes of 1,000 feet AGL around developed areas. The LATN will provide training airspace for USAF Special Operation Forces at Cannon AFB.

Cannon AFB is located in eastern New Mexico approximately five miles west of the city of Clovis. The training will consist of approximately three sorties per 24-hour period, or approximately 688 flights annually. Aircraft altitudes will remain between 200 and 3,000 feet AGL, with the majority of the sorties taking place at 500 feet AGL at airspeeds at or below 250 knots.

Given the limited frequency of use and short duration of training, use of landing zones in Pike and San Isabel National Forests are expected to have less than significant cumulative noise impact on these areas. Similar training use of BLM sites around Canyon City also are projected to have less than significant cumulative noise impacts attributable to the limited use and short duration of training. All Army aviation operations adhere to Fort Carson Regulation 95-1 to reduce environmental and airspace impacts of aviation operations.

A CAB stationing at Fort Carson, with training activities also occurring at PCMS, will result in negligible adverse long-term cumulative effects for geology and soils.

5.7. Affected Environment

The following paragraphs describe the affected environments of Fort Carson and the PCMS as it relates to geology and the soil types present.

Fort Carson

Geology

The eastern portion of Fort Carson lies within the Colorado Piedmont section of the Great Plains Province, while the western portion is located in the foothills of the Rampart Range section of the Southern Rocky Mountains Province. The region is characterized by rolling plains, tablelands, and occasional valleys, canyons, and buttes. Dominant landforms on Fort Carson consist of high plains on the southeastern, west central, and western portions of Fort Carson (5,400 to 6,400 feet [1,646 to 1,951 m]), low plains on the eastern portion of Fort Carson dominated by Fountain Creek and its tributaries (5,400 to 6,200 feet [1,646 to 1,890 m]), and steep terrain including Timber Mountain (6,897 feet [2,102 m]), Wild Mountain (6,695 feet [2,041 m]), and Booth Mountain (6,454 feet [1,967 m]) (Fort Carson, 2007a). The lowest point on Fort Carson is Beaver Creek Valley. The cantonment area is located within the high plains region. Further details on the rocks, geological units, and geological history can be obtained from

Fort Carson's *Integrated Natural Resources Management Plan* (INRMP) (Fort Carson, 2007a) and the installation's *Grow the Army* FEIS (Fort Carson, 2009).

According to the Colorado Geology Survey (CGS), Colorado is comprised of areas with low to moderate potential for damaging earthquakes. There are about 90 potentially active faults that have been identified in Colorado (some of which may be located near Fort Carson); however, several thousand mapped faults in Colorado have not been sufficiently studied to know whether they are capable of generating earthquakes or not. It is not possible to accurately estimate the timing or location of future dangerous earthquakes in Colorado (CGS, 1999).

There are three main fault lines in the region, which includes both Fort Carson and PCMS: Oil Creek, Ute Pass, and Rampart Range faults. Fort Carson and PCMS are located within the low risk Seismic Zone 1; where earthquake potential is on a scale of zero to four, with a "four" having the greatest potential for earthquakes (Fort Carson, 2007a). Very small earthquakes do occur in the region with mostly unnoticeable effects.

Mineral resources of economic importance in the Pikes Peak Region include sand, gravel, limestone, coal, clay, and gold. Currently, sand and gravel aggregate is the single most important mineral commodity produced in the area (Fort Carson, 2007a).

Soils

Thirty-four soil categories and 65 soil associations have been recognized on Fort Carson. Predominant soil associations identified are the Penrose-Minnequa complex, Penrose-Rock complex, Razor-Midway complex, and Schamber-Razor complex (Fort Carson, 2007a). Additional information on Fort Carson soil types and characteristics can be found in the INRMP (Fort Carson, 2007a) and information specific to El Paso, Fremont, and Pueblo counties can be obtained from the USDA Natural Resources Conservation Service (NRCS) soil survey data (NRSC, 2010).

Undisturbed soils and native vegetation occur throughout the cantonment area, the most highly developed area on Fort Carson, primarily in the southern end of the cantonment. These undisturbed soils and native vegetation are broken up by local areas of disturbed soils resulting from construction of post housing and other support facilities.

The ORTC and BAAF areas consist almost exclusively of a soil association known as Satanta loam. Satanta loam is a nonacidic soil type, which exhibits low corrosivity to concrete and steel and is ideal for construction. It is moderately susceptible to sheet and rill erosion from surface water and is moderately resistant to wind erosion. The soil is well drained and there are no layers restricting water flow within 80 inches (2,235 cm) of the soil surface. The Satanta loam soil association consists of 17.5 percent clay; 43 percent sand, and 39.5 percent silt. The least-disturbed soils at BAAF occur in the southwestern portion of the airfield (Fort Carson, 2009).

The range and training areas on Fort Carson cover the majority of land on-post and have the largest percentages of undisturbed soils on the installation. For information on soil types and characteristics of soils in the downrange area, see Fort Carson's INRMP (Fort Carson, 2007a) and the installation's *Grow the Army* FEIS (Fort Carson, 2009).

Soil erosion, primarily from water runoff, is a significant problem on Fort Carson. Soils of greatest concern for erosion control are clays, silty clays, and clay loams (Fort Carson, 2007a). The eastern portion of Fort Carson, located within the Fountain Creek Watershed, contains soils that have been identified as having a moderate to high potential for erosion. Specific soil types on Fort Carson of greatest concern for erosion are Wiley-Kim, Penrose-Manvel, and Rizozo-Neville (Fort Carson, 2009). Also, soils occurring at Fort Carson exhibit high shrink-swell potential because montmorillonitic clays dominate the composition of most of the soil associations on the installation (Fort Carson, 2009). Soils with high shrink-swell potential can result in problems with building foundations and stability.

Soil erosion is greatest in areas where vegetation has been removed and soils have been disturbed due to construction or training activities. Ground maneuver training activities have resulted in localized soil erosion, particularly in soils on steep slopes adjacent to gulches. Training activities have impaired vegetation growth, resulting in gully erosion, which increases in severity as the gullies broaden. This erosion has resulted in some soil loss, ultimately depositing soils downslope or downstream. The western portion of the downrange area has a high degree of wind erosion associated with disturbed soils (areas that have been cleared for training operations, including berms).

Some chemical elements that naturally occur in Fort Carson soils include selenium (Se) and mercury (Hg). As described in the installation's INRMP, Fort Carson and the PCMS have some of the highest naturally occurring documented levels of Se in the U.S. (Fort Carson, 2007a). Naturally occurring Se can

acutely and chronically impact both aquatic and terrestrial wildlife when land disturbances, such as military mechanized maneuvers and excessive erosion occur. Se leached into soil is taken up by Se receiving plants that are uniquely adapted to these sites, such as the desert princess plume (*Stanleya pinnata*) and two-grooved milkvetch (*Astragalus bisulcatus*). The International Agency for Research on Cancer has determined that Se and Se compounds are not classifiable as to their carcinogenicity to humans (DHHS, 2003); and the EPA has classified elemental Se as not classifiable as to human carcinogenicity, and Se sulfide as a probable human carcinogen (EPA, 2000). The naturally occurring Hg and some other heavy metals follow the same geological and biological pathways as Se.

Piñon Canyon Maneuver Site

Geology

PCMS is located within the Raton Basin, developed along the eastern margin of the Rocky Mountain foreland because of compression associated with the Laramide Orogeny. Numerous volcanoes intruded the Raton Basin, forming lone mountain peaks. Volcanic vents, cinder cones, and lava fields typify the geology of the area. Geologic structures at PCMS are generally associated with the Apishapa Uplift, which is oriented southwest to northeast across the southern portion of PCMS. Sedimentary rocks associated with the uplift typically dip northeast ranging from one to 36° (Fort Carson, 2007a). The Black Hills (5,365 feet [1,635 m] above MSL), Sheep Canyon, and Muddy Creek Monoclines (strata inclined in the same direction) are major smaller structures within PCMS. Several smaller synclines and anticlines are also associated with these monoclines, including the Model Anticline in the western portion of PCMS. The Maneuver Site is distinguished by topographic features such as mesas, cuestas, dissected plateaus, deep canyons, and volcanic formations.

See above write-up under Fort Carson for seismic activity of the State and the region that includes Fort Carson and PCMS.

Historically, coal was mined in limited quantities on PCMS. Today, there are no active coal mines on the installation.

Soils

There are 29 soil associations recognized on the PCMS (Fort Carson, 2009). Predominant soil associations identified are the Manzanola silty clay loam, Minnequa-Wiley silt loams, Travessilla-Rock outcrop complex and Wiley-Villegreen loams (Fort Carson, 2007a). Additional information on PCMS soil types and characteristics can be found in the INRMP (Fort Carson, 2007a) and information specific to Las Animas County can be obtained from the NRCS soil survey data (NRSC, 2010).

A major landslide occurs every 20 to 40 years at PCMS, affecting soils with slopes that are greater than 30 percent. Landslides tend to occur at PCMS from approximately the middle of the northern boundary, southwest to Dillingham Ridge.

Contributing factors leading to soil erosion at PCMS are much different than those at Fort Carson. Soil erosion caused by water typically is a result of larger storms (more than 0.5 inches [1.27 cm]), which occur on an average of less than six days per year in any given year. However, the fine and silty nature of some of the predominant soil types and the dry conditions mean that PCMS is more susceptible to wind-based erosion rather than water erosion for most of the year, with the exception of a limited number of days of heavy rainstorms. Extensive overgrazing (prior to 1983), vegetation removal, and soil compaction from mechanized training have contributed to erosion and erosion potential.

Historically, PCMS has contributed highly variable levels of sediment/surface soil to the Purgatoire River Basin, ranging from 20,000 tons to several hundred thousand tons of sediment and soils (Stevens, et.al., 2008). This level of contribution to the river basin system is highly dependent on the variable rainfall and patterns the region receives (both total frequency of storms, their size, and amount of precipitation); amount of maneuver training and maneuver damage; and the Army's internal land management, environmental, and training management programs.

See above write-up under Fort Carson regarding Se in the soils.

5.7.1. Environmental Consequences

Alternatives 1 and 3

The consequences as they relate to geology and soils should the stationing of a new CAB occur at Fort Carson and/or Fort Carson and JBLM are described.

Geology

Implementation of this stationing decision is not predicted to cause significant impacts to the geological character of Fort Carson or PCMS. The limited mining operations on Fort Carson and PCMS are not expected to be impacted by a CAB stationing at the installation.

Soils

Existing soils, topography, and climate conditions are such that significant impacts are not anticipated. Temporary impacts to soils are anticipated as a result of construction and renovation activities for CAB facilities at Fort Carson. Proposed CAB facilities are expected to be on relatively flat land with low soil erosion potential. Construction and renovation site disturbance will temporarily destabilize soils and increase wind and water erosion.

The primary impacts to soils are predicted to result from aviation maneuvers of the CAB at both Fort Carson and PCMS. These impacts will include increased surface disturbance of soils and removal of vegetation, soil compacting and rutting, reduced infiltration of water, and indirect effects from increased potential for fire and lost vegetative cover. For example, soil loss is expected to be exacerbated by wind erosion because of high velocity winds generated by helicopter rotor wash. Aviation units will typically fly at altitudes of several hundred feet during support of armored maneuver rotations, but will conduct low-level flights during landing, and dismounted troop and equipment insertions. The use of training simulators and smoke obscurants by the CAB's ground vehicles, and catalytic converters on the ground vehicles, will have some potential to start fires. Maneuver training of the CAB will increase the susceptibility of Fort Carson's and PCMS's soils to wind erosion, but impacts are predicted to be mitigable to less than significant through training and environmental management procedures. Actions carried out under the installation's ITAM program, for example, work to reduce impacts and, where impacts to soils occur as a result of training, repair damages.

Alternative 2 and the No-Action Alternative

Geology

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in geological impacts due to training or construction activities

associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under Alternative 2 is other than Fort Carson.

Soils

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in soil impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 if the stationing location selected under Alternative 2 is other than Fort Carson.

5.7.2. Cumulative Effects

The implementation of past, present, and future cantonment area construction and range construction/upgrades on Fort Carson have and will continue to have temporary impacts on soil erosion and loss of surface soils through erosion of disturbed construction sites. Past and present training activities have caused an increased potential for erosion at PCMS. Increased training frequencies and a broader training activity/footprint will cause the potential for adverse soil erosion effects on Fort Carson/downrange area training lands. Future training activities and military use of PCMS will likely continue to increase the potential for erosion. Maneuver training of the CAB at Fort Carson and PCMS will result in significant, but mitigable, cumulative effects to soil erosion. There will be a potentially significant cumulative loss of soil resources, however, this will range across the Fort Carson region as development of military projects in concert with community transportation projects and other regional initiatives continue.

5.8. Water Resources

Water resources as they will be affected by the proposed action are discussed in the following section.

5.8.1. Affected Environment

Water resources on Fort Carson and PCMS are managed as a coordinated management effort with the U.S. Geological Survey (USGS), NRCS, FWS, U.S. Department of Justice, USACE, CDOW, CDPHE, Colorado Water Protective and Development Association, and Colorado State Division of Water Resources (Fort Carson, 2007a).

Fort Carson

Surface Water and Watersheds

Fort Carson lies within the Arkansas River basin. Within that basin, the northern and eastern portions of the installation are located within the Fountain Creek watershed and drains southeast into Fountain Creek, which is located off-post near the installation's northeast boundary. The southern and western portions of the installation drain off-post, southward, directly into the Arkansas River. The cantonment area is located in the Lime Kiln Valley watershed, a sub-watershed to the Fountain Creek watershed.

The average water flow on and near Fort Carson is about 2 to 5 cubic feet per second (cfs) (0.06 – 0.14 cubic meters per second [cms]) (Fort Carson, 2009). Some streams can be expected to have no flow at some time during the year. Flow characteristics of major drainages are summarized in Fort Carson's *Grow the Army* FEIS (Fort Carson, 2009). The majority of flows in drainages consist of runoff from precipitation and snowmelt. Groundwater seepage and return flows also contribute to baseflows in drainages.

Teller Reservoir, the largest downrange water body, has been listed as an impaired water body on Colorado's Section 303(d) list and has recently been placed on Colorado's Monitoring and Evaluation List to be re-evaluated (Fort Carson, 2009). The impairment is the result of a fish consumption advisory that has been imposed because of a biological accumulation of Hg in soil, plants, and fish tissues. Although the Teller Reservoir has a capacity of approximately 2,600 acre-feet (113,256,000 cubic feet [f^3][3,207,052 cubic meters (m^3)]) of non-potable water, it frequently contains no water and has been dry most of the time since 2002.

Despite being normally dry, Wildhorse Creek, on the southern border of the installation has been identified as warranting monitoring and evaluation for nitrate as prescribed in the Section 303(d) listing

for impaired waters of Colorado. In addition, this creek has been listed for Se and *E. coli* on the 303(d) list.

Although the quality of the surface water on Fort Carson is good, it is not a source of domestic water at Fort Carson (Fort Carson, 2007a). Water from most streams and surficial aquifers on the western portion of the installation is suitable for irrigation. Surface water that flows eastward across Fort Carson accumulates sediments (i.e., suspended solids) that are then concentrated through evaporation. Water from the eastern portion of Fort Carson, however, is still suitable for irrigation with proper management practices.

Groundwater

Groundwater at Fort Carson occurs in both alluvial and bedrock aquifers. Alluvial aquifers are formed from unconsolidated deposits of stream alluvium, colluviums, and residuum derived from Pierre Shale that is moderately permeable; however, their dependability is limited by their areal extent, thickness, and available recharge. The alluvial aquifers are capable of providing well yields from 10 gallons to more than 100 gallons per minute (gpm) (Leonard, 1984).

The principal bedrock aquifer at Fort Carson is the Dakota-Purgatoire aquifer, which, at Fort Carson, is comprised of massive bedded sandstones in the Dakota Sandstone and Lytle Sandstone Member of the Purgatoire Formation. This bedrock aquifer can yield 10 gpm, but local fracturing can increase the permeability and yield more than 200 gpm. Recharge to bedrock aquifers is from infiltration of precipitation and stream flow in areas where the aquifer is exposed at the land surface. Discharge occurs mostly from well pumping and leakage through overlying formations (Leonard 1984).

In general, the quality of groundwater on Fort Carson is good with the exception of localized areas of elevated nitrates, high dissolved solids, and sulfates exceeding secondary drinking water standards. Nitrate-Nitrogen has been detected in the groundwater at multiple locations greater than the regulatory standard of 10 mg/L. Currently, Fort Carson and CDPHE are collaborating to evaluate the possibility that elevated concentrations of nitrates may be naturally occurring as a result of groundwater coming in direct contact with the shale bedrock (Fort Carson, 2009).

Floodplains

A 100-year floodplain is associated with drainages in the cantonment area. Floodplain maps are available from the Fort Carson Directorate of Public Works.

Water Rights

Fort Carson retains approximately 50 surface and subsurface water rights, on Fort Carson. Water rights for Fort Carson are judicially administered under Water Division Number 2, within Water Districts 10, 12, and 14. These water rights directly support the training mission by assuring adequate water supplies for the support and rehabilitation of natural resources. Of the surface water rights, some are surface diversion ditches and others are reservoir storage rights. The subsurface water rights include wells that are currently installed and areas with wells that are classified as future wells, which will not be installed until required. Surface water gauging stations on or near Fort Carson streams and reservoirs are used for water rights administration by both the installation and the Colorado Division of Water Resources.

Piñon Canyon Maneuver Site

Surface Water and Watersheds

PCMS, like Fort Carson, is located in the Arkansas River basin. The majority of the drainages at PCMS flow from the northwest to the southeast and drain into the Purgatoire River, which flows to the northeast along the southern and eastern boundaries of PCMS. The Big Arroyo drainage is located in the northwest corner of PCMS and flows northeast. No creeks or major drainages are present in the cantonment area.

The Purgatoire River and its tributaries within PCMS have periodic high flows, including the potential for flash floods, while smaller creeks and drainages might be dry much of the year.

There is a water resources management program for PCMS. Erosion control activities that are or could be implemented to control sediment loading in surface water are identified and described in detail in the CWA Section 404 regional permit issued by the USACE, Albuquerque District (Permit No. SPA-2008-00058-SCO) (USACE, 2008) and the Programmatic EA for the Erosion and Sediment Control Program (Fort Carson, 1998). Most of the activities listed in the previous CWA Section 404 Regional Permit (Permit No. 2002-00707) have been implemented (Fort Carson, 2009). These activities, together with

plant material applications, are the principal techniques used by the Army to control sediment loading at PCMS. The USGS (Stevens et al 2008) has determined that sediment production from PCMS tributaries into the Purgatoire River does not exceed normal background sediment contributions.

Adjacent to PCMS, Segment 7 of the Purgatoire River has been listed on the 303(d) impaired water bodies list because the existing quality exceeds the underlying standard for dissolved Se. In addition, and IAW Regulation #94, Colorado's Monitoring and Evaluation List, Segment 7 is included for sediment. It is included because there is reason to suspect water quality problems in the stream segment, but uncertainty exists in one or more factors to make a determination.

It should be noted that high Se levels have been observed in numerous locations throughout the State. The Se sources are typically tied to fossil fuels, such as coal or oil, or are the result of the natural weathering or irrigation of cretaceous marine shales and shale-derived soils. The latter is especially true of areas where the soils contain high alkalinity and receive low amounts of precipitation. The USGS has determined that PCMS drainage area contains slightly to moderately saline soils.

As discussed in Section 4.6.1.1.2 of the Fort Carson *Grow the Army* EIS, Fort Carson and PCMS have been issued a Section 404 regional permit (Permit No. 2002-00707) by USACE, Albuquerque District, which authorizes implementation of erosion control activities at PCMS.

There is a water resources management program for PCMS. Erosion control activities that are or could be implemented to control sediment loading in surface water are identified and described in detail in the Section 404 regional permit and the Programmatic Environmental Assessment for the Erosion and Sediment Control Program (1998). Most of the activities listed in the CWA, Section 404, Regional Permit #2002-00707 have been implemented including erosion control impoundments, bank-sloping, check dams, rock armor, hardened crossings, culverts, erosion control terraces, water diversions, and water turnouts. These activities are all designed to curtail erosion process and/or sediment transport. The only method that was not utilized that was listed on the permit is bridge construction because that method was determined to be unnecessary at this time.

Groundwater

The principal sources of groundwater in the area is the Dakota-Purgatoire aquifer, which, at PCMS, is comprised of the Dakota Sandstone and Cheyenne Sandstone Member of the Purgatoire Formation (Von Guerard *et al.* 1987). These sandstones occur throughout a large part of PCMS. The aquifer ranges from 185 to 320 feet in thickness and resides at approximate depths of 225 to 425 feet below the surface in upland areas (Fort Carson, 1998). Recharge of this aquifer primarily occurs in areas approximately 60 miles west of PCMS (Fort Carson, 1998). Recharge on PCMS occurs through precipitation and subsurface inflow from neighboring aquifers. However, PCMS resides in a semi-arid climate and therefore only a small percentage of this precipitation may reach the aquifer. Groundwater movement in the northeastern corner of PCMS is toward the northeast, while groundwater movement throughout the remainder of the installation is toward the east and southeast (Von Guerard *et al.* 1987).

Wells in the Dakota-Purgatoire aquifer have reported yields that range from less than 10 gallons to 500 gpm. Well yield in unfractured parts of the Dakota-Purgatoire, which are known to occur at the installation, are likely to be less than 300 gpm (Von Guerard, *et al.,* 1987).

Previous groundwater quality testing determined that the groundwater beneath PCMS contains concentrations of dissolved solids, sulfate, iron, manganese, nitrate, chloride, fluoride, Se, and radionuclide constituents that exceed domestic or public-use water quality standards. The water quality in the aquifer is adequate for wildlife and livestock and for fire suppression (Fort Carson, 1998; Fort Carson, 2007a). There are approximately 95 wells on PCMS, though few are currently functional. Causes of wells not working include lack of power (e.g., portable generator), broken solar power generator, broken water line pipes to associated stock tanks, and broken or poorly functioning well pump. Some of the major wells are connected to distribution lines that fill stock tanks for wildlife management and fire suppression (Fort Carson, 2007a).

Floodplains

Floodplains have not been mapped on PCMS. However, flash floods occur intermittently during excessive rainfall, typically from May through October (Fort Carson, 2007a). Flood-prone areas occur along the drainages in the training areas, but the cantonment area is not subject to flooding because the

associated watershed drains to the Simpson Lake, which has adequate storage for accumulating floodwaters.

Water Rights

As with Fort Carson, PCMS water rights directly support the training mission. Water rights for the PCMS are judicially administered under Water Division Number 2, Water Districts 17 and 19. Water rights are administered from arroyos and canyons that originate generally to the north and west of the PCMS, with some arroyos and canyons originating from the installation proper.

5.8.2. Environmental Consequences

Alternatives 1 and 3

Construction of new CAB facilities at Fort Carson could result in stormwater runoff from land disturbance sites and increased sedimentation in waterways beyond the project site boundary in and around the ORTC and BAAF. Construction of the new CAB facilities, operation of CAB facilities and execution of CAB training activities will increase the use of fuels, solvents, and other hazardous and toxic substances, which could result in an indirect effect to groundwater if accidentally released into the environment. At Fort Carson and PCMS, increased training could result in increased surface water sedimentation. The impacts of CAB training and operations on sediment loading and potential additions of naturally occurring Se to surface or groundwaters are considered to be negligible or less than significant. In 1993, the USGS completed a study entitled *Assessment of Effects of Military Maneuvers on the Stream Flow, Water Quality, and Sediment Yields at PCMS, Las Animas County, Colorado* (USGS, 1993). This report analyzed in-stream water quality data during the pre- and post-military maneuver periods at PCMS from 1982 to 1985 and 1985 to 1987, respectively. Effects of military maneuvers on stream flow quantity and quality were determined by statistical analysis. The USGS reported no statistically significant change in stream flow quantity or quality between the pre- and post-maneuver periods for the Purgatoire River and its tributaries within PCMS. According to the findings of the USGS, the largest correlation to sedimentation of the waters of the Purgatoire River is the number of large storm events received in the in the vicinity of PCMS, not the frequency of use of PCMS by the military. In addition, Fort Carson implements the erosion and sediment control program and the ITAM program to reduce erosion and sedimentation impacts to water bodies on and surrounding Fort Carson and PCMS.

Programs include bank sloping of eroded gullies, hardening of crossings, terraces, and construction of erosion control dams. Training lands are monitored on a routine basis as part of the ITAM program. Impacts to 303(d) impaired surface waters at Fort Carson and PCMS as a result of a CAB stationing are expected to be less than significant. New CAB facilities are not expected to be in the 100-year floodplain. No significant impacts are expected to occur to surface water, stormwater, floodplains, hydrogeology, or groundwater as a result of this CAB stationing decision. No changes or expansions in water rights are expected as a result of this action.

Alternative 2 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in water resource impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under Alternative 2 is other than Fort Carson.

5.8.3. Cumulative Effects

A CAB stationing, to include CAB training activities, may increase groundwater use, which will be accommodated through existing subsurface water rights. Implementation of a CAB stationing action will not release any water or pollutants that could infiltrate aquifers at Fort Carson. Increased soil erosion and increased stormwater runoff (from increased impervious surfaces) resulting from construction of CAB facilities and training activities at Fort Carson have the potential to affect surface water quality but, with BMPs and other management actions being implemented, the cumulative effect is expected to be less than significant to Fort Carson surface water resources. Increased soil erosion resulting from CAB training activities at PCMS is expected to result in adverse, but mitigable, cumulative effects.

5.9. Biological Resources

Biological resources and how they will be affected by the proposed action are discussed in the following section.

5.9.1. Affected Environment

Fort Carson, including its maneuver site, continues to be a leader in sustainability and ecosystem management by proactively seeking partners to facilitate natural resources conservation while maintaining the installation's training mission. The Fort Carson ACUB program, the Greenprint project, the Central Shortgrass Prairie Ecoregional Assessment, and Front Range Eco-Regional Management Team initiative are successful examples. Through collaboration with multiple agencies, organizations and individuals, Fort Carson has initiated grassland prairie ecosystem assessments, noxious weed management and control, forest health assessments in collaboration with the USAF Academy, regional fire management plan development, and establishment of conservation easements that will buffer Installation boundaries from incompatible development, while concurrently conserving critical shortgrass prairie habitat.

Fort Carson

Vegetation and Wildlife, including Threatened and Endangered Species

Fort Carson is located at the western edge of the Central Shortgrass Prairie Ecoregion. The Central Shortgrass Prairie is characterized by rolling-to-undulating plains and tablelands of low relief that are traversed by streams and contain canyons, buttes, badlands, and isolated mountains. Shortgrass prairie, mixed-grass prairie, and sand-sage prairie community types dominate the Central Shortgrass Prairie Ecoregion (Central Shortgrass Prairie Ecoregional Planning Team, 1998).

The installation is within upper regions of the Prairie Grasslands Plant Zone, an area characterized by generally treeless terrain dominated by plants belonging to the grass family (Fort Carson, 2007a). Fort Carson consists of approximately 45 percent grasslands, 14 percent shrublands, 37 percent forest and woodlands, and four percent other (Fort Carson, 2009). Aquatic habitats on Fort Carson are very limited and consist of wetlands, riparian corridors, and open water. The grasslands are primarily shortgrass prairie and foothills grassland. The Sacaton grasslands, found along the eastern boundary of Fort Carson, provide habitat for numerous sensitive wildlife species. The Frankenia shrublands, primarily found in central and southern Fort Carson and often on high relief sites, support several Species of Special Concern. Some forested canyons are known to be used by the Mexican spotted owl (*Strix occidentalis lucida*), a rare winter resident to Fort Carson (Fort Carson, 2007a). Listed plant species in El Paso County are the

endangered Osterhout milk-vetch (*Astragalus osterhoutii*) and threatened Ute ladies'-tresses (*Spiranthes diluvialis*); Pueblo and Fremont counties have no listed plant species (FWS, 2010). Of the 22 noxious weeds known to occur on Fort Carson, only one, the myrtle spurge (*Euphorbia myrsinites*) is considered a List A weed species in Colorado. While most of the species for which biological control is approved and available are found on Fort Carson, some species occur on PCMS. Tamarisk has recently been approved for biological control efforts (other than experimental populations) in Colorado by USDA Animal and Plant Health Inspection Service (APHIS), USFWS, and the Colorado Department of Agriculture. Fort Carson has initiated release of the biological control agent *Diorhabda elongat*a against tamarisk at both Fort Carson and PCMS. Because of the availability of an effective biological control agent, the bindweed mite (*Aceria malherbae*), a List C species, Field bindweed, has been targeted for biological control. Releases of the mite have been made at both Fort Carson and PCMS to help suppress populations of this noxious weed. The 2008 Fort Carson and PCMS *Plants Management Plan* has detailed information on weed distribution and control strategies. The cantonment area and the BAAF, which are highly disturbed and developed, consist primarily of non-native ornamentals. Due to aircraft operational needs and to reduce the occurrence of BASH, large trees within flight pattern zones of BAAF are removed. The ORTC area, with vegetation considered to be in fair condition, consists primarily of a mix of disturbed land, western wheatgrass/blue gama, small soapweek/blue gama, and big bluestem/little bluestem. Further details on vegetation, to include noxious weeds, is available from Fort Caron's *Grow the Army* FEIS (Fort Carson, 2009).

Fort Carson is home to numerous wildlife species in diverse habitats, including some species protected under the ESA. The Mexican spotted owl (*Strix occidentalis lucida*) is the only listed species under the ESA known to occur at Fort Carson. Species under consideration for listing and not protected by the ESA are the mountain plover (*Charadrius montanus*) (proposed threatened), Arkansas darter (*Etheostoma cragini*) (candidate), and northern leopard frog (*Lithobathes pipiens*) (petitioned). State listed species on Fort Carson include Arkansas darter (threatened), southern redbelly dace (endangered), and burrowing owl (threatened). Fort Carson's INRMP, which is also approved by the FWS and CDOW, discusses management of rare and listed species, to include the, Mexican spotted owl. The last evidence of greenback cutthroat trout (*Oncorhynchus clarki stomias*) spawning in Lytle Spring was in 2001. Recreational fishing for the trout was discontinued in 2002 because the trout are no longer present in Lytle Pond. In 2006, the pond was drained to repair the dam, and the species was not found in the pond or

2988 the spring. The species was not restocked because the Lytle Pond population was no longer instrumental
2989 to the recovery of the species. Fry and eggs had not been transferred 10 years prior to the signing of the
2990 2007-2010 INRMP. Currently, the Arkansas darter (Federal candidate for listing and State threatened
2991 species) is the only sensitive species known to be present in Lytle Pond. The threatened Preble's meadow
2992 jumping mouse (*Zapus hudonius preblei*) does not occur on Fort Carson and critical habitat is not
2993 designated on the installation. The Gunnison's prairie dog (*Cynomys gunnisoni*) is a candidate for ESA
2994 listing and is not known to occur on Fort Carson. In El Paso County, this species generally occurs at
2995 higher elevations (>6,000 feet) in the vicinity of Monument Pass and Green Mountain Falls. Fort Carson
2996 biologists are aware of the candidate status and proximity of this species to the installation. Biologists
2997 identify prairie dogs by species when conducting annual surveys. The mountain plover (proposed
2998 threatened) occurs on Fort Carson and PCMS during the breeding and migratory seasons. It is rare on
2999 both locations, nesting at only a few sites. Fort Carson's *Grow the Army* FEIS presents the special status
3000 wildlife species that occur (i.e., have been observed) on Fort Carson and the installation's INRMP also
3001 discusses management of these species of concern and other wildlife (Fort Carson, 2007a; Fort Carson,
3002 2009).

3003 Wildland fire management is one of a number of tools used to manage habitat and reduce the risk of
3004 wildfires causing damage to life and property. Wildfire on Fort Carson (and PCMS) poses a significant
3005 threat to sensitive ecosystems, cultural resource sites, training areas and has the potential for escape onto
3006 neighboring public/private lands. The training areas on the installation require the use of munitions and
3007 weapons systems that increase the chance of wildfire ignition and may damage important resources. Fort
3008 Cason's management plan for wildland fire, which is in the process of being updated as of September
3009 2010, lays out specific guidance, procedures, and protocols in the prevention and suppression of wildfires
3010 on all Fort Carson training lands, including PCMS, with wildland fuels (Fort Carson, 2010b). Per that
3011 plan, there are two objectives of prescribed fires on Fort Carson and PCMS (Fort Carson, 2010b). The
3012 first is to utilize fire efficiently, economically, and safely for fuels treatment activities with the least
3013 impact on natural resources and environmental quality. Secondly, the plan allows for the use of fire as a
3014 management tool to improve ecological conditions, including improving grasslands and wildlife habitat,
3015 by removing older, decadent vegetation and promoting the growth of new, more palatable forage for
3016 wildlife.

Wetlands

Fort Carson has approximately 1,028 acres (416 ha) of wetlands. Wetlands on the installation generally occur along intermittent and perennial stream channels and tributaries or as isolated wetlands, such as where a dam has been built for erosion control or for water storage. Most isolated wetlands are only one to two acres (0.4 – 0.8 ha) in size. The largest downrange wetland is on the upper reaches of Teller Reservoir, encompassing about 100 acres (40 ha). About six springs occur on Fort Carson, and they have very small associated wetlands. There are also a number of wetland areas scattered throughout the cantonment area, typically in natural or stormwater runoff drainages and in an area south of BAAF. In addition to cattails, common wetland species are cottonwood and willow. Some wetlands have been invaded by tamarisk, a noxious weed of primary wetland management concern (Fort Carson, 2007a).

No wetlands occur within the footprint of construction proposed for CAB facilities. Some minimal individual and cumulative impacts to wetlands occur as a result of Fort Carson soil erosion control activities. These impacts are covered under the CWA Section 404 regional permit issued by the USACE, Albuquerque District (Permit No. SPA-2008-00058-SCO) (USACE, 2008). Typical erosion control measures include erosion control and stock watering impoundments, banksloping of erosion courses, check dams, rock armor, hardened crossings, culverts and bridges, erosion control terraces and water diversions, water turnouts, and other erosion control activities approved by USACE. Due to the avoidance and minimization efforts the Army currently implements as part of its INRMP and ITAM procedures, direct effects to wetlands from training activities do not normally occur.

Piñon Canyon Maneuver Site

Vegetation and Wildlife, including Threatened and Endangered Species

Like Fort Carson, PCMS is located within the Central Shortgrass Prairie Ecoregion and is within upper regions of the Prairie Grasslands Plant Zone. PCMS consists of approximately 41 percent grasslands, 33 percent shrublands, 17 percent forest and woodlands, and nine percent other (Fort Carson, 2007a). Aquatic habitats (springs, playa lakes, and man-made structures) on PCMS are very limited and consist of wetlands, riparian corridors, and open water. Most of the grasslands are classified as shortgrass prairie. Shrublands typically have a grass understory and are sometimes intermixed with coniferous and/or deciduous trees. Deciduous shrubland is found along major drainage ways. In the forest/woodlands,

Pinyon pine and one-seed juniper are the dominant species of higher elevation woodlands on rocky and steeper slopes, and cottonwood, willows, and cherries dominate woodlands of drainage ways. Approximately 25 percent of the cantonment area is vegetated with vegetation consisting primarily of mowed native grasses and landscaping plants. No plant species appear on the FWS list of Federally listed endangered, threatened, and candidate species for Las Animas or Otero counties (FWS, 2010). Of the several noxious weeds known to occur on PCMS, only one, African rue (*Peganum harmala*), of the family Zygophyllaceae (Caltrop), is an A List species in Colorado. The African rue, which is extremely drought tolerant, is toxic to livestock and can replace valuable forage subsequently reducing the productivity of pasture and rangeland. PCMS has conducted eradication activities per its African rue eradication plan, a plan coordinated with the Colorado Department of Agriculture (Fort Carson, 2007a). Control efforts for containing the spread of African rue at the installation focus on detecting infestations as early as possible and eliminating them by removing plants before seed set and disposing of them properly. Besides African rue, Russian knapweed and Canada thistle are the weed species of most concern at PCMS. No effective biological controls exist for Russian knapweed, and control efforts concentrate on mechanical and chemical methods. As discussed above under Fort Carson, biological control effors are one of the means used to control invasive species, such as tamarisk, on PCMS.

PCMS is also home to numerous wildlife species in diverse habitats, including some species protected under the ESA. The lower reaches of the Purgatoire River watershed, in which PCMS occurs, is one of few places on the Great Plains that still supports a relatively intact large mammal community (e.g., elk, mountain lion, pronghorn, bighorn sheep, black bear, mule, and white-tailed deer). Approximately 400 to 1,200 acres [162 to 486 ha) on PCMS are populated by the Black-tailed prairie dog (*Cynomys ludovicianus*), an important food source for the bald eagle (*Haliaeetus leucocephalus*), golden eagle (*Aquila chrysaetos*), burrowing owl (*Athene cunicularia*), and ferruginous hawk (*Buteo Regalis*). No species currently listed as endangered or threatened under the ESA are known to occur on PCMS. For animal species found in Las Animas and Otero counties, one bird species is listed as endangered (interior population of the least tern [*Sterna antillarum*]), two as threatened (Mexican spotted owl [*Strix occidentalis lucida*] and piping plover [*Charadrius melodus*]), and one as proposed threatened (mountain plover [*Charadrius montanus*]); and, one mammal species is listed as threatened (Canada lynx [*Lynx Canadensis*]), and one mammal species is proposed as endangered (New Mexico jumping mouse [*Zapus hudsonius luteu])*. The New Mexico jumping mouse is known to occur at a single site in Colorado, in Las

Animas County approximately 20 miles southeast of PCMS. This species inhabits riparian corridors bordering perennial streams and emergent wetlands, which are rare on PCMS. As mentioned under Fort Carson, the mountain plover (*Charadrius montanus*), proposed to be listed as a threatened species, occurs on Fort Carson and PCMS during the breeding and migratory seasons. It is rare on both installations, nesting at only a few sites. Also as mentioned above under Fort Carson, further information on PCMS wildlife, to include the Triploid checkered whiptail (*Cnemidophorus neotesselatus*), designated as a Species at Risk by the Army, and Colorado State species of concern, such as the peregrine falcon, is available from the installation's INRMP and *Grow the Army* FEIS (Fort Carson, 2007a; Fort Carson, 2009).

Also, as mentioned above under Fort Carson, wildland fire management occurs at PCMS. When severe wildfires occur, as during the 2008 fire season at PCMS, the installation takes action, as appropriate, to evaluate damages, implement rehabilitation efforts and monitor impacts of both the wildfire and subsequent rehabilitation.

Wetlands

PCMS has approximately 361 acres (146 ha) of wetlands, a significant reduction to the 1992 estimate of 4,776 acres (1,933 ha) resulting from the administrative removal of the Purgatory River section from Department of Army management to USFS (Fort Carson, 2007a). Most wetlands on the PCMS are associated with side canyons that are tributary to the Purgatoire River and water developments.

5.9.2. Environmental Consequences

Alternatives 1 and 3

Construction of CAB facilities at the ORTC area will have some impact to existing native vegetation. Impacts, which include loss of habitat from construction activities, are not expected to be significant. There are no Federally protected species or Species of Special Concern that use the ORTC site on a regular basis. No construction activities will occur within wetlands. Impacts from surface water flow and sedimentation could occur to Rock Creek.

Additional aircraft stationed at BAAF increases the chance of an aircraft-wildlife strike. The primary wildlife threats, e.g., eagles, hawk, and coyotes, are associated with the presence of Black-tailed prairie

dogs, within and adjacent to the AOA. Prairie dogs entering the AOA and adjacent areas will be lethally controlled or trapped and relocated. These actions are consistent with the Biological Assessment and Management Plan for the black-tailed prairie dog on Fort Carson and the PCMS (Bunn 2004). The Black-tailed prairie dog plan was prepared in 2004 and specifically addresses prairie dog encroachment at BAAF: "Prairie dogs will be controlled if their presence threatens the safety of Army personnel, e.g., helicopter landing and refueling sites or aircraft runways. Sites where prairie dogs have threatened the safe operation of helicopter and fixed-wing aircraft include BAAF and dirt landing strips located downrange on Fort Carson." Prior to lethal control of prairie dogs, BAAF is surveyed for the presence of mountain plover and burrowing owl IAW State and Federal protocols. Deer discovered with the AOA will be hazed from the AOA in cooperation with the Colorado Division of Wildlife.

CAB training activities, including high altitude helicopter training (Fort Carson, 2007b), will have some impact to existing wildlife and native vegetation. Following discussions expand on impacts to specific species as raised during the public comment period.

CAB activities potentially affecting mountain plovers on Fort Carson are (1) overflights and (2) air-ground integration training.

1. *Overflights*. At Fort Carson, mountain plovers nest adjacent to Range 123, a jet/rotary aircraft aerial bombing and gunnery live fire range that will be used by CAB helicopters. Plovers have been documented at this site during the breeding season since 1991. In a 1995 study, short-term behavioral changes by the mountain plover in response to F-16 overflights were found to be negligible (Bunn et. al. 1996, unpublished report). The normal behavior routines of plovers were not altered or interrupted by jet overflights under the conditions prevailing in the study. We are unaware of research investigating the relationship of nesting plovers to helicopter overflights and noise. The plover nesting area is approximately 9,514.44 feet (2,900 m) south of Range 123. Helicopter overflights will have no or negligible effect on plovers nesting south of Range 123 on Fort Carson. Plover nesting areas at PCMS may experience overflights during training operations, but the effects will likely be negligible.

2. *Air-Ground Integration Training*. Establishing Forward Arming, Refuel, and Combat Service Support points could affect the species by causing nest/chick abandonment and death of eggs or chicks.

Management objectives for the Mexican spotted owl (*Strix occidentalis lucida*) specified in the 2007-2011 INRMP include avoiding intensive readiness training (e.g., off-road vehicular traffic, bivouac) from November to February and protecting owl habitat from catastrophic fire. CAB activities potentially affecting the species are (1) increased frequency of large-caliber live fire, (2) 2.75-inch rockets and Hellfire missiles, (3) aerial gunnery, (4) air-ground integration training, (5) overflights, and (6) catastrophic fire.

1. *Large-caliber Live Fire Noise*. Stationing of the CAB at Fort Carson will increase the number of training exercises of live-fire training, which includes large- and small-caliber weapons. Effects of small-caliber training will have no impacts to the owl due to the distance separating ranges from the known distribution of the owl. A large-caliber weapons firing range (Range 143) is approximately 13,123.36 feet (4,000 m) from the winter range of the owl on Fort Carson. Fort Carson and FWS observations of an owl wintering on Booth Mountain during large-caliber weapons firing in 1994 detected no short-term behavioral changes in response to the activity (R. Bunn, unpublished data). The normal diurnal roosting behavior routine of the owl were apparently not altered or interrupted. Firing large-caliber weapons in Ranges 143 and 145 will have no effect on owls wintering on Booth Mountain.

2. *Hellfire Missiles/2.75-inch Rockets*. Hellfire missiles are fired from Training Areas 14 and 35 into the Large Impact Area, 40,026.25 feet (12, 200 m) from Booth Mountain. The ranges are 56,430.45 and 23,293.96 feet (17,200 and 7,100 m), respectively, from the spotted owl wintering area. The 2.75-inch rockets (only training rounds) are fired in Ranges 109, 111, 143, 145,155, and 123. Firing 2.75-inch rockets and Hellfire missiles will have no effect on owls wintering on Booth Mountain.

3. *Aerial Gunnery*. Two aerial gunnery ranges (131D and 123) are located 42,831.36 and 18,251.31 feet (13,055 and 5,563 m) from the owl wintering area on Booth Mountain, respectively. Jet and rotary aircraft currently use Range 123. Observations by FWS and Fort Carson personnel in 1996 determined low level overflights by jets exiting the Range 123 detected no short-term behavioral response on the owl wintering on Booth Mountain. Aerial gunnery in range 131D will have no effect on wintering spotted owls. Aerial gunnery in range 123 will have no effect on owls wintering on Booth Mountain.

4. *Air-Ground Integration Training*. Establishing Forward Arming, Refuel, and Combat Service Support points within the wintering area could induce flushing behavior, increasing the probability of predation, and interfere with sheltering and foraging behavior. Live fire close troop support training will occur on Range 155, 26,574.80 feet (8,100 m) from Booth Mountain and will have no effect on wintering owls.

5. *Helicopter Overflights*. Aerial maneuvers in the wintering area could flush owls from diurnal roosts, increasing vulnerability to predation. Delaney et al found 344.49 feet (105 m) to be the distance at which owls flushed when approached by a Sikorsky HH-60G military helicopter, but this minimum distance is a product of aircraft type and prevailing conditions at their study site (Delaney, et.al., 1999). Overflight disturbance is mitigable.

6. *Catastrophic Wildfire*. Catastrophic wildfire could destroy owl winter habitat on Booth Mountain. Fire associated with increased training is not likely to encroach into wintering habitat due to the prescribed fire program on Fort Carson.

Effects of CAB training on the New Mexico jumping mouse are predicted to be negligible. This species inhabits riparian corridors bordering perennial streams and emergent wetlands, which are rare on PCMS. Air-ground integration training is the only activity likely to affect suitable habitat for this species, but impacts will be negligible. Perennial waters on PCMS occur primarily in steep walled canyons, which are generally unsuitable for temporary stations and off-road vehicle travel.

Training impacts from CAB activities potentially affecting large mammals and birds are expected to be less than significant. Deer and pronghorn respond to military training, i.e., off-road wheeled and tracked vehicles, helicopters, jet aircraft and bivouacs, by increasing or contracting home range size and moving out of their normal home range (Gerlach and Vaughan, 1990; and Stephenson et al., 1989). Pronghorn habituation to vehicles, aircraft noise, and visual stimuli was observed at PCMS during research conducted in the 1980's (Andersen and Rosenlund, 1991). Fort Carson, in partnership with University of Colorado, Colorado Springs, and the USAF Academy is conducting research investigating the relationship between training and deer on the installation. Results of this research will be used to establish additional mitigation management.

Chronic wasting disease (CWD), a fatal neurological disease found in deer, elk, and moose, is present on Fort Carson but not PCMS. The disease attacks the brains of infected deer, elk, and moose, causing the animals to become emaciated, display abnormal behavior and impaired mobility, and eventually die. The prevalence and spread of CWD is density dependent. If a decision is made to station a CAB at Fort Carson, that action is anticipated to have no affect on the occurrence or spread of CWD. CWD is not known to occur at PCMS.

In continuation of general wildlife and vegetation impacts, additional training will increase wildlife and vegetative disturbance on Fort Carson and PCMS and could result in increased presence of noxious weeds. Increased training, to include air-ground integration operations, could also result in increased incidence of wildfire. With increased flight operations, BASH incidents could increase.

No wetlands exist within the proposed CAB facilities construction site at Fort Carson and few direct impacts from training are anticipated. CAB training could result in indirect impacts to wetlands from potential upland erosion and sedimentation processes. At PCMS, few direct impacts to wetlands occur from ongoing training activities and no construction will occur at PCMS as part of the proposed CAB stationing. Training an additional CAB could result in indirect impacts to wetlands from erosion and sedimentation processes in drainages upstream of man-made erosion control dams. Sediments could silt in these small wetlands, changing their nature or converting them to upland habitats if erosion-control dams are not properly maintained. Wetland and riparian area buffers are generally protected from vehicular and mechanized training on Fort Carson and PCMS due to the surrounding topography, which makes these areas unsuitable for this type of training. Because of avoidance and minimization efforts Fort Carson and PCMS currently implements as part of its INRMP and ITAM procedures, direct effects to wetlands will be limited. Erosion control measures are protective of surface water, including wetlands and riparian areas. From 1996 to 1997, a Legacy grant was used to study wetland community constituents and their distribution as well as various physical parameters at 10 sites on Fort Carson and five sites on PCMS. No decline was noted in representative wetlands, and no statistically significant increases in measured constituents were identified. Because training does not seem degrade wetlands quality in any significant way, impacts to wetlands as a result of CAB stationing are predicted to be negligible.

The effects of the impacts on wildlife and plants are not expected to be significant and existing fire management practices will minimize the risk of large, destructive fires, also keeping wildfire impacts to less than significant.

Mitigation for Federally protected and sensitive species will be determined in consultation with the FWS if Fort Carson is selected for CAB stationing and will be developed as part of site-specific NEPA following this PEIS and ROD. Proposed mitigation for big game impacts are (1) repair and maintenance of existing water sources and development of new sites on Fort Carson and PCMS providing a water source for deer, pronghorn, and elk temporarily displaced; (2) prescribed fire to rejuvenate habitat; and (3) seeding.

Alternative 2 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in biological resource impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under Alternative 2 is other than Fort Carson.

5.9.3. Cumulative Effects

Biological resources have been impacted by increasing development both within Fort Carson and along the Rocky Mountain Front Range. There has been a loss of vegetation and habitat within the Front Range from private and Federal land development. A CAB stationing at Fort Carson will result in a variety of potential impacts, which may include mortality, disturbance, or displacement, and loss of habitat or nesting or foraging territory. Cumulative effects from a CAB stationing in combination with other present and planned future actions will continue to occur at Fort Carson and in the region. At PCMS, CAB training could potentially add to cumulative wetlands impacts, which will result from potential sediment inputs to wetland areas. These wetland impacts will be mitigated, in part, by implementation of a fugitive dust control management plan and will be less than significant. A CAB stationing will result in adverse cumulative, but mitigable, effects to biological resources at Fort Carson and PCMS.

5.10. Cultural Resources

The affect on cultural resources is defined in the following section.

5.10.1. Affected Environment

Cultural resources management on Fort Carson and PCMS encompasses conservation of resources of significance to the history or prehistory of the U.S. or of traditional, religious, or cultural importance to Native Americans. These resources consist of the material manifestations of the knowledge, beliefs, art, morals, laws, and customs particular to a people or society. Fort Carson and its maneuver site manage cultural resources associated with all major prehistoric and historic cultural periods recognized on the southern Great Plains and Rocky Mountains.

Twelve Federally recognized Indian tribes have expressed a cultural affiliation with land at Fort Carson and PCMS. A Comprehensive Agreement between Fort Carson and 10 tribes for tribal access, privacy, and inadvertent discovery of human remains and other cultural items was finalized and signed in 2004 and a second Comprehensive Agreement with an eleventh tribe was signed in 2005. Traditional cultural properties and sacred sites have been identified on Fort Carson and PCMS.

Section 106 consultation IAW the NHPA was conducted for the construction activities on Fort Carson associated with *Grow the Army* initiatives, which included a potential CAB stationing (Fort Carson, 2009).

Two significant documents that guide cultural resources management on Fort Carson and PCMS are a Memorandum of Agreement between Fort Carson, the COSHPO, and the Advisory Council on Historic Preservation (ACHP) (Fort Carson, 1980) and the installation's ICRMP (Fort Carson, 2002).

In 2007, Fort Carson's Garrison Commander made the decision to comply with Section 106 of the NHPA through implementation of the Army Alternate Procedures (AAP) in lieu of 36 CFR §800. As consultation was initiated with the COSHPO, Native American tribes with a cultural affiliation to Fort Carson administered lands, and other consulting/interested parties, concern was expressed regarding the AAP process and its applicability for Fort Carson and PCMS. Subsequently, Fort Carson made the decision to develop a PA for compliance with Section 106. Consultations began toward the development of a PA in February and March of 2010. Fort Carson has drafted the initial draft PA which is currently

being reviewed by Fort Carson and other Army staff. The Army plans on distributing the PA to the SHPO, Tribes, and ACHP for planned meetings in March 2011, continuing the consultation process. It is anticipated that the PA, inclusive of the updated ICRMP, will be finalized and signed in the summer of 2011. The PA and updated ICRMP will be completed prior to any site-specific NEPA for implementing CAB stationing at Fort Carson if a decision is made to station a CAB at Fort Carson. Site specific NEPA documentation will provide additional details on the PA and cultural resource management procedures at that time.

Fort Carson

Prehistoric, historic, and multi-component sites eligible for inclusion in the NRHP are known to occur throughout Fort Carson. Approximately 89 percent of Fort Carson has been inventoried for cultural resources with historic properties identified in the following categories: districts; buildings; structures; and historic, prehistoric, and multi-component archaeological sites. The installation's built environment (historic structures) includes World War II temporary wood structures, Capehart and Wherry Era (1949-1962) family housing, and Cold War Era facilities. A total of 2,199 archeological sites have been recorded on Fort Carson. Of these, 151 are currently determined to be eligible for inclusion in the National Register. Prehistoric sites number 1,586; historic sites number 550, of which 63 sites are multi-component (i.e., having both prehistoric and historic components); and approximately 50 sites contain either historic or prehistoric rock art. The entire cantonment area of Fort Carson has been surveyed for cultural resources and is devoid of known prehistoric sites.

Prehistoric resources predominate on Fort Carson and include defensive fortifications, open architectural sites, open and sheltered camp sites, lithic scatter assemblages and food procurement or processing sites, quarry locations, and game drives. Historic sites date to the late 1860s and include 19th/20th century ranching, homestead, and town complexes with numerous building types and functions, and small mining and stone/clay quarry operation sites. Both prehistoric and historic rock art is found on Fort Carson, again, with prehistoric elements predominating. Most rock art is located within the designated Turkey Creek Rock Art District, but some isolated panels exist elsewhere (Fort Carson, 2009).

Fort Carson has one identified sacred site, located within the Turkey Creek Rock Art District. Although only one site was identified as having direct, religious significance for culturally affiliated tribes, the

sacred site associated with this district may be expanded in the future depending on consultation with other tribes that expressed an interest in the area, but have thus far been unable to complete a site visit.

Paleontological resources (fossil remains) are located on Fort Carson but are not classified as cultural resources. While fossils are important scientific resources, they do not have the same Federal mandates for identification and protection as cultural resources at Fort Carson (or at other Army installations). The Army, however, avoids impacting paleontological resources as part of its management of Fort Carson. Fifty-three paleontological localities are known to exist on Fort Carson (Fort Carson, 2009).

Further details on Fort Carson's cultural resources, management of those resources, and consultation actions related to those resources and Native American tribes is available in Fort Carson's *Grow the Army* FEIS (Fort Carson, 2009) and *Integrated Cultural Resources Management Plan* (Fort Carson, 2002).

Piñon Canyon Maneuver Site

Cultural resources management on the Maneuver Site encompasses conservation of resources of significance to the history or prehistory of the U.S. and of traditional, religious, and cultural importance to Native Americans. Approximately 90 percent of PCMS has been inventoried for cultural resources, with 5,500 archeological sites having been recorded. Of these, 510 are currently determined to be eligible for inclusion in the National Register. There are 4,319 prehistoric sites; 616 historic sites; 565 multi-component sites; and 240 sites that contain either historic or prehistoric rock art. All of the cantonment area of PCMS has been 100 percent surveyed for cultural resources and contains no sites eligible for inclusion in the National Register (Fort Carson, 2009).

On PCMS, five sacred site locations have been identified, along with three traditional cultural properties and two Areas of Concern.

Fourteen paleontological localities have been identified on PCMS.

In late summer 2010, subsequent to completion of the Fort Carson *Grow the Army* FEIS (Fort Carson, 2009), the 2nd BCT conducted the first relatively large-scale maneuver exercise at the PCMS in a number of years. Unfortunately, Soldiers caused some damage to archaeological resources on PCMS in the summer of 2010. The extent of damage caused by M1 tanks is being evaluated by Fort Carson. The

proposed CAB and its vehicles will not be operating in the same area as these resources and will not be performing maneuver training that could cause similar damage.

Further details on PCMS's cultural resources, management of those resources, and consultation actions related to those resources and Native American tribes is available in Fort Carson's *Grow the Army* FEIS (Fort Carson, 2009) and *Integrated Cultural Resources Management Plan* (Fort Carson, 2002).

5.10.2. Environmental Consequences

Alternatives 1 and 3

Inadvertent impacts to cultural resources on Fort Carson and PCMS may occur as a result of stationing a CAB at Fort Carson. Impacts to cultural resources could occur as a result of construction or training. Impacts are expected to be less than significant. At the ORTC site and BAAF, Phase I archaeological inventories have been completed, and no historic properties eligible for inclusion in the National Register, nor properties with the potential for National Register eligibility, were located within these areas (Fort Carson, 2009). Section 106 consultation has been completed by Fort Carson on the areas proposed for construction of CAB facilities. In the Fort Carson and PCMS training areas, archaeological work is ongoing and the unsurveyed acreage will continue to decrease. Increased training could result in loss of or damage to cultural resources directly through maneuver training activities or indirectly through loss of cultural resources in a fire caused by military training. As discussed above, Fort Carson is in the process of developing a PA. Fort Carson will continue to follow processes and procedures outlined in their ICRMP, including consultation actions, to ensure protection of cultural resources. Given a lack of facilities construction at PCMS and the fact that the majority of aviation training occurs in the air or on approved roads and trails, impacts to cultural resources at PCMS are expected to be less than significant.

Alternative 2 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in cultural resource impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start

of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under Alternative 2 is other than Fort Carson.

5.10.3. Cumulative Effects

The implementation of a CAB stationing to Fort Carson may result in direct or indirect loss of cultural resources in the State of Colorado through training maneuvers or increased frequency of wildfires that military training could generate. It is anticipated that the stationing action will not result in significant adverse cumulative impacts with the continued cultural resource management program and policies in place to preserve Fort Carson's and PCMS's historic and archaeological resources.

5.11. Socioeconomics

The affect on the socioeconomics of the region is defined in the following section.

5.11.1. Affected Environment

Fort Carson

The defined ROI for Fort Carson includes three counties: El Paso, Fremont, and Pueblo. Summaries of the analysis conducted in the Fort Carson *Grow the Army* FEIS (Fort Carson, 2009) are provided herein in order to establish a backdrop for impact evaluation. See Fort Carson's FEIS for additional details.

The estimated population of the ROI totaled 777,806 in 2006, an increase of more than 11.6 percent since 2000. The ROI includes two large communities: the city of Colorado Springs, located north of Fort Carson, with a 2006 population of just over 370,000; and the city of Pueblo, located southeast of Fort Carson, with a 2006 population of approximately 104,000 residents.

Almost 6,500 civilian workers are currently employed at Fort Carson (appropriated, nonappropriated, contractor, and others), an increase from the 5,100 workers noted in Fort Carson's 2009 *Grow the Army* FEIS. Assuming each is a head of household, this will represent a population of over 12,100 persons (applying an average household size of 1.87). The approximately 24,900 active duty military personnel, down from the 25,100 personnel reported in Fort Carson's *Grow the Army* FEIS, are accompanied by

approximately 37,400 Family members, a total connected population of about 74,500 persons, or nearly 10 percent of the entire 2006 population of the ROI.

Fort Carson has on-post housing units for both unaccompanied and accompanied personnel. There are currently over 3,000 family housing units of various types contained in numerous clusters or "villages." According to the 2008 Housing Market Analysis, there is a validated on-post housing requirement for 4,012 family housing units by 2013. The analysis anticipated that another 952 units will be needed by 2013. The construction of 952 family housing units may not be realized however, due to limited space and land constraints within the cantonment area on Fort Carson. As of July 2007, an estimated 329,800 housing units were located off-post in the ROI. The proportion of owner-occupied housing units was 68 percent. Overall, the quality of housing in the ROI is considered good.

The off-post population in the Fort Carson market area (within a 20-mile commute of the installation's main work areas) currently totals 535,167 persons, having increased at an average annual rate of 1.8 percent since 2000. Population is forecast to grow 2.3 percent per year, for a projected market area population of 598,428 persons in 2013. The area's housing stock is currently estimated to total 225,277 units. Owner-occupants claim 64.9 percent of occupied homes, while renters occupy the remaining 35.9 percent.

Vacancy rates and rentals in all areas within the Colorado Springs metropolitan area are highly cyclical. The rental vacancy rate was estimated to be 8.8 percent, up from 4.8 percent in 2000. The influx of military personnel into the Fort Carson area will lead to declining vacancy rates over the next five years. Vacancy rates for 2013 are projected to be 6.5 percent in the rental market.

More than 400,000 people were employed in the ROI, 79 percent working in El Paso County. In that county, the largest share of employment is concentrated in the Federal government, with 11 percent attributable to military and civilian jobs. The retail trade sector employed 11 percent and State and local government accounted for a 9 percent share. In Fremont and Pueblo counties, employment in State and local government contributes substantially to both economies. The largest employers in El Paso County are the major military installations, the proportion of military employment in the county being much higher than the ROI and the State. The unemployment rate in all counties of the ROI gradually increased from an average low of three percent in 2000 to an average of six percent in 2005. In 2000, Colorado's unemployment rate was approximately three percent. It had risen to approximately five percent in 2005.

In 2010, the unemployment rate in El Paso County had climbed to 8.8 percent, while Freemont County and the area surrounding PCMS, unemployment was 9.4 percent. These increases can be largely attributable to the economic recession in the U.S..

Total nonfarm wage and salary earnings in the ROI totaled nearly $17.6 billion in 2006, approximately 84 percent of that amount in El Paso County. The contribution to total earnings by the military sector is highly concentrated in El Paso County, reaching approximately 18 percent, compared to 2 percent for the State and 1 percent for the other ROI counties, collectively.

In 2007, operating expenditures at Fort Carson that had the greatest effect on the local economy (after salaries) were local purchases and contracts (approximately $204 million), utilities (approximately $17 million), and rent and lease payments (approximately $3 million). The large majority (greater than 99 percent) of DoD prime contracts awarded to firms in the ROI have been made to companies located in El Paso County, accounting for over 54 percent of all DoD awards statewide. The value of prime contract awards in El Paso County totaled more than $2.2 billion in 2006.

The primary sources of revenue for the three counties of the ROI are sales taxes, property taxes, transfers from the State government, and transfers from the Federal government. In El Paso and Fremont counties, property taxes contribute a relatively small share of total revenues (under 17 percent) in comparison to Pueblo County (30 percent). Sales tax revenues are especially important for El Paso County and are attributable to its role as the major commercial hub of the ROI. Revenues derived from State and Federal government transfers are important to all counties in the ROI, particularly in Fremont County, where the revenue comprises approximately 45 percent.

The major operating expenditure categories for the counties are public safety, general government social services, and health. The provision of social services consumes approximately 30 percent of operating expenditures in Pueblo and Fremont counties but is much lower in El Paso County at approximately 21 percent. Expenditures on public safety comprises approximately 25 percent of the operating expenditures for each county.

Numerous facilities and services located on Fort Carson contribute to the Quality of Life of on-post residents and military personnel and their Families residing off-post. These services include child care, health care, public schools, and other facilities.

The percentage of minority populations within the ROI is approximately 20 percent in El Paso County, 18 percent in Pueblo County, and 11 percent in Fremont County. The population of the census tracts including and immediately adjacent to Fort Carson has a higher percentage of minority population than El Paso County and the ROI. Fort Carson's residential population, as with other military populations, contributes to that higher minority percentage in the immediate vicinity of the post. Of the total U.S. Military, 38 percent of active duty members identify themselves as minorities.

Both Pueblo and Fremont counties have poverty levels that exceed or are equivalent to 20 percent; Pueblo County at approximately 31 percent and Fremont County at approximately 20 percent. El Paso County's poverty level is approximately 15 percent. While each county does not meet the definition of a poverty area (census tracts or blocks), there are small geographical areas within each county where more than 20 percent of the population lives below the poverty level.

Children are present on Fort Carson in a number of settings, including family housing neighborhoods, four elementary schools, one middle school, day care centers, and recreational areas. During the 2007-2008 school year, there were 2,322 children enrolled in the schools on Fort Carson. Of the 2,322 children enrolled, 1,817 were in elementary and 505 were in middle school (U.S. Census Bureau, 2008, as referenced in Fort Carson, 2009).

Piñon Canyon Maneuver Site

PCMS does not support a resident population. All troops that train at PCMS are permanently stationed either at or near Fort Carson or travel from other locations, therefore no Soldier or Family housing is required. Demographic information is based on data from the U.S. Census Bureau and the Colorado State Demography Office. The ROI population remained approximately the same over the 26-year period between 1980 and 2006 (from 43,904 to 43,937). Growth was highest in the 1990s, with an average annual growth rate of 0.82 percent. This rate slowed to 0.27 percent between 2000 and 2006. Between 1980 and 1990, all three counties decreased in population.

The counties in the ROI are rural; ranching and agriculture support much of the local economy. Employment data for the ROI were obtained from the Colorado Department of Labor and Employment. Between 2006 and 2007, the number of jobs increased from approximately 19,400 to approximately 20,000 at a rate of 3.0 percent. Most of the growth took place in Las Animas County, which accounted for

approximately 58 percent of the growth in employment. Compared with the State of Colorado, where only 1.4 percent of the workforce is engaged in farming, the three counties in the ROI have high employment in farming—nine percent in Huerfano County and approximately eight percent in Las Animas and Otero counties. Employment in government and government enterprises (Federal, State, and local) is high in Las Animas County (23 percent) and Otero County (20 percent). Huerfano County (13.2 percent) is slightly above the State average (13.1 percent). Federal, civilian, and military employment is below the State average, whereas employment in State and local government is high in Las Animas and Otero counties (21.9 percent and 18.1 percent, respectively) compared to the State (10.1 percent).

Major employers in Las Animas County include Burlington Northern/Santa Fe Railroad, Trinidad State Junior College, oil and gas drilling enterprises, and related support businesses. A new minimum-security correctional facility opened in 2003. The economy of Otero County is closely linked to agriculture, including livestock (primarily cattle) production and farming. Major crops include dryland wheat, irrigated corn, and alfalfa hay. The largest employers are local and county government entities. Huerfano County has a larger, medium-security correctional facility that provides employment in the area.

PCMS currently retains 12 full-time employees on site to maintain PCMS facilities and manage training lands.

5.11.2. Environmental Consequences

Alternatives 1 and 3

The stationing of the CAB at Fort Carson will have no measurable economic effects within the PCMS ROI. PCMS is used only for training activities with little opportunity for local economic stimulus, although Fort Carson, in conjunction with government and private organizations and individuals, is seeking to increase purchases from local sources in support of those training activities. The major impacts will accrue at Fort Carson as this is where Soldiers and their Families will live, shop, and otherwise spend salary and other procurement dollars. No disproportionately high and adverse effects on minority and low-income populations are anticipated, as these new Soldiers will be distributed within the existing communities where current Soldiers live. Their spending patterns will likely mirror those that exist today.

The stationing of a CAB at Fort Carson is expected to result in short-term and minor long-term economic benefits in the region through increased local demand for housing and goods and services. This conclusion is based on the past evaluation of potential socioeconomic impacts of a potential Infantry Brigade Combat Team (IBCT) (Fort Carson, 2009), which was based on 3,500 new Soldiers. The subject stationing of the IBCT at Fort Carson has subsequently been cancelled, and the smaller CAB has only 2,700 Soldiers, as well as a smaller construction requirement.

This analysis is focused on the effects of new salaries that will be introduced to the ROI by the addition of 2,700 Soldiers associated with the proposed CAB units. As a result of the screening criteria used to select the final potential sites (identifying those installations with existing supporting facilities), construction expenditures will be minimal, and are thus excluded from the analyses.

Predicted impacts are overstated. The actual timing of soldier relocation and arrival will not occur in one year; but will likely be spread over a number of years to address the practical realities of logistics associated with realignments.

The results of the Economic Impact Forecast System (EIFS) evaluation for location of a CAB at Fort Carson are shown in Table 14 with detailed results in Appendix C.

Table 14. Predicted Impacts at Fort Carson/PCMS and RTVs

Variable	Change	Rational Threshold Value (RTV)
Business Volume	0.34%	5.64%
Income	0.74%	5.63%
Employment	0.84%	4.04%
Population	1.01%	3.17%

As shown, the predicted changes are well within the calculated Rational Threshold Values (RTV) (used to ascertain potential significance). As a result, the effects will be minor in the economic region, but will likely be considered positive by the community, offsetting the economic downturns that have occurred in the last few years.

The majority of the new military personnel are expected to live off-post. The housing market should be able to absorb this growth, primarily in southern Colorado Springs, Fountain, and Security/Widefield (all within El Paso County). Approximately 97 percent of Fort Carson's Soldier population lives in El Paso County.

A CAB stationing will result in an increase in both the on-post and off-post population, with a resulting proportionate increase in demand for schools and childcare facilities, public safety, medical, and other services. School enrollment will increase as a result of the increase in regional population. Off-post growth projections were recently prepared for student enrollments for advanced planning purposes in order to accommodate expansions and realignments at Fort Carson. These potential impacts are normally mitigated through early Army outreach and coordination with those school districts, allowing them to plan for additional facilities.

The military personnel that are projected to live on-post, as well as many who live off-post, will increase the demand for childcare services. This increased demand will likely be met by two recently completed child development centers and five additional child development centers to be completed by the end of 2011; all of which increase capacity by 900 spaces. Demand for off-post child care services is not expected to rise significantly, as many of the military personnel commuting to work at Fort Carson will likely first look on-post (near their place of employment) for preschool child care services, rather than off-post. As with any population increase, the services provided through the private sector will be expected to respond to any increased demand.

Services will continue to be provided to residents and retirees by the Army Community Support Center, the Family Connection, Family Readiness Groups, and the Retirement Services Office. No immediate increase in the retiree population is anticipated. Although some of the older active duty personnel may possibly choose to retire or settle in this area after discharge or retirement, most of the new troops are typically younger and many will likely serve at other posts before discharge or retirement, or return to their place of origin. It is unlikely that a CAB stationing will have an impact on the retiree population.

Increased demand will occur for on-post retail, food, and related services such as Fort Carson's commissary and retail outlets in the Post Exchange. Additional facilities are already anticipated (chapel, dental clinic, child care facility, Troop Store [mini-mall], etc.), as well as additional utilities and road infrastructure. Fort Carson construction activity is underway to increase the size of its current commissary

and Post Office. The city of Fountain has plans for a retail village to be constructed just to the east of Fort Carson's Gate 20 and Colorado Springs has plans for a retail village just north of Fort Carson's Gate 4. During construction, safety measures stated in 29 CFR Part 1926, "*Safety and Health Regulations for Construction,*" and other applicable regulations and guidance will be followed to protect the health and safety of all personnel and employees at the installation, as well as construction workers.

Demand for recreational facilities will increase with the additional population. The increase in off-post population will also increase the demand for off-post recreational facilities. The demand for some facilities, such as gyms and pools, may be moderated by the use of the new on-post facilities. Nevertheless, as the population increases, the services provided through the private sector can be expected to respond to the increased demand. Thus, recreation centers and other facilities that offer recreational opportunities can be expected to increase in number to meet any additional demands.

Fort Carson's *Grow the Army* FEIS has an analysis of environmental justice impact (Fort Carson, 2009). No disproportionately high and adverse effects on minority and low-income populations are anticipated, as these new Soldiers will be distributed within the existing communities in which current Soldiers live. Their spending patterns will likely mirror those that exist today.

CAB construction activities at Fort Carson will occur within the core of the installation, not along the edges of the installation boundary, therefore few adverse impacts to low-income and minority communities are expected. Also, construction impacts at Fort Carson will be temporary in nature. Impacts from noise, dust, and traffic generated by construction will be minimized by careful construction planning. Fugitive dust emissions will be minimized throughout the construction period by use of conventional dust suppression, BMPs, and mitigation techniques, such as soil erosion and sedimentation control, restrictions on where vehicles can travel on site, speed controls for construction vehicles and equipment, and watering of exposed soil and demolition debris to control dust. Noise from construction equipment will be controlled by use of appropriate sound mitigation techniques and BMPs. Construction traffic during peak-hours will be reduced by the use of centralized construction staging areas.

At PCMS, aircraft noise and fugitive dust from training are potential impacts, which could affect the population near PCMS, which includes some minority Hispanic populations as well as some enclaves of economically disadvantaged populations. During training exercises and travel to and from PCMS, Army aviators will continue to adhere to Fort Carson Regulation 95-1 which outlines policies and procedures

for pilots to maintain minimum altitudes around population centers. In addition, prescribed flight routes to and from PCMS also require pilots to maintain minimum altitudes and distances from populations to reduce noise impacts. At PCMS, Army staff will continue to implement dust suppression activities in coordination with major training events to prevent fugitive dust impacts. Because of these activities and management procedures, no disproportionately high and adverse effects on minority and low-income populations are anticipated at PCMS.

Similarly, the location and distribution of new military Soldiers and their Families will have no negative impacts or risks to children in the ROI.

Less than significant, beneficial, cumulative economic effects will occur under the proposed alternatives due to the direct and indirect economic impacts of the new Soldiers and their Families. These will be accompanied by minor or no direct or indirect impacts on housing, Quality of Life, environmental justice, or protection of children.

Alternative 2 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in socioeconomic impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under Alternative 2 is other than Fort Carson.

5.11.3. Cumulative Effects

The cumulative impacts of a CAB stationing, along with other past, present, and reasonable foreseeable future actions that affect economy, employment, demographics, housing Quality of Life, schools, community services, or environmental justice on and around Fort Carson and PCMS are expected to be less than significant.

This increase in both the personnel and residential population on Fort Carson, as well as increases in nearby communities will translate into increased Army and individual expenditures for purchases of goods, contracting of services, utilities, and rent and lease payments and will, therefore, have a net

positive cumulative impact to the local and regional economy. For Fort Carson, this increase is occurring against a rapid increase in regional population density. School enrollment in the Fort Carson area will increase as a result of the cumulative increase in regional population. Adverse cumulative effects around Fort Carson will be partially offset through the provision of Federal impact aid to offset costs of providing public education to families of military personnel.

5.12. Transportation and Airspace

The affect on transportation and airspace are defined in the following section.

5.12.1. Affected Environment

Fort Carson

As mentioned in Section 5.2, Fort Carson is in central Colorado near Colorado Springs and approximately 75 miles (121 km) from Denver (Figure 5). The ROI of the affected environment for traffic and transportation aspects of the proposed action include Fort Carson and the western portion of El Paso County, to include the communities of Colorado Springs, Stratmoor, Snowy, Cimarron Hills, Fountain, Widefield, and Security. Major roads that border Fort Carson are I-25 to the east, SH 115 to the west, and Academy Boulevard to the north. Other major routes in the area include US 24, SH 85, SH 16, and Powers Boulevard.

Traffic and Roadways

Appendix D provides detailed information on traffic and roadway conditions in the Fort Carson ROI. The analysis draws from studies and transportation plans developed by El Paso County, the PPACG and CDOT. This analysis demonstrates that travel to and from Fort Carson has increased over the last four years. The main driver of the gate counts is the number of Soldiers physically present. Within the next three years, if all Soldiers assigned at Fort Carson were not deployed and remained on-Post, then traffic volumes to/from Fort Carson could increase by another 30 percent to over 95,000 vehicles per day. CDOT and the PPACG identified a number of roadway improvements that will alleviate some of the problems associated with congestion (Appendix D). Additionally, the PPACG recommended that the several jurisdictions (city of Colorado Springs, city of Fountain, El Paso County, and Fort Carson)

continue to cooperate and expand their nonmotorized transportation system. Recent capacity improvements have already been implemented for some Fort Carson gates and adjacent roadway systems.

Nonmotorized Transportation

As addressed in Appendix D, nonmotorized transportation as it relates to Fort Carson is somewhat geographically limited to nearby regions around the installation. Fort Carson does have infrastructure that actively supports cycling as a recognized mode of transportation and has taken steps to coordinate its bicycle infrastructure with that of adjoining jurisdictions of Colorado Springs, Fountain and El Paso County. Continued cooperation and development of bicycle infrastructure among regional organizations and governments could lead to increased levels of cycling to Fort Carson.

Public Transportation

Public transportation services are limited, as outlined specifically in Appendix D.

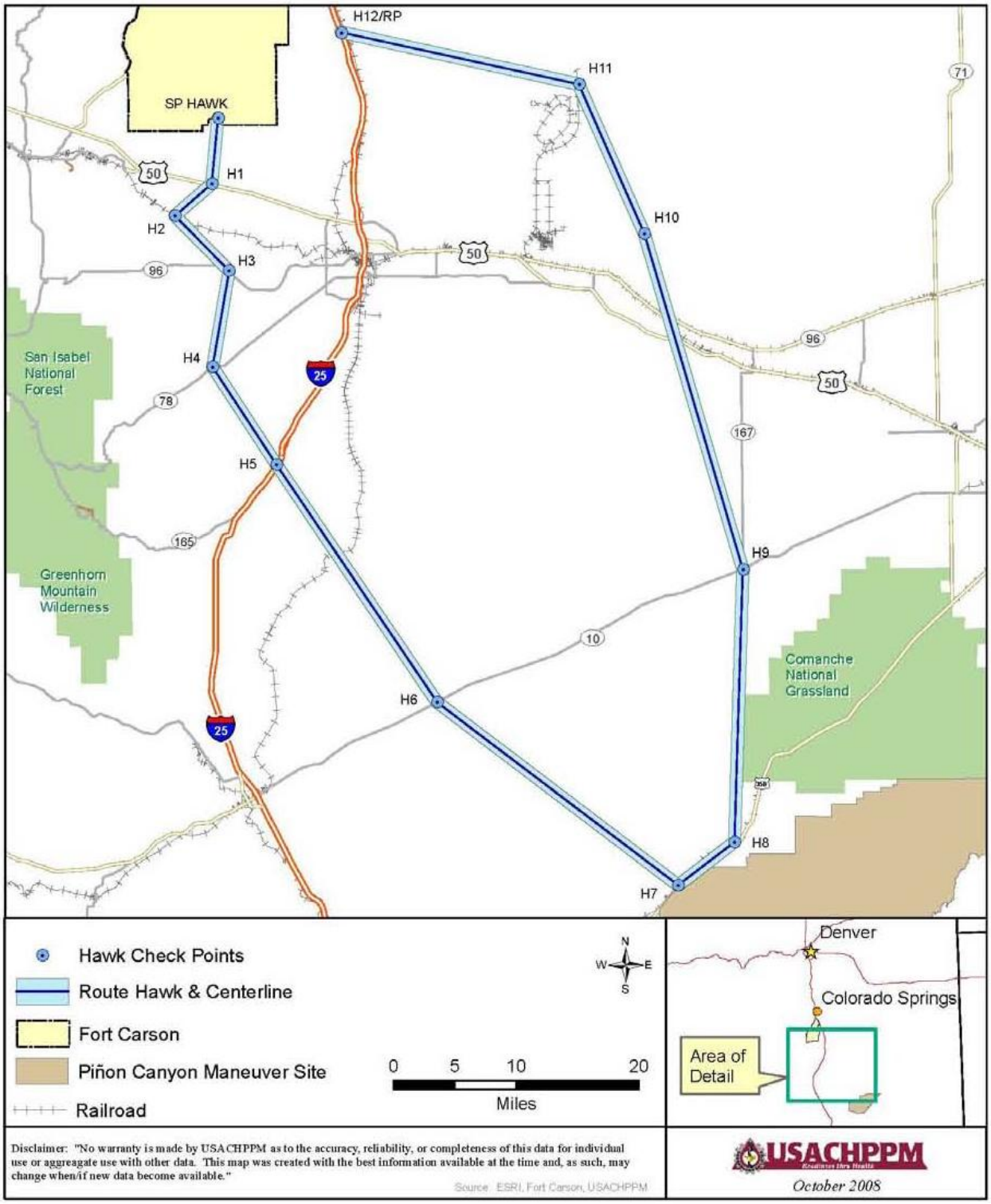
Airspace

Fort Carson has 152 square miles (394 square km) of FAA designated Permanent restricted use and SUA, with no limit in altitude (see Appendix A for general information on SUAs). The installation has access to this airspace continuously. The airspace is controlled by the FAA of Denver, Colorado (HQDA, 2002). Army aviation assets are stationed at and flight operations conducted out of BAAF.

Fort Carson airspace is used by helicopters, fixed-wing aircraft and transient aircraft flights. The USAF and Air National Guard also use the installation's airspace. FAA and Fort Carson established permanent restricted airspace over the installation to prevent flights from unauthorized aircraft. Civilian aircraft are restricted and military aircraft are permitted under controlled conditions while firing, including artillery, mortar, and missile projectiles, is in process. Airspace adjacent to Fort Carson is used by commercial and military institutions (HQDA, 2007).

Aviation units stationed at Fort Carson will be expected to aerially deploy to PCMS to conduct both aviation unit training and training in support of BCTs and to conduct helicopter gunnery exercises. Units conducting aerial deployment from Fort Carson to PCMS will follow FAA regulations for the airspace in which they are flying and will avoid concentrations of built up civilian areas (also see Section 5.6.1).

Flight altitudes adhere to noise-abatement policies that minimize aircraft noise footprint on and near the installation and within the local flying area (see Section 5.6.1). The area between Fort Carson and PCMS does not have established air corridors. The only restriction is that aircraft must maintain a minimum altitude of 700 feet AGL (231 m AGL) unless they are operating in a designated low-level or NOE training route. A route has been established between Fort Carson and PCMS for the purpose of conducting both day and night low-level tactical navigation operations (Figure 8). Route Hawk is one mile (1.6 km) wide; 0.5 mile (0.8 km) either side of centerline with a floor of 100 feet AGL (30.5 m AGL) and a ceiling of 300 feet AGL (91 m AGL) (CHPPM, 2008a).



3648 **Figure 8. Route Hawk**

Additionally, lands of the Pike/San Isabel National Forests have been used to provide the Army and Fort Carson locations related to mountain/high altitude training of helicopter pilots and instructors since about 1978 and is operated under a Special Use Permit. An EA was conducted in 2007 (Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training, October 2007 (Fort Carson, 2007b)) in cooperation with the USFS for reissuance of the Special Use Permit. There are no flights or operations conducted in the vicinity of Federally designated wilderness areas and adherence is maintained as to environmental and safety laws and regulations that are in place for this type of activity.

Aviation accident prevention is an integral part of the Fort Carson Safety Program and applies to all aviation units assigned to or operation on Fort Carson. With safety policies contained in Fort Carson Regulation 95-1, contractors engaged in maintenance, industrial, ground, and flight operations on Fort Carson are also part of the team ensuring safety standards are implemented. The Safety Program applies to not only military personnel, contractors, and military equipment, but also applies to ensuring the public is kept safe. The Army continuously works to identify hazards, assess the hazards, develop controls and countermeasures, implement the controls, and most importantly, provide supervision on all aviation missions.

Piñon Canyon Maneuver Site

Transportation

The sole public access point to PCMS is provided via US 350, approximately 30 miles northeast of Trinidad. Deployments from Fort Carson follow a fixed route along I-25 approximately 117 miles (188 km) south to US 160, along US 160 approximately 7 miles (11 km) northeast to US 350, and then along US 350 approximately 24 miles (39 km) northeast to the main gate at PCMS cantonment area.

I-25 is the primary north-south I- through Colorado. The city of Pueblo, located approximately 30 miles (48 km) south of the Fort Carson cantonment area, is the only city transected by the I-25 portion of the deployment route. The remainder of the route runs through sparsely populated rural areas.

Airspace

Airspace at PCMS is used for tactical high-speed flight training for fighter or bomber aircraft, as well as Army aviation training. The PCMS military operations area (MOA) extends from 100 feet AGL (30.5 m

AGL) to an altitude of 10,000 feet (3,048 m). Federal airways pass over and surround the PCMS. Two instrument routes exist in these airways, and military aircraft use them for tactical maneuvers (HQDA, 1995). There are no restricted military controlled airspace over PCMS, but there is a MOA for SUA for military training activities. Flight operations are conducted out of the Piñon Canyon Combat Assault Landing Strip.

5.12.2. Environmental Consequences

Alternatives 1 and 3

Traffic and Roadways

Evaluation of the regional transportation system confirmed that the El Paso County region will see continued population growth. The regional study of the potential effects of growth at Fort Carson also studied the potential impacts on the region's transportation system, to include automobile, nonmotorized transportation, and public transit. The projected growth to 26,000 Soldiers on Fort Carson will impact traffic congestion in the region (see Appendix D). With the stationing of a CAB at Fort Carson, CAB Soldiers and Family members are projected to generate approximately 70,750,880 vehicle miles per year traveled on the installation and surrounding area (see Appendix D). The region has identified the potential effects and is prepared to meet those effects to ensure the continued quality of the transportation system to meet local and regional demands and ensure the quality and safety of the transportation system. The region has identified capital improvement projects to address population growth, and transportation demands for the future, to include roadways and nonmotorized infrastructure that can potentially decrease auto demand in the future. Army Regulation 385-10, *The Army Safety Program*, contains requirements for traffic safety and loss prevention to reduce the risk of death or injury to Army personnel and civilians. Through training and other means, the Army seeks to instill in our Soldiers the importance of vehicle safety, expecting Soldiers to operate motor vehicles in a safe manner and always to employ risk management principles when using their privately owned vehicles. Public transit had been used at Fort Carson, but was ceased due to lack of demand. Stationing a CAB at Fort Carson will have direct and indirect effects on the local and regional transportation system, but with implementation of capital improvement projects planned in the region, those effects will not be significant.

Stationing a CAB at Fort Carson will not involve permanently stationing Soldiers at PCMS. Units from the CAB will fly their aircraft and drive their wheeled vehicles by convoy to conduct training at PCMS. The stationing of 2,700 Soldiers will have minimal impact on traffic and transportation on traffic congestion on the public roads leading to, or near, PCMS. Convoys will be scheduled in conjunction with CDOT to avoid peak traffic periods in the Pueblo metropolitan area, and limited in the number of vehicles per convoy and number of convoys per day. Stationing the CAB at Fort Carson will not have significant effects on traffic or transportation at or near PCMS.

Rail and Off-Post Aviation Facilities

Rail and aviation facilities are adequate to meet increased demands of Fort Carson growth and CAB training at Fort Carson and PCMS.

Airspace

The stationing of a CAB at Fort Carson will involve a substantial increase in helicopter maneuver training on the installation. Although the increase in the number of flight hours (approximately 24,800 additional hours), landings, and takeoffs appear substantial when compared to the current conditions, the direct and indirect effects will be less than significant. Even with the units currently stationed at Fort Carson, the restricted airspace is readily available and can easily accommodate the increase in flight training hours, landings. and takeoffs. Thus, the increase in maneuver training associated with the CAB will not create obstructions to air navigation, affect flight operations at BAAF or any other airfield, or require the FAA to modify existing controlled SUAs or create new ones. The existing restricted airspace and MOAs will allow flight operations to occur safely throughout the maneuver training areas without potential interference from nonparticipating or incompatible aircraft. Units conducting aerial deployment from Fort Carson to PCMS will follow FAA regulations for the airspace in which they are flying and will avoid concentrations of built up civilian areas. Use of Pike and San Isabel National Forests for mountain/high altitude training by CAB Soldiers, should a CAB be stationed to Fort Carson, will make no changes to the use limits identified in the 2007 EA (Fort Carson, 2007b). Additionally, mountain/high altitude training activities will continue to be conducted per the 1994 Interagency Agreement between the DoD and USFS, Rocky Mountain Region and the Helicopter Training Operating Plan between Fort Carson and Pike and San Isabel National Forests. Consequently, stationing a CAB at Fort Carson, to include training at PCMS, will result in less than significant effects to airspace.

Alternative 2 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in transportation and airspace impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under Alternative 2 is other than Fort Carson.

5.12.3. Cumulative Effects

Traffic and Roadways

The region around Fort Carson, encompassing El Paso County and the cities of Colorado Springs and Fountain will undoubtedly see an increase in population in the foreseeable future. For example, the population in El Paso County is expected to grow from approximately 517,000 in 2000 to approximately 800,000 in 2030; a 54 percent increase (El Paso County, 2004). This will bring additional housing and businesses to the region, and combined with the projected population growth at Fort Carson, have an effect on the region's transportation system. Therefore, the PPACG, the authorized Metropolitan Planning Organization for the region, has recognized not only the inevitable growth in the region, but also that of Fort Carson. PPACG has evaluated the potential effects, identified potential problem areas and identified a number of capital improvement projects to address the expected increase in traffic volume. PPACG, in cooperation with other local jurisdictions and Fort Carson, is working to further expand nonmotorized transportation in the region. However, the cumulative effect of a CAB stationing is not expected to be significant.

Although the PCMS region is experiencing population growth, the growth is not significant. CAB Soldiers will not be stationed at PCMS. Units from the CAB will fly their aircraft and drive their wheeled vehicles by convoy to conduct training at PCMS. Convoys will be scheduled in conjunction with CDOT and limited in the number of vehicles per convoy and number of convoys per day. Cumulative impacts to transportation infrastructure and traffic is expected to be less than significant at PCMS.

Airspace

The USAF and Air National Guard use the airspace over Fort Carson and PCMS for training operations. As a result of the Army's recent Transformation and Growth initiatives, the BCTs stationed at Fort Carson are equipped with Unmanned Aerial Systems (UAS). The BCTs also train and employ UAS at the PMCS. These UAS systems compete for and fly in the same restricted and SUA and MOAs used by the USAF and Army aviation units. There is sufficient restricted and MOAs available at both Fort Carson and PCMS to accommodate the safe employment of Army aviation assets, UAS, and USAF aircraft. There are no known reasonably foreseeable actions that will impact the airspace over either facility. Cumulative impacts to airspace are expected to be less than significant.

Currently, the Army utilizes 16 landing zone sites in the Pike and San Isabel National Forests for mountain/high altitude training of Army aviation units preparing for deployment to rugged, high elevation areas such as Afghanistan. In October 2007, the Army published an *Environmental Assessment for the Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training* (Fort Carson, 2007a). As discussed in this EA, sites in the National Forest are utilized an average of three to four times per week annually, though this varies from week to week based on weather, aircraft availability, use restrictions, and other factors. The average training event lasts for about 15 minutes, both for the airspace around the site, and also training on the ground. Aviation units from across the Army, not just at Fort Carson, conduct training on these National Forest System lands. Should a CAB be stationed to Fort Carson there will be no change to the levels of airspace use of these areas from what was analyzed in the 2007 EA. In addition to aviation training at San Isabel and Pike National Forests, a transient aviation unit from Fort Hood has recently developed an agreement with the BLM for the short-term use of BLM lands in the vicinity of Canyon City. This agreement allows the unit to use 20 landing zones for training of aircraft prior to their deployment. This type of short-term usage of BLM lands around Canyon City by transient units has occurred in the past and may continue intermittently in the future.

As mentioned in Section 5.5.3 and 5.6.3, the USAF has also recently proposed the establishment of a LATN area in northern New Mexico and southern Colorado. The LATN will provide airspace to operate C-130 and CV-22 aircraft for training purposes. The LATN will allow the USAF to train aircrew members and conduct military flight activities which may include, but are not limited to, air combat maneuvers and low altitude tactics. The USAF will remain in compliance with FAA regulations and

provisions governing airspace use in the LATN, including maintaining minimum flight altitudes of 1,000 feet AGL around developed areas. The LATN will provide training airspace for USAF Special Operation Forces at Cannon AFB. Cannon AFB is located in eastern New Mexico approximately five miles west of the city of Clovis. The training will consist of approximately three sorties per 24-hour period, or approximately 688 flights annually. Aircraft altitudes will remain between 200 and 3,000 feet AGL, with the majority of the sorties taking place at 500 feet AGL at airspeeds at or below 250 knots.

Given the limited frequency of use and short duration of training, landing zones in Pike and San Isabel National Forests are expected to have less than significant cumulative impact on the airspace of these areas. Similar airspace use of BLM sites around Canyon City also are projected to have less than significant cumulative impacts attributable to the limited use and short duration of training. All Army aviation operations adhere to Fort Carson Regulation 95-1 to reduce environmental and airspace impacts of aviation operations.

The USAF LATN proposal for use of low altitude airspace for military training will cumulatively increase the use of airspace in southern Colorado in conjunction with the Army's CAB stationing proposal if Fort Carson were selected for CAB stationing. FAA and USAF regulations require aircraft utilizing the LATN area to avoid airfields, towns, noise-sensitive areas, and wilderness areas by prescribed vertical and/or horizontal distances. For all other areas within the LATN, aircrews are prohibited from flying over the same point more than once per day. The Army will follow established routes to and from PCMS, and will adhere to similar regulations and policies governing airspace use. Airspace use of BLM sites around Canyon City also are projected to have less than significant impacts attributable to the limited use and short duration of training. Cumulatively, impacts to airspace around Fort Carson and PCMS are anticipated to be less than significant. The Army will continue to work with the FAA and follow coordinated procedures to ensure impacts to airspace in the region are reduced.

5.13. Utilities

The affect on utilities is defined in the following section.

5.13.1. Affected Environment

Fort Carson

Potable Water

Potable water is purchased by Fort Carson from Colorado Springs Utilities for domestic, industrial, and irrigation use in the cantonment area. The maximum historical daily water demand on Fort Carson is 5.5 million gallons per day (mgd) (20.8 million L) and the total capacity of the two supply lines is 14 million gallons (53 million L). A new Colorado Springs Utilities potable water supply line is under construction that will supply the Wilderness Road complex, and will be capable of supporting any new construction for the CAB. Construction is expected to be complete in February 2011. The potable water storage system at Fort Carson consists of five water storage tanks with enough capacity during emergency conditions. A new water storage tank is under construction at the Wilderness Road complex. There are also five smaller water storage tanks serving BAAF and downrange training areas and ranges.

Wastewater

The installation operates and maintains a sanitary sewage treatment plant that services the cantonment area, the family housing area, BAAF, and the Range Control complex. This system also services Cheyenne Mountain Air Station under an Inter-Service Support Agreement. The sanitary sewage treatment plant, which was re-constructed in 1998, has a 4.0-mgd (15.1 million L) design capacity with a peak historical flow of 2.6 mgd (9.8 million L). The current wastewater load for the entire system is 1.3 mgd (4.9 million L). Portable toilets, dry vault, self-composting latrines, septic tanks and leach fields, and nondischarging treatment/oxidation lagoons serve downrange training areas and ranges.

An industrial wastewater treatment plant (IWTP) is located directly north of the sanitary sewage plant, near Gate 20. The IWTP was designed and constructed to treat petroleum-contaminated water from the motor pools in the cantonment area. The IWTP collection sewer extends down Minick Avenue behind the motor pools and delivers industrial wastewater to the IWTP. Wastewater is conveyed using both lift stations and gravity flow. IWTP effluent is combined with the sanitary sewage water entering the sewage plant. Treated IWTP effluent is discharged directly into "I" Ditch (Clover Ditch), which is one of the jurisdictional waters on Fort Carson. BAAF, the Colorado Army National Guard Centennial Training

Site, and part of the Special Forces Complex are not connected to the IWTP. These facilities all use oil-water separator (OWS) systems to pretreat industrial wastewater before it is drained into the main wastewater system. A new branch of the industrial wastewater sewer system serves the recently constructed 1st Brigade complex.

Stormwater

The climate and topography of the Fort Carson area affect stormwater. Stormwater drainages tie in with watersheds, which are discussed in Section 5.8.1. Stormwater runoff in the northern portion of the installation flows into one of four main drainages: B-Ditch, Clover Ditch, Unnamed Ditch, and Rock Creek, which are all tributaries to Fountain Creek. The southern and western portions of the installation drain directly into the Arkansas River to the south.

Three permit types are utilized at Fort Carson under the EPA stormwater program: the National Pollutant Discharge Elimination System (NPDES) Construction General Permit (permit number COR10000F), the Multi-Sector General Permit, and the MS4 (permit number COR042001) (Fort Carson, 2009).

Fort Carson has completed baseline modeling for the four main drainages in northern portion of the installation. This information provided the installation with a realistic representation of floodplains and peak flows for predevelopment, existing, and future proposed conditions. The installation's *Grow the Army* FEIS contains modeling assessment information for their FEIS alternatives, which included a potential CAB stationing (Fort Carson, 2009).

Solid Waste

The *Integrated Solid Waste Management Plan* (ISWMP) contains details of the Solid Waste Management Program at Fort Carson (Fort Carson, 2004b). Currently, all solid waste from Fort Carson, including waste from the housing units, is shipped to offsite landfills, including the Midway Landfill in Fountain by a licensed contractor. Midway Landfill and other landfills are permitted Subtitle D landfills.

Fort Carson operates a recycling center located near Gate 3. In addition to the recycling center, there are three additional large drop-off facilities located in the cantonment area. Smaller recycling bins are located near all facilities. As expansion continues on the installation, Fort Carson indicates additional recycling

containers will be placed at all new facilities. Recyclable materials collected at these sites include paper, plastic, glass, cardboard, wood pallets, aluminum, and scrap metal.

Energy, Heating, and Cooling

Fort Carson purchases natural gas and electricity from Colorado Springs Utilities. The installation obtains 2.3 percent of its energy needs from solar panels and is currently researching other sources of renewable energy for future use. Electrical services are provided through two aerial 34.5-kilovolt (kV), three-phase supply lines, which terminate at three power substations in the cantonment area. The peak historical electrical demand at Fort Carson is 27.9 megavolt amperes (MVA) while the total capacity of transmission lines available to the installation is 57.4 MVA and the total capacity of transformers is 37.9 MVA. Two of the transformers are close to capacity and the Titus Road substation being upgraded so that it will have 10 circuits. This substation upgrade, expected to be completed in the first quarter of 2011, will support electricity demand on the cantonment area. Two to four feeders will also extend from Titus Road down to Butts and Wilderness Roads.

Electrical supply lines to BAAF were upgraded in 1986 and are now operating at peak capacity. Upgrades to the electrical system at BAAF will be necessary to continue to meet electrical demands for this area. Power for maneuvers and target training within the downrange area is supplied locally by battery or generator.

Fort Carson receives natural gas from Colorado Springs Utilities via two feeds at the north end of the installation near Gate 4. Also, in 2008, Colorado Springs Utilities installed an additional 10-inch (25.4 cm) steel gas line along SH 115 from Gate 1 to Gate 5. Colorado Springs Utilities completed installation of a gas main from Gate 5 to Gate 6 in December 2010 in support of construction at Wilderness Road (Gate 6). The natural gas is metered and piped through a series of gas mains and distribution lines to Fort Carson's four central heating plants, BAAF, and the family housing area. The peak historical daily consumption of natural gas at Fort Carson is 9,329 million cubic feet (mcf)/day (261.2 million m^3/day). Colorado Springs Utilities' maximum delivery capacity to the installation is 24,000 mcf/day (672 million m^3/day). Recent upgrades to lines within and to the cantonment area and the additional line will adequately support gas demands within the cantonment area, but upgrades will be required in the downrange area.

Communications

The primary communication infrastructure at Fort Carson consists of cable lines that run throughout the cantonment area, seven ranges, and BAAF. The communication system around the cantonment area is sufficient to meet the current needs for personnel and operations. However, as the number of Soldiers and support personnel at Fort Carson increases, significant upgrades to the existing communications infrastructure will be required several years in the future. Cable extensions are currently being built for various new construction projects underway within the cantonment area. Basic administrative analog telephone and low-speed data are available along Wilderness Road and the downrange area locations use copper and leased fiber lines.

Piñon Canyon Maneuver Site

Potable Water

PCMS purchases treated potable water from the city of Trinidad for use in the cantonment area. After the water is delivered to the Maneuver Site, it is chlorinated and stored in a 500,000-gallon (189,271-L) tank. The potable water system is adequate to support a maximum of approximately 5,000 personnel based on a water consumption rate of 35 gallons (132 L) per person per day and other installation-related support activities, such as dust control and emergency fire suppression. The water tank and potable water distribution system in the cantonment area is currently operating within capacity and will accept water demands from additional training units.

Wastewater

The cantonment area primarily uses evaporative, nodischarging treatment/oxidation lagoons, originally constructed in 1985 for both sanitary wastewater and stormwater treatment. The HQ Building and several nearby buildings, all located within the cantonment area, are constructed to discharge sewage through a sanitary sewer system to the treatment/oxidation lagoons. Only the HQ Building is served by a septic tank, which then feeds into the sanitary sewer. There is a vault toilet at the front gate and a septic tank and leach field serves the guard shack trailer located further in from the front gate. The treatment/oxidation lagoons are located in the southwestern corner of the cantonment area, and are currently operating at levels well below their capacity.

The combined treatment facility was originally designed for continuous use by a brigade-sized unit. The number of personnel at the cantonment area varies over time from fewer than ten to several thousand. The treatment/oxidation lagoons were upgraded in summer 2006 and subdivided into smaller ponds to more readily accommodate the fluctuation in flows. The lagoons' impervious liners, which prevent seepage into groundwater, were recently replaced. The modified system was designed for an average flow capacity of 10,052 gpd (38,047 liters per day [L/day]). The wastewater lagoons do not have a discharge permit because the lagoons are designed to be nondischarging. Sanitary wastewater is conveyed to the treatment ponds through separate underground pipes.

Most facilities located outside of the cantonment area have septic systems and leach fields. Portable toilets are used in the training areas when septic systems are not available.

Stormwater

At PCMS, a portion of the stormwater runoff generated in the cantonment area is collected into the wastewater system and directed to the treatment/oxidation lagoons. Stormwater is also collected at the railhead terminus and directed to and discharged into the treatment/oxidation lagoons. The majority of runoff is allowed to flow directly offsite (HQDA, 2007). Stormwater is also managed at the bulk fuel facility where it is collected via catchment basin, directed to an oil-water separator, and ultimately discharged into the same treatment/oxidation lagoons used for the HQ Building sewage. Stormwater is conveyed to the treatment ponds through separate underground pipes.

Solid Waste

Solid waste pickup at PCMS is managed via a contract with Waste Connections, and waste is transported to appropriately permitted disposal facilities in Trinidad. Refuse and construction-related solid waste are managed by the Directorate of Public Works. Solid waste generated in the training areas is collected and returned to the cantonment area for disposal. From the cantonment area, solid waste is transported to appropriately permitted facilities. There is currently no recycling program at PCMS because there are an insufficient number of personnel at the cantonment area to manage such a program. PCMS is evaluating how to facilitate a recycling program in the future.

Energy, Heating, and Cooling

PCMS purchases electricity from San Isabel Electric Association. The capacity of the existing transformer is 2,000-kilovolt amperes (kVA), and the existing demand is 300 kVA; therefore, electricity demand at the site is below the design capacity of the existing transformer.

Trucked-in heating oil and propane currently provide adequate fuel for heating at PCMS. Most buildings in the cantonment area are heated by oil-fueled furnaces. Heating oil is trucked to the cantonment area and stored in building-specific USTs. Heating oil is not used outside the cantonment area. Propane is used to heat some buildings at the PCMS. Distribution lines are not required because storage of these fuels occurs at the point of use.

Natural gas is not currently used at PCMS.

Communications

The communication infrastructure at PCMS consists of fiber cables that enter the cantonment area from US 350. In 2006, a project was completed to provide upgraded information/communication infrastructure downrange on Fort Carson and PCMS and to provide connectivity between Fort Carson and PCMS. This included installing approximately 125 miles (201 km) of fiber optic lines, six guyed communication towers, and equipment shelters. A combination of towers and several equipment shelters at Pueblo Chemical Depot and Cedar Crest provide connectivity between Fort Carson and PCMS.

5.13.2. Environmental Consequences

Alternatives 1 and 2

Implementation of this stationing decision will not cause significant impacts to the infrastructure for wastewater, energy sources, communications, and solid waste management.

The stationing of a CAB at Fort Carson will increase water demand both on- and off-post. The average water usage by a Soldier or Family member living and working on Fort Carson is estimated at 125 gallons per day (gpd) and 50 gpd for Soldiers and Family members living off-post. The total average on-post daily water demand for the CAB is estimated to be 240,625 gpd with a seasonal peak water demand of 387,000 gpd during summer months (Chong, 2011 personal communication). With approximately 50 percent of the CAB's Soldiers and Family members living off-post, a similar estimate for water demand off-post is anticipated to be approximately 165,000 gpd.

Two existing waterlines, which run down Butts Road to the BAAF do not require upgrades to meet the demands of new facilities. Another 8-inch water main will be extended from BAAF to the Wilderness Road to support construction of additional facilities. Water line extensions will connect these mains to each of the facilities to be constructed under the Proposed Action.

The industrial wastewater system would adequately handle the additional wastewater generated by the new activities at BAAF with some modifications. Modifications include an extension of a 12-inch sewer line from BAAF along Wilderness Road that will be constructed to support the new facilities. Sanitary wastewater wills be conveyed to the WWTP. The addition of Soldiers to Fort Carson wills increase the load on the sanitary wastewater system, but the system wills have the capacity to handle additional wastewater generated by CAB Soldiers.

As no major utility upgrades are required to support CAB stationing, impacts to utilities at Fort Carson and PCMS are expected to be less than significant.

Alternative 2 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in utilities impacts due to training or construction activities associated

with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under Alternative 2 is other than Fort Carson.

5.13.3. Cumulative Effects

As a result of the Army's recent Transformation and Growth initiatives, additional units have been stationed at Fort Carson. These increases in units, personnel and Family members have increased the demand for utilities on the installation. There is, however, sufficient capability to accommodate the aforementioned increases and the addition of a CAB. The utilities at PCMS are sufficient to accommodate the additional training load of the aforementioned force structure changes and the addition of a CAB on the installation. There are no known foreseeable actions that will have an additional impact on the utilities of either installation.

5.14. Hazardous and Toxic Substances

The affect on and/or generation of hazardous and toxic substances is defined in the following section.

5.14.1. Affected Environment

Fort Carson

Hazardous and toxic materials used at Fort Carson include gasoline, batteries, paint, diesel fuel, oil and lubricants, explosives, JP-8 jet fuel, pyrotechnic devices used in military training operations, radiological materials at medical facilities, radioactive materials, pesticides, and toxic or hazardous chemicals used in industrial operations (USACE, 2006). The principal industrial operations and activities involving the use of hazardous materials and petroleum-based products at Fort Carson are painting, repair, and maintenance of vehicle and aircraft. Additionally, Fort Carson operates an IWTP, an Army Oil Analysis Program Laboratory, medical and dental facilities, and engages in solvent recycling. All of the above activities represent the majority of the following hazardous waste generated at Fort Carson: paint thinner, paint booth filters, paint related rags and solvents, Chemical Oxygen Demand (COD) and laboratory reagents, heptanes, kerosene, methanol, ethanol, and solvent distillation sludges. Asbestos can potentially be found in buildings constructed before 1978, as can LBP. Lead is also found at gun and artillery practice ranges

where lead munitions are used (Fort Carson, 2004c). Possible ballast light fixtures that potentially contain PCBs dielectric fluid may also exist on Fort Carson. Fort Carson no longer has any PCB-containing transformers. Pesticides and herbicides are one of the tools used for insect and rodent control in select structures and in the control of undesired vegetation including noxious weeds. UXO is found on-post, especially in the large impact area, which is now the only authorized area on Fort Carson where dud-producing ammunition can be fired.

All hazardous waste generated at Fort Carson (including the cantonment and downrange areas and BAAF) is transported to the Hazardous Waste Storage Facility (Building 9248) for storage and eventual shipment offsite for proper disposal. Currently, there are seven satellite accumulation points on Fort Carson for the collection and temporary controlled on site storage of hazardous waste (Fort Carson, 2006).

Fort Carson is not listed on the EPA's National Priority List (NPL). Investigation and cleanup of Fort Carson's contaminated sites is conducted IAW the Resource Conservation and Recovery Act (RCRA) Part B permit (No. CO-06-09-29-01) requirements. Site investigation and cleanup for the 170 Solid Waste Management Units (SWMUs) are being performed IAW applicable Army, State, and Federal requirements to achieve established cleanup goals and schedules.

Fort Carson has a comprehensive program to address the management of hazardous waste, hazardous materials, and toxic substances. This includes the proper handling, and disposal of hazardous waste and procurement, use, storage, and abatement (if necessary) of toxic substances. Additionally, a systematic approach is employed to investigate and remediate known or suspected contaminated sites across the installation until closure or receipt of a No Further Action (NFA), if necessary. Fort Carson has several plans in place to help manage hazardous materials and waste including a P2 Plan (also known as the *Waste Minimization Plan*), *Polychlorinated Biphenyl Management Plan*, *Integrated Pest Management Plan*, *Facility Response Plan*, *Hazardous Waste Management Plan*, and the *Spill Prevention Control and Countermeasures Plan*. Ordnance impact areas and buffer zones are off limits to unauthorized personnel. In addition, impact areas are posted with warning signs indicating the potential risks of UXO.

Piñon Canyon Maneuver Site

Hazardous materials used at the PCMS include gasoline, diesel fuel, oil, and lubricants used during routine maintenance; pesticides; and explosive and pyrotechnic devices used in military training operations. Activities involving the use of hazardous materials, including petroleum-based products, at the PCMS involve the operation and maintenance of vehicles. Asbestos can potentially be found in older buildings constructed before 1978, as can LBP (i.e., the ranch buildings). Pesticides and herbicides are one of the tools used for insect and rodent control in select structures and in the control of undesired vegetation including noxious weeds. High explosives are not used by the Army at PCMS, therefore UXO is not believed to be present. Nonexplosive practice grenades are used at an existing grenade launcher range.

Any residual hazardous materials including oil, lubricants, solvents, and batteries generated during routine maintenance are recovered for reuse or recycling. Other hazardous materials such as pesticides and fuel are consumed in the process. Hazardous materials brought to the PCMS by maneuvering units are recovered as material and taken back to their home station for further use or classification and turned in for reissue or proper disposal. In the event that hazardous wastes are generated at the PCMS, they will be managed under the rules and regulations as they pertain to a Conditionally Exempt Small Quantity Generator under the RCRA.

PCMS operates under the same Hazardous Waste Management Program as Fort Carson. See above for information on the comprehensive program to address the management of hazardous waste, hazardous materials, and toxic substances.

5.14.2. Environmental Consequences

Alternatives 1 and 3

Renovation of facilities at the BAAF could create additional lead, asbestos, PCBs, and chlorofluorcarbon wastes. With continued implementation of regulatory and administrative mitigation measures, impacts from construction of CAB facilities at Fort Carson, to include renovation and demolition activities, will be less than significant, because there will be minimal risk of human or environmental exposure to hazardous materials used or hazardous wastes generated during construction. Increased live-fire activities

associated with CAB training will result in the generation of small amounts of additional expended small arms ammunition UXO. Ammunition handling and storage methods, disposal protocols, and safety procedures will continue to be conducted IAW existing regulations. CAB operations and training at Fort Carson and PCMS will result in an increase in the use of hazardous materials, use of petroleum-based products, and disposal of hazardous waste, therefore the increased potential for spills. Due to extensive outreach and training efforts on spill prevention, major site contamination and cleanup, or other special hazards resulting from increases in personnel, construction activities, and training activities will not be anticipated. This combined with Fort Carson's (and PCMS's) comprehensive program to address the management of hazardous waste, hazardous materials, and toxic substances, effects from a CAB stationing related to hazardous waste, hazardous materials, and toxic substances is anticipated to be less than significant.

Alternative 2 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in hazardous and toxic substance impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 2 as the stationing location selected under Alternative 2 is other than Fort Carson.

5.14.3. Cumulative Effects

The cumulative impact to hazardous and toxic substances consists of past, present, and reasonably foreseeable future actions that increase the handling of these substances or the generation of hazardous wastes on Fort Carson and PCMS. With a CAB stationing, the addition of personnel and training will result in an increase in the use of hazardous materials and petroleum and subsequent generation, handling, storage, and disposal of wastes derived from these materials. Fort Carson and PCMS have the capacity to handle these wastes and will continue to implement installation SOPs and plans for their reduction, disposal, and handling. Only minor cumulative impacts are predicted.

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6. JOINT BASE LEWIS-MCCHORD, WASHINGTON AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

6.1. Introduction

On February 1, 2010, Fort Lewis and McChord AFB became JBLM – one of 12 joint bases worldwide. On that day, the installation support functions at Fort Lewis and McChord AFB began a phased consolidation to Army management under the Joint Base Garrison. The process was completed on October 1, 2010, when JBLM reached its full operational capability and all installation support functions were transferred.

JBLM is home to the Army's I Corps and the USAF's 62nd Airlift Wing. It is one of 15 U.S. power projection platforms whose primary focus is military support in the Pacific Rim. It is responsible for meeting the training and deployment requirements of three active component Stryker Brigade Combat Teams (SBCT), the 446th Airlift Wing of the USAF Reserve Command, and a host of support units, including the 66th Theater Aviation Command, units of the Washington Army and Air National Guard.

Those aircraft on JBLM assigned to the former Fort Lewis total 99 aircraft, down from the 276 total aircraft that were on Fort Lewis in 1985. This proposed action, if a decision is made to station a CAB at JBLM, will add up to 120 helicopters. As noted in Section 3.4, the Army is now considering only stationing a subset of the aviation units comprising a CAB at JBLM and, if such a decision occurs, only 44 helicopters will be added to JBLM's current aircraft total.

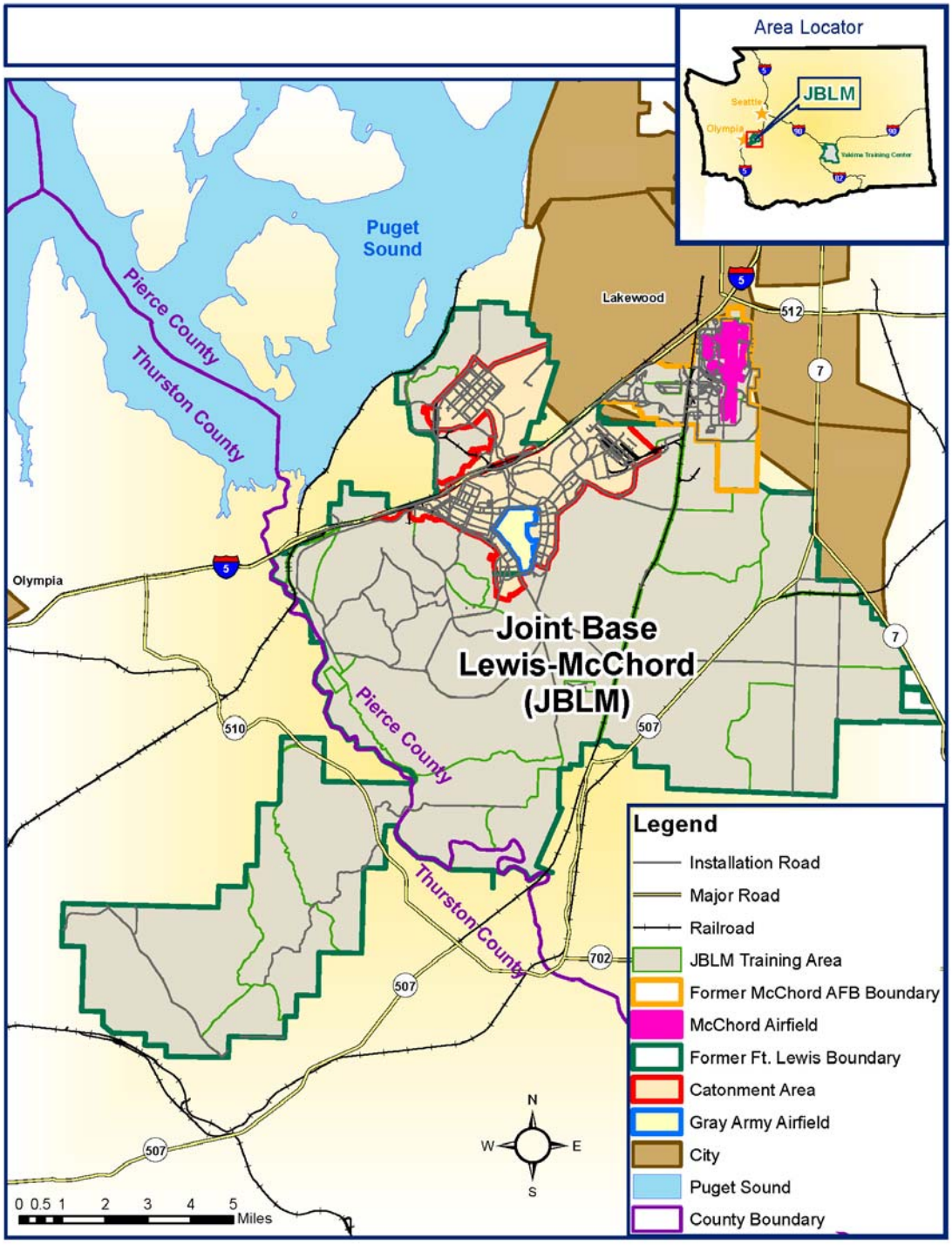
JBLM YTC provides critical maneuver lands necessary to train large units from JBLM and other installations. The National Guard and Army Reserve units from Oregon and Washington are among YTC's primary users. The few units permanently stationed at YTC are generally small support elements that have little to no impact on the environment outside the limited cantonment area. YTC has long been supporting up to brigade level exercises for both armor and infantry units.

6.2. Location and Size

The specific locations and size of both JBLM and YTC are outlined.

Joint Base Lewis-McChord

JBLM is located in western Washington in Pierce and Thurston counties (Figure 9). It is bordered on the north by several municipalities, including the Lakewood, DuPont, and Steilacoom and on the east by urban and rural unincorporated areas of Pierce County. It is bordered on the south by the Yelm, Rainier and urban and rural unincorporated areas of Thurston County. It is bordered on the west by Puget Sound, the Nisqually National Wildlife Refuge, the Nisqually Indian Reservation, the city of Lacey, and other unincorporated areas of Thurston County. It is approximately one mile (1.6 km) south of Tacoma, 35 miles (56 km) south of Seattle, and seven miles (11 km) east of Olympia. The Nisqually Indian Reservation is located adjacent to the Nisqually River west of the installation. The main transportation corridor in the Puget Sound region, I-5, runs through the installation.



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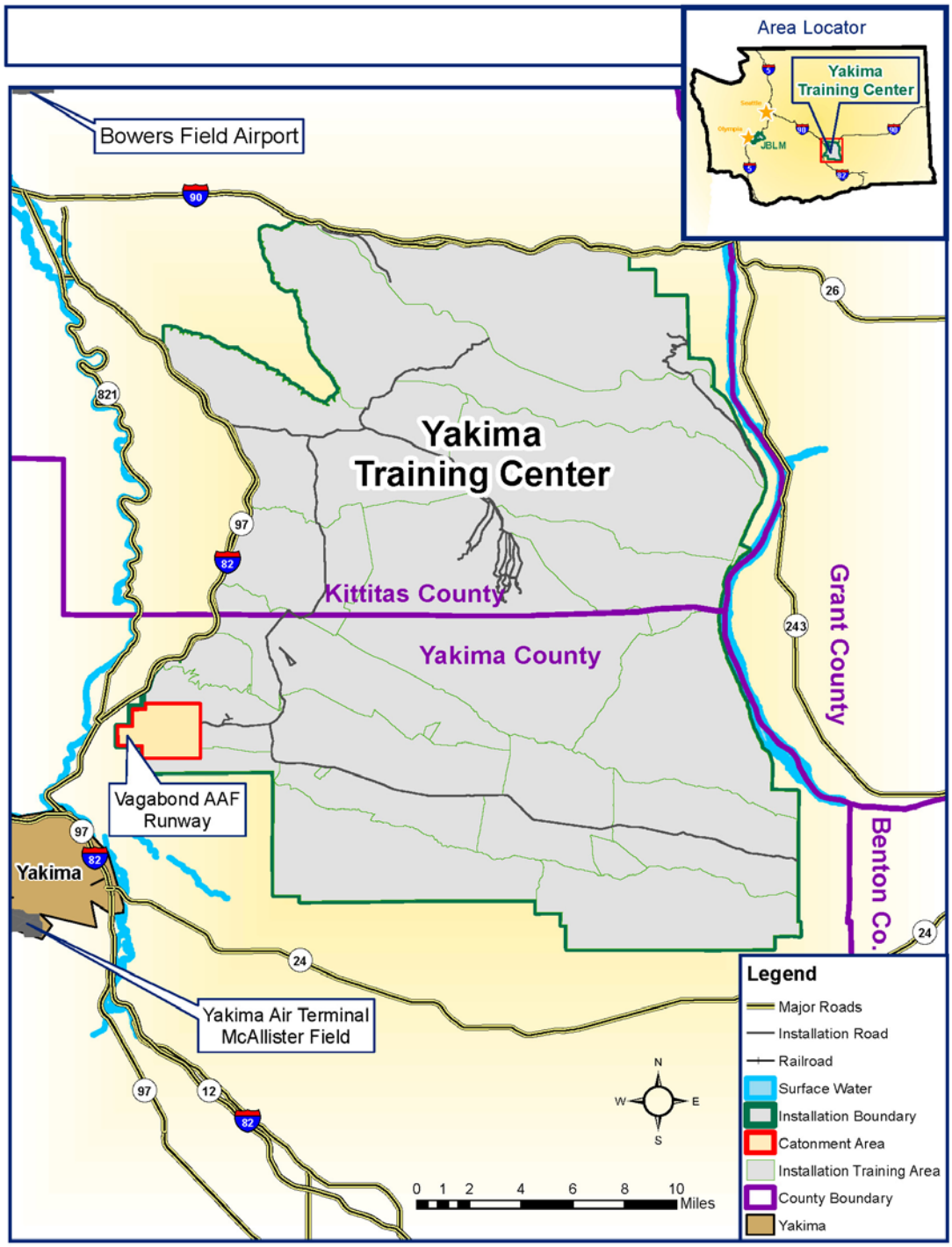
4134 **Figure 9. JBLM, Washington**

The Joint Base consists of approximately 90,600 acres (36,665 ha), of which approximately 86,000 (34,803 ha) constitute the former Fort Lewis and approximately 4,600 (1,862 ha) the former McChord AFB. Approximately 65,000 acres (26,305 ha) are in maneuver areas.

Yakima Training Center

Approximately 180 miles (289.7 km) east of JBLM in central Washington is JBLM's maneuver training area, YTC, which lies in Yakima and Kittitas counties (Figure 10). It is bounded by I-90 and Badger Pocket to the north, the Columbia River to the east, the toe of the Yakima Ridge to the south, and I-82 to the west. It is located approximately 7 miles (11 km) northeast of the city of Yakima.



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4144 **Figure 10. YTC, Washington**

YTC is approximately 327,000 acres (132,332 ha). The cantonment area, located in the southwestern corner of the facility, is approximately 1,000 acres (405 ha). Of the total, most of the maneuver area is suitable for vehicle and non-vehicular military training.

6.3. Climate

This section defines climatic elements of JBLM and YTC.

Joint Base Lewis-McChord

The region surrounding JBLM has a Pacific Coast marine climate of moderate temperature and gentle rainfall, influenced by the effects of ocean water in adjoining Puget Sound, winds from the Pacific Ocean, and the nearby Cascade Mountain Range, which includes Mt. Rainier, 14,411 feet (4,393 m) above MSL. The mean temperature ranges from 65° F (18° C) in the summer to 37° F (3° C) in the winter (Fort Lewis, 2007). Mean annual precipitation is about 43 inches (19 cm) per year with most rainfall occurring between October and March. December is the wettest month. Average annual snowfall in the region is 16.7 inches (42.4 cm), typically with low accumulations close to Puget Sound and higher accumulations in surrounding mountain ranges.

Yakima Training Center

The region surrounding YTC is greatly influenced by the mountains, which shield the area from strong arctic winds, and the Cascade Range, which forms a barrier to the easterly movement of moist air from the Pacific Ocean (Gentry, 2006). The mean temperature ranges from 66° F (19° C) in the summer to 31° F (-0.5° C) in the winter (Gentry, 2006). Mean annual precipitation is about 8 inches (20.3 cm) per year with the highest monthly average rainfalls occurring November thru January. Average annual snowfall in around YTC is 14.1 inches (35.8 cm) (Gentry, 2006), usually occurring from November to March, with the heaviest average monthly snowfall occurring in December. In keeping with a semi-arid climate, relative humidity is generally low.

6.4. Land Use

Various land uses of JBLM and YTC are defined in the following section.

6.4.1. Affected Environment

This subsection defines the environments specifically affected.

Joint Base Lewis-McChord

On-Post Land Use

The installation is divided into 32 training areas, four impact areas, the cantonment area of the former Fort Lewis, the former McChord AFB. Most of the developed land uses are located within the cantonment area (approximately 10,600 acres [4,290 ha]), which includes GAAF (approximately 550 acres [223 ha]), and in the former McChord AFB (approximately 4,600 acres [1,862 ha]). The cantonment area is located in the northern portion of the installation and is divided by I-5. JBLM-Main was formerly known as Fort Lewis Main Post and JBLM-North was formerly known as Fort Lewis North Fort. The McChord area is located in the northwest portion of the installation. The McChord Airfield and associated land uses are located on the eastern and northern sides of the McChord area. GAAF is in the southern portion of the cantonment area. IAW the GAAF Master Plan, if needed, an option exists to extend the runway by 3,000 feet (914 m) to the south without affecting ranges, with the concurrent additional space for hangers and ramp parting along that extension. Most of the installation is generally unimproved, meaning it has either no permanent facilities or very limited facilities used by Soldiers to complete training missions. These generally unimproved land use areas include activities such as wheeled vehicle movement, gunnery practice, digging activities (tank ditches, vehicle positions, and foxholes), unit assembly areas, and unit deployment exercises. Approximately 62,000 acres (25,091 ha) are training areas and 12,900 acres (5,220 ha) are impact areas. Unimproved land use areas also include impact area buffer zones.

Land use activities are restricted in certain portions of JBLM either seasonally or year-round. These Controlled Use Areas contain unique attributes that require preservation, conservation, or restoration, or pose a safety or human health hazard. Areas designated as Controlled Use Areas include wetlands and streams and their associated buffers, areas previously designated as Research Natural Areas, buffers for listed species, and other natural resource areas, cultural sites and environmental hazards such as landfills.

JBLM also accommodates multiple nonmilitary uses, including commercial timber harvests; recreational uses, such as hunting, fishing, horseback riding, and other outdoor activities; and Native American traditional cultural practices followed by the Native American tribes. Timber harvests take place within the various forested training areas and on portions of the former McChord AFB. The JBLM Forestry Branch manages 55,000 acres of forest, woodland, and savanna for military training, biodiversity, and wildfire risk reduction. Management tools include commercial timber sales (primarily light thinning), precommercial thinning, reforestation, ecological restoration, and prescribed fire. Recreational activities may take place anywhere throughout the unrestricted areas of JBLM, depending on scheduled training exercises. Native American needs for access are discussed in Section 6.10.1.

Residential, recreational, commercial, and industrial facilities and operations occur in the developed land uses. Most are in the cantonment area and the McChord area, such as administrative, maintenance, medical services, community support, recreation, supply and storage, classroom and simulation training, reserve component support, deployment facilities, Soldier and Family housing, and utilities. Aviation-related facilities are at GAAF and the McChord Airfield. Principal industrial operations at JBLM have been the repair and maintenance of vehicles and aircraft.

Surrounding Off-Post Land Use

Land uses adjacent to JBLM include urban, rural, and mixed residential areas; commercial districts and corridors; and recreational, agricultural, and other open space areas. Development to the north consists primarily of single- and multiple-family residential housing interspersed with commercial areas. The nearest off-Post residential communities and their associated commercial areas to the north are the cities of DuPont, Steilacoom, Lakewood, and Tacoma. In addition, the off-Post portion of American Lake and the associated recreational, commercial, and residential land uses are near the Fort Lewis cantonment area. The areas to the east and south of the installation are characterized by urban unincorporated and rural unincorporated areas in Pierce County and several small communities, such as Roy. To the west, areas surrounding the installation are bordered by Puget Sound, the Nisqually National Wildlife Refuge, the Nisqually Indian Reservation, and the Lacey and Yelm Urban Growth Areas.

JBLM faces increased pressure from rapid urban growth and development, particularly along the Seattle-Tacoma-Olympia corridor. This development and growth is increasingly leading to land-use conflicts in the local area and region. The Fort Lewis Master Plan identifies the need to eliminate existing and

developing land-use conflicts, to coordinate with adjacent jurisdictions to maximize opportunities for mutual benefit, and to minimize conflicts and developmental incompatibilities. One management tool used for the cantonment area of the former Fort Lewis, which includes GAAF, is a LandUse Deconfliction process, which allows installation representatives to ensure that integrated planning occurs and land use conflicts are minimized or eliminated (Fort Lewis, 2007).

Yakima Training Center

On-Post Land Use

Developed land uses are located within the cantonment area (approximately 1,700 acres [688 ha]) and the Selah Airstrip and VAH (291,951 acres [118,148 ha]). The cantonment area includes residential, administrative, commercial, light industrial, and open space uses. The cantonment area serves as the administrative center for most training activities at YTC, except for range management, which is located at Range Control. Located in the southwest corner of the installation, the cantonment area includes VAH, which is used for rotary-wing aircraft (helicopters). Selah Airstrip is located in the range areas; specifically within Training Area 12.

The generally unimproved land use areas are the training and impact areas (327,200 acres [132,413 ha]), which include maneuver, impact, range, and special uses. Special use areas include airborne training sites (drop zones). Training activities on maneuver areas at YTC include maneuver events, off-road tracked vehicle movement, wheeled vehicle movement, aerial maneuver and gunnery activities, gunnery practice, digging activities (tank ditches, vehicle positions, and foxholes), unit assembly areas, and river crossing exercises. Training activities are coordinated to preclude damage to sensitive habitats and species. Included in the unimproved land use areas is approximately 10,000 acres (4,047 ha) managed for significant and sensitive natural and/or cultural resources (e.g., wetlands, riparian areas, archaeological, or sacred sites) and approximately 44,300 acres (17,928 ha) in a Sage grouse Protection Area, further expanded on in Section 6.9.1.

Nonmilitary land uses at YTC include recreational activities such as hunting, hiking, and horseback riding. These activities may take place anywhere throughout unrestricted areas of YTC, depending on scheduled training exercises and when approved by the Garrison Commander. A 22-mile (35 km) stretch of the John Wayne Trail, established by the State of Washington Parks Department, is located within, and

owned and managed by YTC. The trail is used for nonmotorized types of recreation including hiking, trail rides, bicycling, and horseback riding.

Numerous areas of YTC support traditional hunting and gathering practices of Yakama Nation tribal members and the Wanapum People. Native American needs for access are discussed in Section 6.10.1.

Surrounding Off-Post Land Use

YTC is bordered on the west and southwest by suburban residential development. Other land adjacent to YTC is used for agriculture, livestock grazing, and recreation, and includes ranges and residential areas, as well as various Federal- and State-owned parcels. The area north of I–90 contains a patchwork of private and government-owned land used primarily for grazing. There are two wind projects north of YTC's northern boundary, the operational Puget Sound Energy's (PSE) 230 megawatt (MW) Wild Horse Wind Project (15 miles [24 km] east of Ellensburg) on 8,600 acres (3,480 ha) and the Vantage Wind Project being built by Invenergy Wind North America (18 miles [29 km] east of Ellensburg on 4,750 acres (1,922 ha). Gingko State Park and Wanapum State Park border YTC at its northeast corner. Several small communities are located within the larger area beyond the Columbia River to the east, which is used primarily for agriculture. Toward the southern end of YTC's eastern border, the Wanapum People live in a small village near Priest Rapids Dam, immediately adjacent to the installation boundary. The south slope of Yakima Ridge, at and beyond the southern installation boundary, is used primarily for livestock grazing and agriculture. Several urban and smaller residential communities, including Yakima, Selah, Moxee City, and Terrace Heights, are located at YTC's southwest corner. I–82 separates the western boundary of YTC from a collection of privately owned properties and other government lands, the Yakima River, and the L. T. Murray Wildlife Recreation Area. Finally, the area extending into YTC boundaries at its northwest corner, referred to as the Badger Pocket, consists of irrigated agricultural land with scattered residences and farm buildings.

The extent of urbanization occurring around YTC is lower compared to other installations and is not currently impacting the training mission.

6.4.2. Environmental Consequences

Alternatives 2 and 3

The impact from a decision to station a CAB at JBLM will be expected to be less than significant. Land use changes will impact internal use of military land, not use of private land. This decision will not change JBLM's former Fort Lewis cantonment area land use, former McChord AFB area land use, GAAF land use, or the land use at YTC. The CAB facilities will be constructed in the GAAF and East Division ADP areas. The East Division ADP is located east of GAAF and west of an impact area. Both areas are largely developed already, with undeveloped segments having been previously developed or disturbed. Renovations to existing buildings in the GAAF and East Division ADP area will also occur. The current GAAF land use and size will remain relatively unchanged. Land uses in the East Division Area will also remain relatively unchanged. There will be no change to nonmilitary land use on JBLM and YTC, such as recreation and access by tribes to cultural and natural resources. No new live-fire ranges or maneuver training areas are currently identified for the CAB. Live-fire training is expected to occur on ranges already present on the former Fort Lewis and YTC. Training area land use is expected to remain unchanged; however, there will be an increased frequency and intensity of use involving CAB training, including integrated training with ground maneuver BCTs. Integrated training is expected to occur on appropriate existing ranges at YTC.

Effects to existing land uses will be an increase in the frequency of noise and visual intrusions of helicopter training over current levels. An increase in the frequency of training could affect nonmilitary land uses of recreation and access by tribes to cultural and natural resources. Currently, maneuver training areas are open to recreational uses when there is no scheduled maneuver training. However, the addition of CAB training at JBLM and YTC will increase the number of operating hours for maneuver training. The opportunities for access to training areas for recreation will be reduced in those areas that support recreation. Although the effect will be to reduce the availability of training areas for recreation, the increase in aviation training will not result in conflicts with existing land use zones.

A majority of CAB training will be conducted as air-ground integration training at YTC. In other words, if CAB units were not available to train with ground units at YTC, the ground units will still schedule and conduct maneuver training exercises at YTC with the same frequency independent of CAB stationing at

JBLM. Exercises will still be scheduled, but ground unit maneuver training rotations that will still occur will not have the added training benefit of integrating with the CABs units as frequently. Only a small proportion of aviation training at YTC is projected to be in the form of aviation training that will not have otherwise occurred. Therefore, the impacts of CAB stationing at JBLM and its impacts on public access, land use, and recreational or other uses are expected to be less than significant.

Alternative 1 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in land use impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under Alternative 1 is other than JBLM.

6.4.3. Cumulative Effects

A CAB stationing to JBLM, to include CAB training at YTC, is expected to result in less than significant cumulative effects to land use. No Army reasonably foreseeable future actions were identified that will involve activities or actions that will be incompatible with existing military land uses or land use designations on JBLM or YTC. The only non-Army action identified with potential incompatible uses is an action still in the planning stages. PacifiCorp has proposed to construct a new high voltage transmission line that will extend from the East Selah Substation (west of YTC) to a substation east of the Wanapum Dam (east of YTC). A number of potential routes are being considered including a route that parallels an existing line crossing YTC and several others adjacent to the YTC boundary. Some route alternatives could have potential impacts to cultural and natural resources, as well as land use impacts with respect to CAB training activities. However the level of impacts from this action will not be known until analysis is complete for the various routes considered. A fuller discussion of cumulative impacts at JBLM and YTC can be found in JBLM's *Grow the Army* FEIS (JBLM, 2010a).

6.5. Air Quality and GHG

Air quality of JBLM and YTC are defined in the following section.

6.5.1. Affected Environment

Joint Base Lewis-McChord

Air quality regulation is carried out by the PSCAA in Pierce County and by the Olympic Region Clean Air Agency in Thurston County. Opacity is regulated at JBLM under the jurisdiction of the local air pollution control agencies.

NAAQS Attainment Status

JBLM is located within the Air Quality Control Regions (AQCR) of the Puget Sound Intrastate AQCR and Olympic-Northwest Washington AQCR. All of Washington is in attainment with NAAQS criteria pollutants, or is designated as unclassified/attainment. Areas with the unclassified/attainment designation cannot be completely classified because of a lack of information, but are treated as attainment areas for regulatory purposes. The former Fort Lewis is located in an unclassifiable area for PM_{10}, and in an area that was previously designated as a nonattainment area for both O_3 and CO. As part of the redesignation process, the Washington State Department of Ecology (WS DOE) submitted a maintenance plan under which the former Fort Lewis can continue to maintain attainment standards for a 10-year period. Actions at Fort Lewis resulting in an increase of 100 tpy of O_3 precursors (NO_x and VOC) or CO will trigger a conformity analysis.

Portions of JBLM are located in areas designated for CO and O_3 maintenance. Because of the more stringent standards for O_3, portions of JBLM could potentially be a nonattainment area for this pollutant in the near future. According to PSCAA, the nonattainment designation, should it occur, will likely be in a couple of years. Additionally, in 2008 the EPA designated a new $PM_{2.5}$ nonattainment area in southern Tacoma (EPA, 2008). The boundary of this proposed area is adjacent to the northern and eastern boundary of JBLM, but does not include the installation.

The closest PSD Class I area to JBLM is Mount Rainier National Park, which is located approximately 50 miles (80 km) to the southeast.

Pollutants and Sources

The primary emission sources at JBLM are motor vehicles and industrial sources. The primary pollutants from motor vehicles include NO_x, CO, and VOCs. VOCs are emitted primarily from handling of organic liquids (i.e., refueling activities). Secondary pollutants include PM_{10} and $PM_{2.5}$ emissions as fugitive dust, caused by motor vehicles travelling on unpaved and/or gravel roads, project construction, demolition, and training exercises. Industrial stationary sources at JBLM include aerospace maintenance and rework operations, fuel burning, fuel storage and dispensing, degreasing, woodworking, and painting operations. The primary pollutants from fuel burning are NO_x, CO, SO_2, VOCs, and PM_{10}. The primary pollutants from fuel storage and painting are VOCs.

Permits, Management Plans, and Best Management Practices

Currently, for the former Fort Lewis, JBML maintains a Synthetic Minor operating permit with the PSCAA (Notice of Construction Number 9185), which means that any increase in stationary source emissions that exceed the Synthethic Minor Thresholds stated in the permit could require the transition back to major source status. Installation-wide emissions are limited to less than 99 tpy of any criteria pollutant and less than 25 tons (23 metric tons) per year of HAPs. JBLM will demonstrate compliance with all requirements listed in the permit, including monthly calculations of fuel usage and emissions. The Synthetic Minor Permits includes stationary emissions sources (such as boilers and emergency generators), the WWTP, and landfill gas. It does not include portable field generators, exhaust and fugitive dust from vehicle maneuvers, lawn equipment, helicopter exhaust emissions, or household paint.

The PSD baseline date for the former Fort Lewis is August 23, 1979. In June 1979, the Army submitted an EIS that summarized the emissions at Fort Lewis and YTC. At Fort Lewis, particulate emissions were 10,723 tons (9,723 metric tons) per year. This estimate did not include tracked vehicles, which were assumed to contribute additional particulate emissions of at least 10,000 tons (9,072 metric tons) per year.

Yakima Training Center

Air quality regulations are under the Washington Department of Ecology and, for YTC, carried out by that department's Central Regional Office for Kittitas County and by the Yakima Regional Clean Air Agency (YRCAA) for Yakima County.

NAAQS Attainment Status

Currently, YTC is a minor source of air pollution. A very small strip of YTC's western cantonment area (less than 100 acres [40 ha]) lies within a maintenance area for PM_{10}. Therefore, this portion of the cantonment area is subject to a general conformity threshold of 100 tpy for PM_{10}. There is also a maintenance area for CO in the city of Yakima, located more than 3 miles (4.8 km) southwest of the YTC boundary. Activities at YTC are unlikely to affect air quality in this maintenance area.

The closest PSD Class I area to YTC is the Goat Rocks Wilderness Area, which is located approximately 60 miles (96 km) to the southwest of the installation.

Pollutants and Sources

The major pollutants in the Yakima region and on YTC are vehicular emissions (primarily CO, NO_x, and VOCs) and greenhouse gas. In addition, particulate emissions (PM_{10} and $PM_{2.5}$) are generated by military vehicles traveling on unpaved roads and off-road and by military aircraft. Impacts to air quality from Army activities also include emissions from training-related fires; stationary sources, such as heating plants; dust and exhaust emissions from mobile sources, such as construction equipment and personal vehicles; and hazardous emissions from building demolition, maintenance and repair shops, and other activities. The largest stationary source of air pollution at YTC is fuel-burning equipment, which includes generators and boilers.

Air quality on YTC is generally considered good, although it can degrade locally rather quickly when PM pollutants are generated by rangeland fires and fugitive dust associated with maneuver training activities. However, PM pollutants commonly dissipate quickly because of the predominant winds from the west/southwest.

Permits, Management Plans, and Best Management Practices

Emission inventories for YTC from 1995 and 2000 showed that YTC did not generate sufficient air contaminants to require a Title V permit.

No new construction is currently planned to occur at YTC in support of the CAB stationing action. However, should any new construction projects be identified in the future, those projects will be properly reviewed and permitted to comply with applicable air regulations.

6.5.2. Environmental Consequences

Alternative 2 and 3

Air quality impacts will occur from the construction and operation of stationary sources for the CAB facilities and the associated tactical equipment sets and weapons systems involved in training CAB units. Air emissions from construction activities at JBLM will include construction traffic and equipment and will be temporary in nature. This CAB stationing is expected to have indirect impacts on the CO and O_3 maintenance areas at JBLM by employees and their transportation activities, but no significant degradation is anticipated. Generation of CO and O_3 precursors for all alternatives of JBLM's *Grow the Army* FEIS, including CAB stationing, were predicted to have less than significant impacts to air quality. Table 4-22 of JBLM's *Grow the Army* FEIS presents estimated annual emissions of criteria air pollutants associated with CAB training. Emissions associated with aviation training include 163.57 tpy CO, 13.64 tpy NO_x, 133.15 tpy VOCs, 4.75 tpy SO_2, 4.71 tpy PM_{10}, and 4.71 tpy $PM_{2.5}$. Emissions associated with CAB wheeled vehicle training include 7.36 tpy CO, 6.16 tpy NO_x, 6.165 tpy VOCs, 0.09 tpy SO_2, 20.59 tpy PM_{10}, and 3.75 tpy $PM_{2.5}$. Air quality impacts at YTC are limited to fugitive dust emissions connected with CAB training activities. Operations of the CAB (excluding the above-mentioned training) will result in air emissions from boilers, emergency generators, equipment maintenance, and traffic from employees and deliveries.

Air quality impacts will occur as a result of an increased number of privately-owned vehicles in the region. Using traffic estimates from Section 6.12.2, estimated emission levels potentially caused by the privately-owned vehicles of CAB Soldiers at JBLM were calculated (Table 15); however, this increase is not expected to cause a significant impact.

Table 15. Estimated Annual Vehicle Emissions Generated from Increased Population brought on by a CAB Stationing

Emission Per Mile		Total Emissions	
Emission	**Pounds Per Mile**	**Pounds**	**Tons**
CO	0.00765475	522,238	261.1
NOx	0.00077583	52,930	26.4
VOC	0.00079628	54,325	27.1
SOx	0.00001073	732	0.4
PM_{10}	0.00008979	6,126	3.1
$PM_{2.5}$	0.00005750	3,923	2.0
CO_2	1.10152540	75,150,468	37,575.2
CH_4	0.00007169	4,891	2.4

With increased training, there is a risk that there will be an increase in fires, which emit PM_{25}. However, existing fire management actions will continue to minimize the risk of large fires. If additional fires occurred, they are not expected to impact any PSD Class I areas. Effects to air quality will be temporary and will not be expected to cause significant opacity effects outside of JBLM or YTC boundaries.

Additionally, combustion of JP8 fuel by helicopters will generate 163.57 tons of CO, 13.64 tons of NO_2, 4.71 tons of $PM_{10}/PM_{2.5}$, 4.75 tons of SO_2, and 133.15 tons of VOCs annually during training exercises (JBLM. 2010a).

Should the Joint Base air permit status be a single joint synthetic minor for the entire Joint Base, the level of increased emissions that will result from a CAB stationing at JBLM is expected to cause the installation to exceed limits listed in the Fort Lewis synthetic minor permit. JBLM and PSCCA are currently coordinating on the appropriate permitting status for the Joint Base, which, per Section 4.4.1, became operational in 2010. The results of this coordinated action will be a permitting status for the Joint Base that is appropriate for the operations of, and taking place on, the facility.

JBLM and YTC demonstrated conformity in the Clean Air General Conformity Analyses in JBLM's *Grow the Army* FEIS (JBLM, 2010a).

For GHG and climate change, a rough estimate of the carbon emissions from CAB operations can be obtained by taking the hours that will be flown by the aircraft, determining the gallons of fuel to be used, and thereby determining the likely annual emissions (Table 16).

Table 16. Direct GHG Emissions from Aviation Asset Flight Operations

Emissions Factor Data[1]	Carbon Dioxide	Nitrous Oxide[2]	Methane[2]
EEF (LBS/GAL)	21.09	0.000683422	0.000595238
GWP[3]	1	310	21

GHG Emission Calculations									
Group ID	Airframe Type	Total Annual Operational Time (hrs)	Max. Rated Fuel Use (lbs/hr)	Fuel Type	Fuel Density (lbs/gal)	Annual Fuel Use (gal)	CO_2 (tpy)	N_2O (tpy)	CH_4 (tpy)
1	UH-60	5,388	1,200	JP-8	6.7	965,014.93	10,176.1	0.3	0.3
2	AH64-D	10,420	1,200	JP-8	6.7	1,866,268.66	19,679.8	0.6	0.6
3	OH-58D	7,041	320	JP-8	6.7	336,286.57	3,546.1	0.1	0.1
4	UH-60	1,638	1,200	JP-8	6.7	293,373.13	3,093.6	0.1	0.1
5	CH-47	2,370	2,200	JP-8	6.7	778,208.96	8,206.2	0.3	0.2
6	15 UH-60	3,142	1,200	JP-8	6.7	562,746.27	5,934.2	0.2	0.2
						Total Tons =	**50,636.0**	**1.6**	**1.4**
							Total Annual GHG Emissions as CO_{2e} = 51,174.7 tons		

CO_{2e} = Carbon Dioxide Equivalents

Source: Meister, 2010

NOTE:

1. Emissions factors calculated from data in: (1) Energy Information Administration, Documentation for Emissions of GHG in the U.S. 2005, DOE/EIA-0638 (2005), October 2007, Tables 6-1, 6-4, and 6-5.
2. Source: U.S. EPA. Inventory of U.S. GHG Emissions and Sinks: 1990-2005, EPA 430-R-07-002, Annex 3.2, (April 2007), web site: http://www.epa.gov/climatechange/emissions/usinventoryreport.html. Units converted from g/gal to lbs/gal.
3. GWP of gases (100-year time horizon) from the IPCC, SAR.

In addition to GHG impacts from helicopter training, it is estimated that the tactical ground vehicles of the CAB will use approximately 148,400 gallons of JP-8 fuel annually. This will be estimated to contribute up to an additional 10,608 tons of CO_{2e} per year given a high use scenario for these vehicles and assuming they are not deployed and training at home station.

Section D.6 of Appendix D in this PEIS discusses the transportation impacts of CAB stationing. This appendix predicts that the addition of CAB Soldiers and their Families will be expected to increase vehicle miles driven in and around the installations by 70,750,880 miles at each location annually. Assuming a privately owned vehicle fleet fuel efficiency average of approximately 24 miles per gallon, an additional combustion of approximately 2,947,950 gallons of gasoline will be expected to result in an additional 26,207 tons of CO equivalents according to calculations and conversions used by the EPA (www.epa.gov/cleanenergy/energy-resources/calculator.html).

The cumulative impact from combustion of fossil fuels for tactical and privately owned vehicles, when combined, is anticipated to result in the release of an additional 87,989.7 tons of CO_2 GHG equivalents. This estimate includes additional use of helicopters and ground support vehicles, and indirect impacts of commuter traffic. These GHG impacts will only be realized on a global scale if a new CAB is added to the Army's force structure, and not in the case that existing units are realigned to form the CAB.

It is recognized that additional energy for homes and offices will also increase the amount of GHGs produced as part of this action. JBLM is aggressively working towards installation sustainability goals IAW DA and DoD policy. In efforts to meet EO objectives as well as State and Federal regulations for renewable energy use, JBLM is working toward deriving a much larger amount of their energy from renewable sources in the next decade.

For a CAB to be formed by consolidating existing units, there should be no net gain of carbon emissions. The aircraft are already flying somewhere and adding these carbon emissions to the global mix. For a CAB to be built, the emissions will be added to the global production of GHG. To put this in perspective, the 87,989.7 tons of $C0_2^e$ represent 0.000013 percent of the U.S. emissions total. In this case, this is not a significant increase, but it does add to the global GHG emissions and therefore could contribute to the climate change phenomenon.

The direct and cumulative impacts of implementing this decision will not contribute significantly to the degradation of air quality in the region and will not require General Conformity mitigation, PSD permitting, or produce violations to air quality.

If a new CAB is stationed at JBLM, it will contribute GHGs to the earth's atmosphere by adding vehicles, personnel, facilities, and their associated emissions. The global concentration of CO_2 in our atmosphere

today far exceeds the natural range over the past 650,000 years. Global surface temperatures have increased about 33.33° Farenheit (0.74° Celsius) (plus or minus 32.32° Farenheit [0.18° Celsius]) since the late 19th century (reference is http://www.nesdis.noaa.gov/FAQs.html). The increase in GHGs adds to the risk of changing climate, affects of which could include changes in species distribution, species viability, increased flooding, higher sea levels, population displacement, and increased risk of drought and desertification.

Alternative 1 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in air quality impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under Alternative 1 is other than JBLM.

6.5.3. Cumulative Effects

Army actions will be expected to contribute to cumulative impacts to air quality in the JBLM and YTC regions, but cumulative effects to air quality are expected to be less than significant. Development, industry, and population increases in the South Puget Sound region have resulted in cumulative impacts to air quality in the past. In the Yakima Valley, development, population increases (including wood burning during winter), and agriculture have contributed to pollutant emissions. Carbon monoxide emissions, in particular, have been a concern for the South Puget Sound region, largely because of increased traffic congestion in the region. Car emissions and winter wood smoke have been the primary regional source of CO_2 emissions around YTC. Sustainability efforts by JBLM to reduce traffic congestion on the installation and reduce overall energy consumption by 2025 will help decrease air emissions that originate on JBLM and/or are associated with fuel burning to provide energy sources for the installation. Efforts to conduct smoke-, dust-, and other pollutant-generating activities during periods with favorable weather (based on factors such as wind speed and direction) will minimize the effects of pollutants generated on JBLM affecting nearby communities. Continuing to follow fire management programs will help to minimize the amount of PM_{10} generated by Army activities on YTC. A fuller

discussion of cumulative impacts at JBLM and YTC can be found in JBLM's *Grow the Army* FEIS (JBLM, 2010a).

6.6. Noise

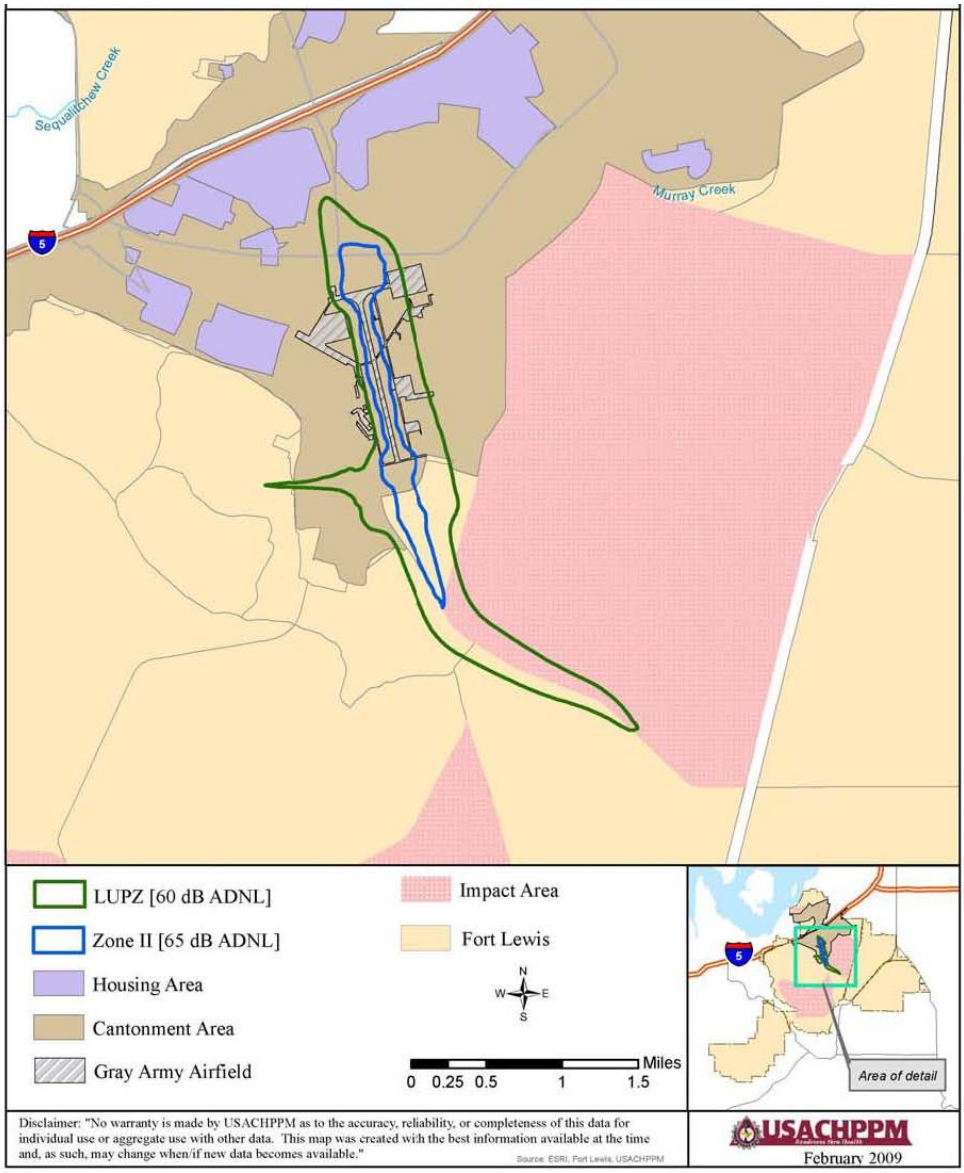
Noise at JBLM and YTC is defined in the following section.

6.6.1. Affected Environment

Joint Base Lewis-McChord

Existing sources of noise at JBLM include military aviation activities, small arms, artillery, large-caliber weapons training, and vehicular traffic. Noise from vehicular traffic is primarily located in the Lewis cantonment and McChord areas. The highest noise levels are produced by gunnery, demolition, and helicopter training. Noise resulting from the High Mobility Artillery Rocket System (HIMARS) unit will be eliminated as the HIMARS unit is scheduled to leave JBLM.

The Army has developed noise contours for the former Fort Lewis (CHPPM, 2009) and results were included in the Fort Lewis *Grow the Army* FEIS (JBLM, 2010a); a copy is also provided in Appendix B of this PEIS. The Land Use Planning Zone (LUPZ) and Zone II noise contours for GAAF operations do not extend into the family housing areas or beyond the installation boundary (Figure 11). The low number of GAAF operations does not produce a Zone III noise contour. Demolition and large-caliber weapons noise contours include the NZ II extending beyond the installation boundary, encompassing the Nisqually Indian Reservation and the city of Roy. The NZ III contour for demolition and large-caliber weapons extends less than 0.3 mile (0.48 km) into the Nisqually Indian Reservation and approximately 660 feet (201 m) beyond the southeastern boundary near the city of Roy. Noise contours for small arms operations, based on peak levels rather than a cumulative or average level, include the Zone II noise contour extending into the Evergreen, Hillside, and Madigan housing areas. The Zone III noise contours for small arms operations do not extend into the housing areas.



4540 Source: CHPPM, 2009

4541 **Figure 11. GAAF Noise Contours**

4542 The USAF has developed noise contours for the former McChord AFB (HQ Air Mobility Command
4543 [AMC], 2007) but as the proposed action will not affect land use or activities in the McChord area,
4544 McChord data is not presented.

Flight altitudes adhere to noise-abatement policies that minimize the aircraft noise footprint on and near the installation and within the local flying area in order to establish and sustain positive public relations. No aircraft will fly below 500 feet (152.4 m) along flight routes and all Army aircraft will maintain a minimum of 2,000 feet AGL (609 m AGL) of national parks, monuments, recreation areas and scenic river ways administered by the National Parks Service; national wildlife refuges, big game refuges or wildlife ranges administered by the USFWS; and wilderness and primitive areas administered by the USFS. Additionally, JBLM Regulation 95-1 imposes a 2,000 foot (609 m) altitude restriction for flight over congested areas off the installation. Exceptions to this regulation include emergency situations, periods when weather conditions dictate a lower altitude, or when the use of a lower altitude is mission-essential (Hummel, 2010).

Yakima Training Center

Existing sources of noise at YTC include military aviation activities, small arms artillery, large-caliber weapons training, and vehicular traffic. As with JBLM, noise from vehicular traffic is primarily located in the cantonment area.

YTC noise contour data is also included in the Fort Lewis *Grow the Army* FEIS (JBLM, 2010a). The LUPZ, Zone II, and Zone III noise contours for demolition and large-caliber operational noise extends beyond the installation boundary in some areas to the west and south, but do not extend into the YTC cantonment area. The affected areas are either sparsely populated or unpopulated, with compatible land uses, including mountainous and agricultural areas. The LUPZ and Zone II noise contours for VAH do not extend beyond the installation boundary or near existing structures. The low number of VAH operations does not produce a Zone III noise contour. The Zone III noise contour for small arms operations, based on peak levels, does not extend into the YTC cantonment area nor beyond the installation boundary. The Zone II for small arms operations does not extend into the cantonment area and extends less than 3,900 feet (1,189 m) beyond the installation boundary.

6.6.2. Environmental Consequences

Alternative 2 and 3

The addition of CAB facilities at the GAAF and East Division ADP areas will be short term in duration and construction does not generate the peak noise levels (as do large-caliber weapons) that could be exceeded 15 percent of the time. Consequently, the increase in noise associated with construction of new facilities will be less than significant.

The addition of a CAB to the existing GAAF operations will be significant to noise receptors. With the stationing of a CAB, the increase in helicopter operations at GAAF will extend the LUPZ (60 ADNL [A-weighted day-night sound levels]) and Zone II (65 ADNL) noise contours into the cantonment area. With this extension of contours, an increase in the number of complaints about noise is expected from on-post. Per Section 6.6.1, the additional flight operations resulting from a CAB stationing at JBLM will increase JBLM and YTC air time combined to less than an annual average of 24,800 flying hours.

Administration of Army and USAF flight training will not be changing in the foreseeable future, therefore the addition of a CAB will not affect the activities or noise contours at McChord Airfield.

The additional VAH activity resulting from CAB training activities is expected to extend the LUPZ (60 ADNL) beyond the western boundary of YTC approximately 2 miles (3 km). However, this land is zoned agricultural and is sparsely populated, therefore the impact will be less than significant. The Zone II (65 ADNL) and Zone III (75 ADNL) noise contours for VAH do not extend beyond YTC's boundary.

The addition of a CAB with its helicopters to maneuver training at JBLM will substantially increase the amount of noise generated by this type of training. Increasing the frequency of that noise will cause annoyance to adjoining communities. An increase in the number of complaints about noise is expected from off-post. Growth and stationing of a new CAB to JBLM, per Section 2.3, will increase air time at JBLM and YTC by an annual average of 24,800 flying hours. As detailed in Section 2.5.4, it is estimated that up to one third of total estimated CAB flight time (see Tables 3.3-1 and 3.3-2) may occur at YTC. The remote location of YTC and the surrounding mountainous terrain suggest a similar impact at YTC will be less than significant.

Noise and wind disturbance associated with helicopters will result in a greater incidence of distractions to wildlife than under the other alternatives, and could cause some animals to flee the area. In most cases, animals will be able to resume normal activities after the disturbance ceased, although some long-term behavioral modification and interference with life requisite activities could occur. The species most susceptible to noise disturbance will be sensitive species, such as the bald eagle.

The addition of a CAB will likely increase the frequency of aerial maneuver training at JBLM and between JBLM and YTC. However, peak noise levels will remain the same and the noise contours will not change from the current noise modeling predictions. There is potential that individual overflights of aircraft using the airspace at JBLM and YTC may cause some limited additional disturbance to those living nearby. However, the low number of operations, minimum flight altitudes, and stand-off distances imposed for NOE operations will greatly reduce this potential.

At both JBLM and YTC, there will be an increase in the potential for noise impacts to wildlife species as a result of implementing the proposed action. Impacts will include increased disturbance to sensitive species and a potential reduction in reproductive success and survivorship. IAW the installation's Regulation 420-5, JBLM and YTC take active measures to avoid and prohibit training activities, which will generate noise or otherwise disturb sensitive species. Specifically, CAB training activities and overflights within designated areas will be avoided during the nesting period. Overflight restrictions are nest specific and include minimum approach distances of aircraft to reduce noise impacts. Restrictions include limitations on flight routes during particular times of the year.

The increase in potential adverse noise impacts is mitigated for those species of management concern listed in the installation's Regulation 420-5 (e.g., bald eagle, golden eagle, greater sage grouse, and Ferruginous hawk). Impacts to wildlife from noise associated with the proposed action are anticipated to be less than significant.

Alternative 1 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in noise impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY

2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under Alternative 1 is other than JBLM.

6.6.3. Cumulative Effects

Cumulative effects to noise in the JBLM region are significant when considering all past, current, and planned future actions. A CAB stationing will significantly affect GAAF noise, extending noise contours into the cantonment area. CAB training activities will also increase the frequency that noise will cause annoyance to adjoining communities.

While there will be additive noise impacts from CAB training and other planned activities, in conjunction with current noise-generating activities and actions at YTC and in the region, cumulatively, these effects will be less than significant. The principle activities within the YTC region that contribute to noise are those mission activities occurring at YTC, including training by visiting units.

As noted earlier, the HIMARS unit will be leaving JBLM. This will reduce cumulative noise impacts at JBLM and YTC as artillery firing activities from this unit will no longer occur. A fuller discussion of cumulative impacts at JBLM and YTC can be found in JBLM's *Grow the Army* FEIS (JBLM, 2010a).

6.7. Geology and Soils

The affect on geology and soils is defined in the following subsections.

6.7.1. Affected Environment

Joint Base Lewis-McChord

Geology

JBLM lies within the Puget Trough, a long north-south trending lowland between the Cascade Mountains on the east and the Olympic Mountains on the west. Seventy-three percent of JBLM is outwash gravel and sand, 23 percent is till and moraine, and two percent is alluvial deposits. Its geology is a result of volcanic activity and lava from fissures, sedimentation, deformation-producing mountains, erosion, and glaciations. The area is predominantly a drift-covered glacial plain rimmed by Tertiary, or prePleistocene, hills forming barriers against which the ice mass terminated in many places (Wallace, 1961). The last

major glaciation, during the Pleistocene (the Vashon Glacier), is responsible for most of the present day topography and surface features. Following the glacial retreat, a number of smaller lakes were formed in surface depressions. Since the retreat of the Vashon Glacier, geologic processes have included weathering of the glacial drift, reworking of and redeposition of the drift by streams, peat accumulation in local depressions, marine erosion and deposits, and deposits of mud flows primarily from Mount Rainier (Pierce County, 2002).

The topography of JBLM is typically flat to gently rolling with localized areas of moderately sloping lands. The slopes are generally less than 15 percent, except along the steep escarpments along the Nisqually River and Puget Sound.

Earthquakes occur in the State of Washington, with most of the large magnitude earthquakes (greater than 6.0) having occurred in the Puget Sound region between Olympia and the Canadian border in the Cascade Mountains, and along the Washington-Oregon border (Pierce County, 2002). The Puget Sound area is in Seismic Zone 3, based on a scale of zero to four, with four being the highest risk (Fort Lewis, 2007).

Mount Rainier is the nearest volcano to JBLM, located approximately 50 miles (80 km) to the southeast. Hazards from a potential eruption of Mount Rainier include ashfall, flooding, and debris flows. The hazard from ashfall will be minimal, given the distance from the installation to Mount Rainier, while flooding and debris will be limited to the valley of the Nisqually River (Fort Lewis, 2007).

Mineral resources at JBLM consist primarily of sand and gravel present in the outwash materials.

Soils

The soil types on JBLM are dominated by the Spanaway-Nisqually association (Pringle, 1990; USDA-NRSC, 2010; Fort Lewis, 2007). Spanaway soils, where most JBLM prairies are found, are formed on gravelly glacial outwash and are typically gravelly sandy loam, whereas the Nisqually soils are formed on sandy glacial outwash and are loamy fine sands. Other major soil types include moderately well-drained, sandy-gravelly forest soils over glacial till, which are common in the southern portion of Fort Lewis located in Thurston County. These soil types are represented by the Alderwood-Everett association and typically support forest vegetation.

The NRCS is currently conducting a new soil survey of JBLM, which will result in some substantial revisions to the existing soil surveys (Foster, 2010). The new survey is expected to be completed before the end of FY 11.

Within training areas on JBLM prairies, most soil disturbance is caused by training (Fort Lewis, 2007). Active management occurs to mitigate impacts caused by training, such as those management actions performed under the ITAM program.

Yakima Training Center

Geology

YTC lies within the Columbia Plateau physiographic province. YTC topography is dominated by east-west trending anticlinal and synclinal ridges and south trending ephemeral drainages that dissect the valleys between ridges. Five ridges cross the installation and vary from rounded hills to mountains with slopes ranging from 8 to 60 percent. Mainstem drainages parallel the ridges and most seasonally contribute water and sediment to the Columbia River on the east and the Yakima River on the west. Elevations at YTC range from approximately 500 feet (152 m) above MSL at Priest Rapids Dam on the Columbia River to 4,216 feet (1,285 m) at the top of Cairn Hope Peak.

The majority of folding and uplift that produced the ridges at YTC occurred approximately 9 million to 1.8 million years ago. This disturbance occurred after the deposition of extensive flood basalts during the Miocene period (YTC, 2002). Although uplift has slowed, tilted fan piedmonts indicate continued faulting.

Although Pleistocene glaciers did not reach YTC, humid conditions associated with the glaciations resulted in increased deposition of loess (windblown silt) in the area. Also during the Pleistocene, a series of approximately 40 catastrophic floods from breaks in ice dams inundated the area. Downstream ponding of the floodwaters at Wallula Gap caused the deposition of granite erratics (up to 5m in diameter), silts, sands, and gravel (YTC, 2002).

Soils

Soils at YTC have formed from a variety of parent materials and at several landscape positions. Major soil associations fall into four groups, depending on the surface material from which they have formed and local topography; and are characteristic of arid and semi-arid uplands and terraces:

- Soils that have formed in glacial outwash, loess, alluvium, and lacustrine sediments on terraces, terrace escarpments, and benches in areas of channeled scabland (Malaga-Starbuck-Sagehill soils);
- Soils that formed in loess, slope alluvium, and alluvium on alluvial fans and terraces (Wanapum-Drysel-Scoon and Benwy-Selah-Manastash soils);
- Soils that formed in residuum and colluvium derived from basalt and in loess on hillslopes, ridgetops, and benches (Nevo-Fortyday-Drino, Vantage-Clerf-Argabak, and Camaspatch-Whiskeydick soils);
- Soils that formed in loess, slope alluvium, and residuum and colluvium derived from basalt on plateaus, benches, ridgetops, and hillsides (Levnik-Nosser-Disage and Marlic-Zen soils) (Gentry, 2006).

The majority of YTC soils are highly erodible as a result of physical properties, steep slopes, and limited vegetative cover. Most erosion and runoff at YTC result from short-duration, high-intensity rain-or-snow events, commonly in areas of frozen or partially frozen soil. Summer thunderstorms are also a significant source of runoff (Wigmosta, et.al., 2007). Often, unimproved roads and firebreaks contribute disproportionate amounts of sediment load within a given watershed (i.e., they yield more sediment per unit area) than the surrounding rangeland (Wigmosta, et al, 2007). Other disturbances at YTC influencing soil erosion include excavations, intensive off-road vehicle travel, weapons fire, bivouacs, and wildland fire (YTC, 2002). Silt loams and very cobbly loams make up about 70 percent of YTC soils (YTC, 2002).

A restoration program exists at YTC to reduce and minimize discharge of sediment to both the Yakima and Columbia Rivers (YTC, 2002; JBLM, 2010a), which helps address a water quality concern identified below in Section 6.8.1. The program includes management and rotation of training areas to allow

vegetation to recover, active restoration by planting, construction of sediment trapping check dams at critical locations, and protection of critical riparian vegetation corridors by restricting use of those areas.

6.7.2. Environmental Consequences

Alternative 2 and 3

Geology

Implementation of this stationing decision is not predicted to cause significant impacts to the geological character of JBLM or YTC.

Soils

Existing soils, topography, and climate conditions are such that significant impacts are not anticipated. Temporary impacts to soils previously disturbed are anticipated as a result of construction and renovation activities for CAB facilities at JBLM. Proposed CAB facilities are expected to be on generally flat land with low soil erosion potential. Construction and renovation site disturbance will temporarily destabilize soils and increase wind and water erosion.

The primary impacts to soils are predicted to result from aviation maneuvers of the CAB at both JBLM and YTC. Because of the generally damp nature of JBLM soils, the general presence of ground cover, and the short-term exposure of soils to rotor wash, the effects to soil erosion are expected to be less than significant. Also, due to the coarse nature of the glacial deposits, JBLM soils are highly resistant to compaction. Because many of the soils at YTC are susceptible to wind erosion, flight training, such as landing/takeoff operations in maneuver areas or other training ranges will be expected to impact YTC soil erosion. Wind erosion impacts at YTC are predicted to be mitigable to less than significant through training and environmental management procedures. In addition, dust clouds in these areas could lead to pilot vision impairment and increased helicopter maintenance needs. Direct and indirect impacts to soil erosion from live-fire training munitions impacts and potential wildfires are expected to increase; however, the increase in training will not impair the effective maintenance of training areas or conflict with statutes or regulations. Maneuver training by the CAB's support vehicles is not expected to contribute measurably to the effects of soil erosion at JBLM or YTC.

Alternative 1 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in geology and soil impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same "no impacts" will occur for Alternative 1 as the stationing location selected under Alternative 1 is other than JBLM.

6.7.3. Cumulative Effects

Cumulative effects on soil erosion at JBLM and YTC are not expected to increase significantly beyond current levels when soils are properly maintained through an adaptive management program. At Fort Lewis, low slope gradients, climatic conditions, and soil textures have produced a pedogenic environment that is naturally resistant to erosion. Although YTC's semi-arid climate, steep slopes, and sparse vegetation contribute to highly erodable soils, adaptation of current soil management practices and policies in light of increased training levels will continue to maintain soil erosion at levels that will not exceed any of the resource-specific significance criteria. A fuller discussion of cumulative impacts at JBLM and YTC can be found in JBLM's *Grow the Army* FEIS (JBLM, 2010a).

6.8. Water Resources

The affect on water resources is defined in the following subsections.

6.8.1. Affected Environment

Joint Base Lewis-McChord

Surface Water and Watersheds

JBLM lies within three Water Resource Inventory Areas (WRIAs) that were designated by the WS DOE, WDNR, and Washington Department of Fish and Wildlife (WDFW) to facilitate watershed planning. In addition, WDNR further divides the WRIAs into smaller Watershed Administrative Unit (WAU). The three WRIAs are Nisqually River (WRIA 11), Chambers-Clover (WRIA 12), and Deschutes River Basin

(WRIA 13). The five WAUs are Chambers-Clover, Muck Creek, Yelm Creek, McAllister, and Lower Deschutes.

Nisqually River is the main surface water feature of JBLM, crossing JBLM in a southeast to northwest direction and discharging into the Nisqually Reach of Puget Sound. Data on Nisqually River stream flows is available from USGS gaging stations. The average annual water flow of Nisqually River upstream of JBLM, at the McKenna gauging station (12089500), is 1,288 cfs (36.5 cms) (period of record is 1948 – 2009) (USGS, 2010).

Due to geological history, the pervious nature of surface soils and presence of groundwater near the surface of the land, several surface water bodies exist as surface expressions of the shallow groundwater table. Examples are American Lake; Sequalitchew Lake; several wetlands; at times, Sequalitchew Creek and Murray Creek in the cantonment area; and numerous other lakes, wetlands, and some tributaries to Muck Creek. Some of these areas are both groundwater discharge and recharge areas, depending on seasonal changes in groundwater elevation and on the direction of groundwater flow.

Surface water quality problems have resulted in several water bodies in the WRIAs of Nisqually, Chamber-Clovers, and Deschutes being placed on the 303(d) list for impairment. These off-post impairments are results of fecal coliform, dissolved oxygen, temperature, and/or phosphorus. American Lake, half of which is within JBLM's boundary, is listed as impaired within the boundary of JBLM; it is impaired by phosphorus (WS DOE, 2008; JBLM, 2010a). Spanaway Lake, also on the 303(d) list, is located outside of JBLM's boundary but waters from on-post do flow into Spanaway Lake. However, Spanaway Lake's contamination is not derived from the inflow of JBLM waters.

Groundwater

Numerous aquifers underlie JBLM, from the shallow Vashon Drift aquifer to deeper aquifers such as the Salmon Springs Drift, Stuck Drift, and Orting Drift. Also underlying most of the JBLM region is the Central Pierce County Aquifer, which EPA designated as a sole-source aquifer since it supplies at least 50 percent of the drinking water consumed in the area (JBLM, 2010a). At the request of the Tacoma-Pierce County Health Department, EPA designated the Clover/Chambers Creek basin under Pierce County as a sole-source aquifer. Thurston County never applied for this status (Fort Lewis, 2007). Groundwater in the shallow Vashon Drift aquifer generally flows in a west-to-northwest direction across JBLM, with

localized changes in flow direction near discharge areas (major lakes, creeks, and the Nisqually River). Flow of groundwater in the deeper aquifers is also generally west to northwest. Groundwater elevations decrease with aquifer depth, indicating a downward vertical gradient. Groundwater velocities have been estimated at 0.02 feet (0.06 m) per day to 2 feet (0.6 m) per day for the shallow Vashon Drift aquifer and 0.1 foot (0.03 m) per day to 1 foot (0.3 m) per day for the Salmon Springs aquifer (Fort Lewis, 1994).

Groundwater recharge on a regional scale originates as precipitation on the western flank of the Cascade Mountains and is transmitted in a generally westerly direction through the hydrostratigraphic system. It then discharges to the Puyallup and Nisqually river valleys and Puget Sound. Local recharge of groundwater is provided by infiltration of precipitation, stormwater runoff, and lakes and streams that lie above the prevailing water table.

Most of the groundwater quality problems in the regional area are attributed to natural conditions and are generally related to iron and manganese. The exceptions are discussed in JBLM's *Grow the Army* FEIS (JBLM, 2010a). In terms of meeting drinking water standards, groundwater quality appears to be good and monitoring records for the former Fort Lewis water system indicate that, with few exceptions, water quality complies with requirements for water supplies (Gray & Osborne, 1991). Nitrate is the most widespread pollutant in shallow aquifers, and although it is not a problem throughout the entire region, there are localized areas that exhibit elevated nitrate levels (Golder Associates, 2003).

Floodplains

The Federal Emergency Management Agency/Flood Insurance Rate Map (FEMA/FIRM) "Special Flood Hazard Areas" maps suggest that the Nisqually River and Muck Creek are the only drainages subject to major flooding (WS DOE, 2010). Some local flooding occurs in the cantonment area due to backups in the storm drainage system or blocked drain inlets.

Water Rights

The former Fort Lewis asserts a Federally reserved water right for all its consumptive uses, present and future and currently holds water rights claims for several of its sources.

Yakima Training Center

Surface Water and Watersheds

YTC lies within the WRIAs of Lower Yakima (WRIA 37), Upper Yakima (WRIA 39), and Alkaki/Squilchuck (WRIA 40). Surface water from YTC drains into two major basins: the Columbia River Basin to the east and the Yakima River Basin to the west. Surface water resources at YTC include streams, seeps, springs, and 21 artificial ponds. Thirteen man-made sediment retention ponds are maintained for erosion control and monitoring, three for recreation, and five for firefighting and training support (YTC, 2002). Major streams discharging into the Columbia River include Alkali, Hanson, and Johnson creeks, which are at least partially perennial; and Sourdough, Middle, and Corral Canyon creeks, which are intermittent. Intermittent Cold Creek, as well as Selah and Lmuma creeks, which are perennial in their lower reaches, discharge into the Yakima River. The remaining drainages on YTC are ephemeral or intermittent flowing for a short time in the spring or immediately following a large storm event.

Hydrologic conditions vary annually depending on seasonal snowpack and runoff characteristics. Data on stream flows near YTC are available from USGS gaging stations on the Yakima and Columbia Rivers. For the Yakima River, the USGS station at Umtanum (12484500) is located near the upstream boundary of YTC, and a station at Union Gap (12500450) is located downstream of YTC. Annual flows in the Yakima River averaged 2,429 cfs (68.8 cms) at the Umtanum station (period of record 1934 – 2009) and 3,552 cfs (100.6 cms) at Union Gap station (period of record 1967 – 2009) (USGS, 2010).

Flows in the Columbia River are regulated by a series of dams. Two of these dams are the Wanapum Dam and Priest Rapids Dam, both of which are adjacent to the eastern boundary of YTC. Annual flows in the Columbia River at the gaging station below Priest Rapids Dam (12472800), downstream from YTC, averaged 132,883 cfs (3,763 cms) (period of record 1918 – 2009) (USGS, 2010).

Most streams on YTC are intermittent. Discharge of suspended sediments from streams at YTC increases during infrequent high flows, over very short time periods. However, monitoring data indicate that YTC is not contributing large amounts of suspended solids compared to existing loads in the river.

There are no Section 303(d) impaired water bodies on YTC. However, historic monitoring data reveals there are various impaired water bodies in the Lower Yakima, Upper Yakima, and Alkaki/Squilchuck

WRIAs. Impairments include pH, temperature, pesticides, and fecal coliform (WS DOE, 2008; JBLM, 2010a).

The primary water quality concern at YTC is introduction of fine sediment into streams with subsequent discharge to the Yakima and Columbia Rivers. Discharge of fine sediment is most likely following high, short-duration flow events, which typically involve rain falling on snow or frozen ground. Sources of fine sediment include degraded upland areas, improperly designed and located roads, degraded channels resulting from mass wasting, and natural erosion processes. To date, conclusions based on analyzed data indicate that sediment loads from YTC contribute a small fraction of total sediment loads in the Columbia and Yakima systems. However, the effect of timing and extent of discharge is not known. Due to high variability in dryland hydrology and weather, it will be difficult to determine whether changes in water quality are due to management practices or natural processes associated with dryland hydrology.

Discharges of sediment to the Yakima River are more critical than those to the Columbia River because the Yakima River basin has high sediment inputs from other existing sources, primarily runoff from agricultural lands, and, in particular, irrigation return flows. Most of the agricultural loading of suspended sediment occurs downstream from YTC, although some occurs in the Kittitas Valley and from tributaries west of YTC that drain similar terrain. In 1998, the EPA approved a Water Cleanup Plan designed to reduce suspended sediments and pesticides in the Yakima River. Subsequently, WS DOE re-evaluated suspended solids loads at the Kiona Station and concluded that the loads have been greatly reduced (by 50 to 70 percent) compared to previous decades (Coffin, et.al., 2006). Section 6.7.1 above briefly describes a restoration program to reduce and minimize discharge of sediment to both the Yakima and Columbia Rivers.

Groundwater

Groundwater at YTC is stored in four principal aquifers. Although precipitation is low within the region, approximately 200 springs are present on YTC, ranging from seasonal to perennial. Deeper aquifers are recharged mainly from areas west of the installation, whereas shallower aquifers are recharged primarily by precipitation falling at higher elevations on YTC. Regional groundwater flow is generally outward from higher elevations at the center of the installation, toward the Yakima and Columbia rivers.

YTC's groundwater resources support domestic supplies, fire suppression, and fish and wildlife habitat and are also a source of potable water, monitored to maintain compliance with the Safe Drinking Water Act (SDWA).

Floodplains

Based on the FEMA/FIRM maps, some flooding potential exists on the Yakima River downstream from Selah Creek. Due to dam control, flooding is not an issue on the Columbia River. Also, based on the FEMA/FIRM maps, flooding is not an issue within YTC boundaries (WS DOE, 2010).

Water Rights

YTC asserts a Federally reserved water right for all its consumptive uses, present and future. YTC currently holds water rights claims for several of its sources.

6.8.2. Environmental Consequences

Alternative 2 and 3

Construction of the new CAB facilities, operation of CAB facilities, and execution of CAB training activities will increase the use of fuels, solvents, and other hazardous and toxic substances, which could, if accidentally released into the environment, result in an indirect effect to JBLM surface water, as well as the shallow Vashon aquifer underlying JBLM groundwater.

Increased groundwater withdrawals at JBLM as a result of a population increase due to a CAB stationing will not be expected to affect other area groundwater users adversely. Impacts to YTC groundwater as a result of CAB Soldiers training at YTC are also expected to be less than significant.

At JBLM and YTC, increased training could result in increased surface water sedimentation. At JBLM, impacts are expected to be less than significant and effects to surface water quantity and quality are not expected to exceed significance criteria thresholds. At YTC, impacts are expected to be mitigable to less than significant. CAB construction activities are not near any 303(d) impaired surface waters, therefore impacts to impaired waters will be limited.

Puget Sound water quality may be impacted as the greater increase in demand on the Solo Point WWTP is expected to result in more frequent discharges that will violate permit treatment requirements. The Army expects that the greater increase in demand that will occur under this alternative combined with more stringent requirements for discharges under future NPDES permits will render the Solo Point WWTP insufficiently protective of Puget Sound water quality. Without substantial modification or replacement of the Solo Point WWTP, effects are expected to be significant. With replacement, the effects will be significant, but mitigable to less than significant effects. Funding for the replacement of Solo Point WWTP is currently among the Army's top priorities for FY 2013.

No significant impacts are expected to occur to floodplains, hydrogeology, or groundwater as a result of this CAB stationing decision. No changes or expansions in water rights are expected as a result of this action.

Alternative 1 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in water resource impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under Alternative 1 is other than JBLM.

6.8.3. Cumulative Effects

Cumulative effects to surface water at JBLM and YTC could occur as a result of vegetation removal and soil disturbance, contributing to erosion, sedimentation, increased surface runoff, and degradation of stream channels. Historically, Yakima River basin has received high sediment inputs from sources such as runoff from agricultural lands, particularly irrigation return flows. Cumulative effects on surface water resources at JBLM will be highest shortly after construction begins and will decrease over time in response to site reclamation. Potential cumulative effects to groundwater quality and quantity include the impacts of increased demand for potable water at JBLM in combination with increased population growth and increased potential for spills and leaks related to construction (JBLM) and training (JBLM and YTC) activities. BMPs to control adverse impacts will ensure that activities have minimal effects on water

resources and do not exceed significance criteria thresholds. Cumulative effects to the quality of water in Puget Sound will be significant if the current Solo Point WWTP is left in place. With replacement of the Solo Point WWTP, the cumulative effects from the four alternatives will be significant, but mitigable to less than significant effects. A fuller discussion of cumulative impacts at JBLM and YTC can be found in JBLM's *Grow the Army* FEIS (JBLM, 2010a).

6.9. Biological Resources

The affect on biological resources is defined in the following section.

6.9.1. Affected Environment

Joint Base Lewis-McChord

Vegetation and Wildlife, including Threatened and Endangered Species

JBLM is in the Puget Trough ecoregion, which runs the length of Washington between the Cascade Mountains on the east and the Olympic Mountains and Willapa Hills on the west. Plant communities on JBLM generally fall into one of four broad habitat types: coniferous forests, grasslands (commonly known as prairies), oak/oak-mixed woodlands, and wetlands/riparian zones. Nearly two-thirds of the former Fort Lewis (approximately 54,800 acres [22,200 ha]) is dominated by closed forest, and includes prairie colonization forest. On the former Fort Lewis, the prairie colonization forest, dominated by Douglas-fir (approximately 30,300 acres [12,200 ha]), consist of first-generation stands growing on prairie soils. Forestlands adjacent to JBLM are mostly fragmented and less valuable to forest-dependent species than forests on the installation. Approximately 16,500 acres (6,677 ha) of the former Fort Lewis is grassland habitat and, of that, only 18 percent of surveyed prairies are estimated to have more than 50 percent cover of native graminoids (Randolph, 2008, as cited in JBLM, 2010a). Given that less than 10 percent of the original prairie grasslands in the south Puget Sound region remain (Crawford and Hall, 1997), and that JBLM contains some of the largest tracts of remaining prairie habitat in the region, JBLM prairies are very important from a regional landscape perspective. Additionally, prairies on JBLM provide habitat for numerous special-status plant and animal species. The oak/oak-mixed woodlands are also regionally important as it's estimated that the former Fort Lewis contains 35 percent of the remaining oak habitat in western Washington State (GBA Forestry Inc., 2002). Listed plant species in Pierce and

Thurston counties are the endangered Marsh Sandwort (*Arenaria paludicola*), threatened Golden Paintbrush (*Castilleja levisecta*) and threatened Water howellia (*Howellia aquatilis*) (FWS, 2010). Noxious weeds are found in all habitat types on JBLM, and management of invasive species is guided by the installation's IPMP, which takes county noxious weed control boards priorities into consideration. Most of the former Fort Lewis cantonment area has been developed or consists of previously disturbed soils and vegetation. Further details on vegetation, to include ESA threatened and endangered species, other plant species of special status, and noxious weeds is available from JBLM's *Grow the Army* FEIS (JBLM, 2010a).

JBLM is home to numerous wildlife species, including some species protected under the ESA. For wildlife species found in Pierce and Thurston counties, two bird species are listed as threatened, one fish species as threatened, and one mammal species as threatened. There are no wildlife species listed as endangered (FWS, 2010). At least 25 fish species live in lakes, ponds, marshes, rivers, and streams on Fort Lewis. Populations include resident, anadromous, and warm water fish species that live in aquatic habitats on Fort Lewis. Common resident and anadromous fish species that may occur on Fort Lewis include steelhead/rainbow trout, Chinook salmon, chum salmon, coho salmon, pink salmon, sockeye salmon/kokanee, cutthroat trout, bull trout, and mountain whitefish. For anadromous fish species, incubation of eggs and rearing of juveniles occurs in freshwater before the fish migrate to seawater for adult development, later returning to freshwater to spawn. Common warm water fish species found on Fort Lewis include rock bass, largemouth bass, brown bullhead, bluegill sunfish, pumpkinseed sunfish, black crappie, and yellow perch. Chambers Lake, Johnson Marsh, and Halverson Marsh in the Muck Creek system provide rearing habitat for both sea-run and resident coastal cutthroat trout (JBLM, 2010a).

Three salmonids species that are Federally listed as threatened may occur on or near Fort Lewis: the Puget Sound Evolutionary Significant Unit (ESU) of Chinook salmon and steelhead, and the Puget Sound Distinct Population Segment (DPS) of bull trout may occur near Fort Lewis. Additionally, three Federally listed rockfish species occur in Puget Sound near Fort Lewis: the Georgia Basin DPS of bocaccio (endangered), the Georgia Basin DPS of canary rockfish (threatened), and the Georgia Basin DPS of yelloweye rockfish (threatened). The Hood Canal ESU for summer-run chum salmon is also Federally listed as threatened in the Puget Sound; however, there are no listed runs of this species within the vicinity of either the Nisqually River drainage or Fort Lewis. The sea-run cutthroat trout, Puget Sound/Strait of Georgia ESU coho salmon, and the Pacific and river lampreys are all species of concern at

the Federal level. Many bird species are year-round residents on JBLM, but there are migratory birds that spend only a portion of their year on JBLM, such as kinglets, flycatchers, and warblers. Migratory birds may winter or breed on JBLM, or may just use the installation for short periods while migrating between their breeding grounds to the north and wintering grounds to the south. The streaked horned lark (*Eremophila alpestris strigata*), listed as endangered by the State of Washington, has known active breeding sites on JBLM, to include active nests near GAAF (JBLM, 2007; JBLM, 2010a). Some special status, nonmigratory butterfly species typically associated with high-quality prairie habitat are on JBLM, such as the mardon skipper (*Polites mardon*) and Taylor's checkerspot (*Euphydryas editha taylori*). Hunting and fishing are allowed on much of JBLM in locations that do not interfere with military training activities. Game species on JBLM include black bear and Columbia blacktailed deer, 11 additional species of mammals, 8 species of upland birds, 24 species of waterfowl, and 24 species of fish. JBLM's *Grow the Army* FEIS presents further information on JBLM wildlife and associated management activities (JBLM, 2010a), as does the installation's INRMP, which includes endangered species management plans (Fort Lewis, 2007).

Wildland fire management is a tool used to manage some JBLM habitat (e.g., pine restoration process and prairie ecosystems) and reduce the risk of wildfires causing damage to life and property. The combination of climate (relatively mild) and vegetation at JBLM contribute to a low to moderate wildfire danger at the installation for the majority of the year. For most of the year, precipitation maintains a high-moisture content in the installation's vegetation and reduces its ability to burn. However, the warmer, drier summer months (between June and October) can create a high fire danger. The intensive troop training over the entire installation, and the use of incendiary devices for training purposes, creates the potential for numerous fires in grass, brush, and timber. JBLM's recently updated *Wildland Fire Management Plan* sets forth the responsibilities and procedures needed to safely control and use wildfire on JBLM, maximizing military training while at the same time protecting government property, natural resources, and adjoining properties (JBLM, 2010b).

Wetlands

Because of historical land use practices prior to government acquisition, many wetlands on JBLM were ditched and drained for agricultural purposes, which severely degraded many aquatic habitats on the installation. Extensive restoration of lakes and marshes on JBLM occurred during the 1970s and 1980s.

Today, on JBLM, the former Fort Lewis contains approximately 4,100 acres (1,700 ha) of wetlands that are widely distributed on the installation (JBLM, 2010a). Wetland types include aquatic beds, emergent wetlands, scrub-shrub habitats, and forested wetlands. Wetlands on JBLM are managed to maintain wetland training opportunities, enhance anadromous fish habitat, provide recreational opportunities, and control noninvasive species (Fort Lewis, 2007). The primary means of wetland management on JBLM is enforcement of regulations that protect wetland habitat, including limiting the types of activities that can occur within 164.04 feet (50 m) of wetlands (Fort Lewis, 2007). As mentioned in Section 6.4.1, Controlled Used Areas include wetlands.

Approximately 620 acres (250 ha) of freshwater wetland and 260 acres (105 ha) of riparian/forested wetland habitat are found on the Nisqually National Wildlife Refuge, located northwest of JBLM. These habitats support wildlife that are similar in species composition to those found on JBLM. More than 20,000 waterfowl use the refuge during winter. Also, numerous other wetlands are found in the South Puget Sound region near JBLM.

Yakima Training Center

Vegetation and Wildlife, including Threatened and Endangered Species

YTC falls within the Lower Columbia Basin Ecosystem of the Columbia Plateau ecoregion. Like much of the Lower Columbia River Basin, YTC is characterized by shrub-steppe vegetation. These are vegetation communities characterized by shrub-dominated overstories (often composed of several species of *Artemisia*) coupled with perennial bunchgrass understories (often dominated by species of *Pseudoroegnaria, Poa, Festuca*, and/or *Stipa*) (YTC, 2002). The installation lies within the core of the largest remaining contiguous block of shrub-steppe in Washington State. Over 241,000 acres (97,529 ha) of the installation is dominated by big sagebrush (*Artemisia tridentata*), three tip sagebrush (*Artemisia tripartita*), and stiff sagebrush (*Artemisia rigida*) plant communities (YTC, 2002). Other diverse vegetation communities occur in riparian bottoms, springs, along cliffs and rock outcrops, and on thin, shallow soils. Listed plant species in Yakima and Kittitas counties are the threatened Ute ladies'-tresses (*Spiranthes diluvialis*). There are no endangered plant species listed (FWS, 2010). Like JBLM, noxious weed management is through an integrated pest management approach, as documented in the installation's IPMP. At YTC, primary focus of noxious weed control in training areas is on kochia (*Kochia scoparia*) and various species of knapweed (*Centaurea sp.*). Further details on vegetation, to

include ESA listed species, other plant species of special status, and noxious weeds is available from JBLM's *Grow the Army* FEIS (JBLM, 2010a).

The wildlife at YTC uses three predominant habitat types IAW their specific life history requirements: shrub-steppe uplands, cliffs and talus slopes, and riparian and permanently wet areas. Shrub-steppe uplands account for more than 95 percent of land coverage at YTC and provide life requisites for the majority of wildlife species that permanently or seasonally inhabit the installation (YTC, 2002). The open, shrubby habitats support numerous shrub-nesting and ground-nesting birds and mammals. In addition, reptiles and raptors feed on the diversity of small mammals and invertebrates that are found in the sage complexes of YTC. Cliffs and talus slope habitats provide shade, cover, and rearing sites. Habitats associated with watercourses, springs, and riparian communities support a wide variety of wildlife by providing drinking water, cover, and in some cases, important food and nesting opportunities. Listed wildlife species in Yakima and Kittitas counties are the threatened Northern spotted owl (*Strix occidentalis caurina*), marbled murrelet (*Brachyramphus marmoratus*), bull trout (*Salvelinus confluentus*), Grizzly bear (*Ursus arctos horribilis*), and Canada lynx (*Lynx canadensis*); the Proposed Similarity of Appearance (Threatened) Dolly Varden (*Salvelinus malma*); there are no endangered wildlife species listed (FWS, 2010). YTC management efforts help address species of special concern, such as having all known active Western burrowing owl (*Athene cunicularia hypugea*) nests sites protected from vehicle maneuvers by Seibert stakes. In another example, portions of designated flight corridors, used to coordinate movement of rotary aircraft throughout the installation, have seasonal restrictions due to environmental concerns for select bird species, such as the Greater sage grouse (*Centrocercus urophasianus*) (YTC, 2002). JBLM's *Grow the Army* FEIS presents further information on YTC wildlife and associated management activities (JBLM, 2010a), as does the YTC's natural resource management plan (YTC, 2002).

Wildfires

Wildfires are an unavoidable hazard associated with certain aspects of military training at YTC, particularly during the fire danger season (May through October). Since the large-scale fire in 1996, the cumulative average of burned areas at YTC has declined due to enhancements of fire management policy related to presuppression and suppression activities, implementation of a risk assessment, improved suppression resources, and improved personnel training (JBLM, 2010a). YTC's *Integrated Wildland Fire*

Management Plan establishes wildfire risks, management goals, and strategies to be used to reduce the risk of fires on the installation and improve YTC's ability to reduce fire losses (YTC, 2004). Prescribed burning is included as one of the management tools used to help control noxious weeds, enable growth of indigenous habitats, and reduce the risk of wildfires causing damage to life and property.

Wetlands

On YTC, wetlands are limited to the immediate vicinity of perennial streams and the numerous springs emanating from hill slopes (ENSR, 1992). Because water is an important limiting factor in this arid climate, plant and animal life depends on this resource, especially during dry times of the year. Major drainages include Selah Creek, Lmumma Creek (including the North Fork), Alkali Canyon, Hanson Creek, Cold Creek, Middle Canyon, and Johnson Creek. Wetlands formed in these channels are composed of cattails, rushes, and sedges with occasional patches of scrub-shrub vegetation such as willows and small cottonwoods. Many of these channels have been disturbed by training activities and grazing in the past, with an overall loss of plant community structure.

6.9.2. Environmental Consequences

Alternative 2 and 3

Construction of support facilities and housing for the CAB on JBLM will require clearing of approximately 110 acres (45 ha) of vegetation in the former Fort Lewis Main Post and North Fort. Most of this area has been developed and disturbed in the past and supports predominantly grasses, forbs, and second-growth Douglas fir trees. New development and redevelopment within the cantonment has resulted in loss of oak woodlands and ponderosa pine; such loss could occur with CAB infrastructure construction. Because the proposed construction activities will occur on previously disturbed areas or areas with limited native vegetation, a loss of unique or high-quality plant communities or rare plant species will be unlikely. Additionally, since the construction will occur in areas where non-native species are already present, it will not result in an introduction of noxious weed species into intact native plant communities.

CAB training activities, including high altitude helicopter training, will have some impact to existing wildlife and native vegetation. Additional training will increase wildlife and vegetative disturbance on

JBLM and YTC and could result in an increased presence of noxious weeds. Although NOE flight mode could affect vegetation through rotor wash (downward wind generated by the rotors), it is expected that seeds of non-native species will be dispersed substantially greater distances than under normal dispersal scenarios resulting in the increase of noxious weed seed dispersion.

Increased training, to include air-ground integration operations, could also result in increased incidence of wildland fire. On JBLM, existing fire management practices will minimize the risk of large, destructive fires, keeping wildfire impacts to less than significant. On YTC, despite ongoing fire management programs, additional gunnery training conducted by the CAB will likely increase the risk of wildland fire. Effects to native plant communities and sensitive species as a result of wildland fires will result in significant adverse results. While the average number of acres burned annually at YTC has decreased since 1996, the locations of fires since then have been in areas where no fire history exists. This has resulted in the increased loss of mid- and late-seral shrub steppe habitat. This habitat loss has had significant impacts on species that depend on that habitat.

There are projected to be less than significant impacts to migratory birds. Direct impacts could include an increase in bird airstrike events and noise disturbance. The frequency of such events are not projected to significantly increase.

CAB training could result in indirect impacts to wetlands from potential upland erosion and sedimentation processes. JBLM's Biological Assessment related to a potential CAB stationing determined that such proposed Army activities will be unlikely to adversely affect Federally listed plant species on JBLM or YTC. The effects of the impacts on wildlife and plants are not expected to be significant, except for possible significant impacts on YTC from potential wildfires.

Additional wastewater produced as part of this proposed action could cause pollution exceedances that might affect the endangered fish species in the Puget Sound. The project to replace the Solo Point WWTP is currently one of the Army's top priorities for funding in FY 2013.

Impacts to biological resources from CAB stationing are anticipated to be significant. See JBLM's *Grow the Army* FEIS for further detail on potential impacts to biological resources (JBLM, 2010a).

Alternative 1 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in biological resource impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under Alternative 1 is other than JBLM.

6.9.3. Cumulative Effects

Off-road travel by CAB vehicles could result in a greater annual loss of plant cover in maneuver areas on JBLM and YTC. Although the impact by CAB vehicles will be less than significant, other past and planned future actions (e.g., other *Grow the Army* actions) have identified significant effects to vegetation. Other past, present, and future activities that could contribute to loss of native vegetation include residential and commercial development and construction of supporting infrastructure, agricultural activities (including farming, ranching, and timber harvest), recreational activities (golf courses, all-terrain vehicle use, and other recreation facilities), and construction of highway infrastructure. Past disturbances on JBLM and YTC have favored the spread of noxious weeds and other invasive species to the detriment of native species. Use of BMPs, including revegetation of disturbed sites with native vegetation, will reduce erosion rates and encourage the regrowth of vegetation on disturbed sites.

Off-post, an increase in the population in the JBLM area will lead to more development, loss of and injury to wildlife, and loss of habitat, to include native prairie habitat. Regional population increases around YTC will lead to more residential and commercial development and conversion of lands to agriculture, resulting in mortality and injury to wildlife and loss and fragmentation of habitat. Throughout much of the region, habitat fragmentation continues as a result of development, leaving JBLM as one of the few remaining sites of large contiguous tracts of habitat. JBLM actively manages its prairies and oak woodlands and has set aside areas on its prairies for protection. Off-post, the WDNR (Mima Mounds and Rocky Prairie Natural Area Preserves), WDFW (Scatter Creek Wildlife Area and West Rocky Prairie Wildlife Area), and Thurston County (Glacial Heritage Reserve) have protected tracts of high-quality prairie lands. TNC assists in the management and restoration of several of these areas. Additionally, through its participation in the ACUB program, JBLM is underwriting native prairie restoration and

research, monitoring, and reintroduction of the four Federal candidate species at these off-post sites. Both Thurston County and Pierce County have critical areas regulations in place to protect oak woodlands, while Thurston County additionally protects prairies with its critical areas ordinance. These actions should slow, but not stop, the rate of loss and fragmentation of native habitat in the South Puget Sound region.

Increased erosion, resulting in increased sedimentation to surface waters, could potentially impact fish resources at JBLM and YTC; however a CAB stationing will not significantly add to any cumulative impacts to fish resources.

Increased training could result in increased incidence of wildfire at JBLM and YTC, resulting in significant impacts to vegetation and wildlife, to include habitat fragmentation. Natural and man-caused fires burn several thousand acres annually on YTC.

Impacts resulting from wildfire at JBLM and YTC are significant. While management practices reduce wildfire impacts for most fires that may occur from training and other activities, the impacts of fires can effect unique habitats that are not adapted to an altered fire ecology. Wildfire effects will be cumulative to other regional causes of habitat fragmentation, such as fires at the Hanford Reservation that eliminated certain components of shrub-steppe communities in many areas.

Implementation of a CAB stationing, to include CAB training activities, could cause the injury and loss of migratory birds, but will not result in significant adverse effects on bird populations.

Noise and disturbance associated with military training and other activities has the potential to increase wildlife disturbance. Increased training as a result of JBLM actions under the *Grow the Army* initiative, which includes a potential CAB stationing, as well as future stationing actions, will add to the noise and disturbance on JBLM and YTC. Although most loud noises have only short-term impacts on wildlife behavior as wildlife can in some cases habituate to noise, disturbance effects to wildlife cannot be completely avoided.

Despite legal measures, wetlands are still disappearing regionally. Implementation of BMPs and mitigation measures identified during any installation permitting actions will limit the cumulative effects to wetlands resulting from a CAB stationing decision to less than significant. Limited wetlands impacts

are anticipated at both JBLM and YTC in connection with construction of facilities or CAB training and, therefore, cumulative effects with regard to wetlands are also anticipated to be minimal.

For additional discussion of cumulative effects, see JBLM's *Grow the Army* FEIS (JBLM, 2010a).

6.10. Cultural Resources

The affect on cultural resources is defined in the following section.

6.10.1. Affected Environment

Joint Base Lewis-McChord

Three historic districts and numerous individual buildings, structures, and objects have been inventoried on the former Fort Lewis. Some of these resources date to the earliest years of the former Fort Lewis, and many are associated with expansion of the installation during the World War II period. These Districts include 411 contributing buildings, structures, and objects.

Approximately 74 percent of the former Fort Lewis area of JBLM has been surveyed for archaeological resources. Archaeological survey efforts on the former Fort Lewis to date have recorded 382 archaeological sites spanning 8,000 years of history and prehistory, including American Indian villages, camps, and households dating from 8,500 years ago to the Nisqually Reservation period (1854-1917); British farms operated by the Hudson's Bay Company, 1832-1869; American pioneer homesteads, 1846-1942; and WWI, WWII, Korean War, and Vietnam-era military training features. The inventory includes 334 historic period sites, 26 sites that date to the prehistoric period, and 20 sites that contain both prehistoric and historic components. To date, 216 of the sites have been filed with the Washington State Department of Archaeology and Historic Preservation (DAHP). Of these, 24 have been formally evaluated, with four sites determined eligible for listing in the National Register. Approximately 90 percent of the former Fort Lewis cantonment area that is suitable for development has been surveyed for archaeological resources. Twenty-nine archaeological sites have been identified in the cantonment area, of which 26 are historic-period sites, two are prehistoric sites, and one is a multi-component site. Five historic cemeteries are known to exist on the former Fort Lewis that are managed and protected as archaeological sites.

As discussed in Section 4.6.8.1 of the JBLM *Grow the Army* FEIS, the former Fort Lewis developed a PA in consultation with the Washington SHPO and the Nisqually, Squaxin Island, Puyallup, Yakama, and Wanapum tribes pursuant to NHPA Section 106 regulations at 36 CFR 800.14. It stipulates measures the installation will implement to avoid, minimize, or mitigate adverse effects to historic and archaeological properties from Grow the Army undertaking (which include a potential CAB stationing action), and fulfills the installation's responsibilities under Section 106.

Present-day JBLM is located within the traditional territories of the Nisqually and Puyallup tribes as they were documented in the early 19th century. Places and resources that are important to the ongoing traditional or ceremonial practices of the Nisqually and Puyallup tribes (and other area tribes) are present on JBLM.

Section 106 consultation IAW the NHPA was initiated with the Nisqually, Puyallup, and Squaxin Island tribes in January 2009 for Fort Lewis (now JBLM) *Grow the Army* initiatives, which included a potential CAB stationing (JBLM, 2010a).

Further details on JBLM's cultural resources, management of those resources, Native American needs for access and consultation actions related to those resources and Native American tribes is available in JBLM's *Grow the Army* FEIS (JBLM, 2010a) and the former Fort Lewis' *Integrated Cultural Resources Management Plan* (Fort Lewis, 2005b).

Yakima Training Center

Compared with JBLM, there are relatively few historic buildings and structures on YTC, and no historic districts. The cantonment area contains Cold War-era buildings and structures that date to the 1950s. The majority of these historic resources were intended as temporary buildings/structures and are managed under a Section 106 PA between the Army, the ACHP, and the Washington SHPO.

Approximately 280,000 acres (110,000 ha) of the 325,500 acres (131,700 ha) available for training and impact areas operations on YTC have been surveyed for archaeological resources, as well as the cantonment area. Compared to JBLM, YTC has a far greater number of archaeological sites (a total of 1,353), all of which are located outside of the cantonment area. To date, 140 of the archaeological sites inventoried on YTC have been determined eligible for the National Register. More than 85 percent

(1,180) of the archaeological sites on YTC date to the prehistoric period and represent at least 10,000 years of settlement and land use history. Relatively few historic-period archaeological sites have been recorded on YTC, with 133 inventoried to date. All of these historic-period sites relate to homesteading, mining, railroad transportation, and ranching during the late 19th and early 20th centuries.

Two archaeological districts are present on YTC: the Wa Pai Xie Archaeological District, which contains 11 sites, and the Tributary Headwaters Archaeological District, which contains nearly 100 sites. Ten of those 100 sites are protected by a conservation easement. Both archaeological districts are eligible for listing on the National Register.

Native American traditional cultural resources on YTC are places and resources that are important in the ongoing traditional or spiritual practices of the Wanapum and Yakama tribes (and other area tribes).

Section 106 consultation IAW the NHPA was initiated with the Wanapum and Yakama tribes in January 2009 for Fort Lewis (now JBLM) *Grow the Army* initiatives, which included a potential CAB stationing.

Further details on YTC's cultural resources, management of those resources, Native American needs for access and consultation actions related to those resources and Native American tribes is available in JBLM's *Grow the Army* FEIS (JBLM, 2010a) and YTC's *Integrated Cultural Resources Management Plan* (YTC, 2009).

6.10.2. Environmental Consequences

Alternative 2 and 3

CAB-related construction impacts to cultural resources are expected to be significant but mitigable to less than significant. Construction of facilities to accommodate a CAB will take place on or near GAAF and the East Division Area on JBLM. The oldest structure still in use at GAAF is Building #3063, an aircraft hangar built in 1942, which has not been evaluated for National Register eligibility. JBLM is currently planning National Register evaluations of this resource and several other airfield structures that have recently reached the 50-year age threshold to qualify as National Register-eligible historic properties. SHPO consultation will be performed as appropriate, based on evaluations of these resources and structures that have recently reached the 50-year threshold. No archaeological survey has been conducted on GAAF. Impacts to unknown archaeological resources discovered during construction can be avoided

or minimized by conducting surveys prior to ground disturbance. Consultation with the Native American tribes for JBLM's *Grow the Army* analysis, which included a potential CAB stationing, has not identified impacts to traditional cultural or ceremonial places or resources from proposed construction in cantonment or training ranges, or GAAF (JBLM, 2010a). CAB-related construction is not planned at YTC.

CAB ground vehicles could potentially impact archaeological sites in JBLM and YTC training areas. However, as a CAB will primarily involve aviation-based training activities, CAB activities are not expected to significantly impact archaeological sites in range/training areas. A CAB stationing will not add any JBLM access restrictions to the Nisqually, Puyallup, and Squaxin Island tribes nor is noise related to CAB training expected to adversely impact the use of Native American traditional or ceremonial places or resources. Consultation to date with the Yakama and Wanapum tribes has not identified impacts to traditional cultural places or resources from incompatible noise levels or restricted access associated with aviation-based training on YTC.

JBLM staff conducted a tribal consultation under the JBLM *Grow the Army* FEIS, which included a potential CAB stationing. This consultation with the Nisqually, Puyallup, and Squaxin Island tribes determined that the tribes wish to access important tribal cultural resources within maneuver training areas, which are restricted for military use 365 days per year. Access to these resources is important to the cultural values of the tribes, particularly at specific times of the year when such resources are traditionally collected, used, or visited. JBLM maintains a policy of scheduling access to training areas for tribal members at least twice yearly as the mission allows.

JBLM consultation with the Yakama and Wanapum tribes to date has not identified noise impacts to the use of places or resources that are important to the tribes, thus cumulative effects from increased noise to levels seems unlikely. YTC has been able to coordinate acceptable access to important tribal cultural resources with the tribes because no adverse impacts from restricted access have been identified and the potential for significant impacts (i.e., long-term or permanent interruption) to traditional tribal practices is unlikely.

Alternative 1 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in cultural resource impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under Alternative 1 is other than JBLM.

6.10.3. Cumulative Effects

Potential impacts to archaeological sites from past, present, and planned future activities from the failure of site protection measures could result in the eventual loss of important archaeological data. Such a cumulative loss may eventually become significant. However, because the conditions under which current site protection measures fail are unknown and the specific sites that may be impacted cannot be predicted, the threshold at which a cumulative loss of archaeological data becomes significant cannot be determined. Ongoing efforts to increase awareness of the need to protect archaeological sites on JBLM and YTC are likely to improve the rate of success of site protection measures and thus prevent further loss of archaeological data. Mitigation actions currently being taken by JBLM (to include YTC), as detailed in the JBLM *Grow the Army* FEIS (JBLM, 2010a), also work to reduce potentially significant impacts to less than significant.

Intensified use of range and training areas at JBLM and YTC could lead to permanent degradation of specific plant or animal habitat associated with traditional or ceremonial practices of Native American tribes. A CAB stationing will not add any JBLM access restrictions for Native American tribes. YTC has been able to coordinate acceptable access to important tribal cultural resources with the tribes to date; because no adverse impacts from restricted access have been identified, the potential for significant impacts (i.e., long-term or permanent interruption) to traditional tribal practices is unlikely.

For additional discussion of cultural resource impacts and consultation activities, see the JBLM Grow the Army FEIS, 2010.

6.11. Socioeconomics

The potential impact on socioeconimics in the area is described in the following section.

6.11.1. Affected Environment

Joint Base Lewis-McChord

The defined ROI for JBLM includes two counties: Pierce and Thurston. Summaries of the analysis conducted in the JBLM *Grow the Army* FEIS (JBLM, 2010a) are provided herein in order to establish a backdrop for impact evaluation. See JBLM's FEIS for additional details.

The estimated population of the ROI totaled 1,050,700 in April 2008, an increase of more than 15.6 percent since 2000. Several large communities are located in the ROI: the city of Tacoma, located north of JBLM, with an estimated 2008 population of 202,700; the city of Olympia, located to the west-southwest of JBLM with an estimated 2008 population of 44,800; the city of Lakewood, located west-northwest of JBLM with an estimated 2008 population of 58,780; and the city of Lacey, located west-southwest of JBLM, with a 2008 population of approximately 38,040 residents.

More than 10,200 civilian workers are employed at JBLM's former Fort Lewis. Assuming each is a head of household, this will represent a population of approximately 26,520 persons (applying an average household size of 2.6 as contained in the 2000 Census). The 31,350 active duty military personnel are accompanied by approximately 46,142 Family members, which results in a total connected population of about 77,492 persons, or approximately 7.4 percent of the entire 2008 population of the ROI.

JBLM has on-post housing units for both unaccompanied and accompanied personnel. On the former Fort Lewis area, there are currently 3,492 family housing units of various types for accompanied Soldiers.

According to the 2007 Joint Housing Market Analysis, there is a validated on-post housing requirement for 6,093 family housing units by 2012 on the former Fort Lewis area. With a current inventory of 3,492 family housing units on the former Fort Lewis area, a housing deficiency exists on-post that will continue to grow. By 2013, an additional 1,743 barracks spaces will be needed at JBLM's former Fort Lewis area (RDN, 2008, as referenced in JBLM, 2010a).

An estimated 370,306 housing units are located in the ROI. The proportion of owner-occupied housing units is 62.2 percent. The off-post population in the JBLM market area (within a 20-mile (32 km) commute of the installation's main work areas) is estimated at 901,488 persons, having increased at an average rate of 1.7 percent per year since 2000; population growth increased at an average rate of 1.9 percent per year from 1990 to 2000. The annual growth rate is projected to continue to climb 1.4 percent through 2012, resulting in an estimated population of 966,384 in 2012.

Vacancy rates and rentals in all areas within the ROI are fairly stable through time. The rental vacancy rate was estimated to be 5.4 percent in 2007; which is lower than observed in 1990 and 2000. Of the overall rental housing stock, 30.9 percent is considered substandard and 28.8 percent of the immobile home rental inventory is classified as unsuitable by DoD criteria.

In 2006, more than 3.8 million jobs existed in the State of Washington, of which about 146,380 were military and Federal/civilian jobs. More than 374,000 people were employed in the ROI in 2007, 73.4 percent of whom worked in Pierce County (Bureau of Labor Statistics, 2008). In Pierce County, the largest share of employment is concentrated in the health care industry, with 12.5 percent of jobs. Local government employed 12.1 percent, the retail trade sector employed 11.9 percent, and construction accounted for an 8.6 percent of workers. The largest employer in Pierce County is JBLM. The unemployment rate in both counties of the ROI gradually increased from lows of between 4.6 percent in Thurston County and five percent in Pierce County to an average 5.3 percent for the first 11 months of 2008 in Thurston County and 5.4 percent in Pierce County.

Total nonfarm wage and salary earnings in the ROI totaled just more than $35 billion in 2006, approximately 76 percent of which was contributed by Pierce County. The contribution to total earnings by the military sector is higher in Pierce County (approximately 9.8 percent) compared to 2.4 percent for the State and 0.4 percent for Thurston County. Personal income associated with the military totaled $2.66 billion in 2006 in Pierce and Thurston counties. Wages paid to personnel (active duty and civilian) at the former Fort Lewis area of JBLM totaled more than $2.02 billion in 2007.

Expenditures on grants and contracts by the installation can vary measurably from year to year. The value of grants and contracts let by the Army in FY 2006 in Pierce and Thurston counties, as reported by the DoD, was $453.3 million. The large majority (greater than 99 percent) of DoD prime contracts awarded to firms in the ROI have been made to companies located in Pierce County; these account for

approximately 9.4 percent of all DoD awards statewide. The value of prime contract awards from the Army in Pierce County totaled more than $449 million in FY 2006. In 2007, expenditures at Fort Lewis that had the greatest effect on the local economy (after earnings paid to personnel) were contracts, services, and construction; military construction; and Federal impact aid funding. During 2007, contracts, services, and construction accounted for approximately $336.3 million in expenditures and military construction accounted for approximately $312 million. Federal impact aid funding accounted for another $13 million in expenditures at the former Fort Lewis.

The primary sources of revenue for Pierce and Thurston counties are: sales taxes, property taxes, transfers from the State government, and transfers from the Federal government. In 2008, property taxes and intergovernmental transfers were the largest sources of revenue for both counties. Property taxes accounted for 19.2 percent of Pierce County's revenue and 22.7 percent of Thurston County's 2008 revenue. Intergovernmental transfers accounted for 21.6 percent of Pierce County's revenue and 11.3 percent of Thurston County's 2008 revenue. Charges for services and fees make up 14.9 percent of Pierce County's revenues and 12 percent of Thurston County's revenues.

The major operating expenditure categories for the counties are: public safety, health and social services, utilities, capital expenditures, and transportation. The provision of health and social services consumes approximately 14 percent of operating expenditures in Pierce County and 21 percent in Thurston County. Expenditures on public safety comprise approximately 19 percent of the operating expenditures for each county.

Numerous facilities and services located on JBLM contribute to the Quality of Life of on-post residents and military personnel and their Families residing off-post. These include child care, health care, public schools, and other facilities.

The communities that surround JBLM provide numerous recreational, medical, retail, food, and other community services and facilities. Of the wide array of off-post services and facilities, public schools are highly important.

Minority populations within the ROI comprise approximately 24 percent of the overall population in Pierce County and 16.6 percent of the overall population in Thurston County. Sixty-four percent of the population on the Nisqually Indian Reservation is identified as American Indian and Alaska Native alone

or in any combination. The populations of the census tracts adjacent to JBLM have a higher percentage of minority population than across the ROI as a whole; the proportion of these minority populations. JBLM's residential population, as with other military populations, contributes to the higher minority percentage in the immediate area of the installation.

Pierce and Thurston counties have poverty levels below 20 percent. Pierce County's poverty level was estimated at 11.4 percent for the years 2005 through 2007 and Thurston County's poverty level was estimated at 10.6 percent during the same period. The 2000 Census indicates that there were no "poverty areas" in Thurston County; however, 21 of 158 Census tracts in Pierce County met the definition of a "poverty area."

Children are present on JBLM in many settings, including family housing neighborhoods, elementary schools, day care centers, and recreational areas. During the 2007 through 2008 school year, 2,441 school-aged children were enrolled in the public schools on the former Fort Lewis area of JBLM.

Yakima Training Center

Because YTC will not serve as a CAB stationing location and will only be utilized for training, there will be limited measureable economic effects for the YTC ROI.

6.11.2. Environmental Consequences

Alternative 2 and 3

As just mentioned, the stationing of the CAB at JBLM will have no measurable economic effects within the YTC ROI, as YTC is used only for training activities with little opportunity for local economic stimulus. The major impacts will accrue at JBLM as this is where Soldiers and their Families will live, shop, and otherwise spend salary and other procurement dollars.

The stationing of a CAB at JBLM is expected to result in short-term and minor long-term economic benefits in the JBLM region through increased local demand for housing and goods and services.

This analysis is focused on the effects of new salaries that will be introduced to the ROI by the addition of 2,700 Soldiers associated with the proposed CAB units. As a result of the screening criteria used to select

5426 the final potential sites (identifying those installations with existing supporting facilities). Construction
5427 expenditures will add short-term economic growth to the JBLM region.

5428 The results of the EIFS evaluation for location of a CAB at JBLM are shown in Table 17. Detailed results
5429 are included in Appendix C.

5430 **Table 17. Predicted Impacts at JBLM and RTVs**

Variable	Change	RTV
Business Volume	0.30%	5.01%
Income	0.52%	4.96%
Employment	0.76%	2.79%
Population	0.78%	1.97%

5431

5432 As shown, the predicted changes are well within the calculated RTVs (used to ascertain potential
5433 significance). As a result, the effects will be minor in the economic region; but will likely be considered
5434 positive by the community, helping to offset the economic downturns that have occurred in the last few
5435 years.

5436 The impacts of the proposed CAB location fall within the analysis completed in the Fort Lewis *Grow the*
5437 *Army* FEIS (JBLM, 2010a) and will have similar socioeconomic effects.

5438 The stationing of additional Soldiers will increase demand for housing. Despite housing modernization
5439 projects in-progress and planned, there will not be enough on-post housing to accommodate all new
5440 Soldiers and their Families. There is adequate housing off-post to house the additional Soldiers and their
5441 Families with the effect of reducing the vacancy rate of rentals and increasing homes sales.

5442 Increased populations will increase the demand for schools and childcare facilities, public safety, and
5443 other services. Currently 45.5 percent of military personnel live off-post. While JBLM has five
5444 elementary schools and handles most of the educational requirements of its on-post residents, the
5445 implementation of CAB stationing along with other Grow the Army stationing actions is projected to add
5446 up to 997 students to Clover Park School District and up to 416 new students in the Steilacoom Historical
5447 School District. Smaller impacts will be felt at other school districts in the area including Yelm, North
5448 Thurston, Puyallup, Bethel, Franklin Pierce, and University Place. These areas all serve JBLM's on- and

off-post populations. The Army recognizes that impacts to schools will represent a significant impact. As a result of the limited on-post housing, the large majority of Soldiers and their Families will reside off-post, and their payment of State and local taxes and fees that are used to fund school district operating budgets will partially mitigate the increased costs. These school districts receive Federal impact aid as an offset for the costs of providing public education to dependents of military personnel. These potential impacts are normally mitigated through early Army outreach and coordination with those school districts, allowing them to plan for additional facilities.

Services will continue to be provided to residents and retirees by the Army Community Support Center, the Family Connection, Family Readiness Groups, and the Retirement Services Office. Impacts on the retiree population are unlikely.

The CAB stationing will increase demand for on-post retail, food, and related services such as JBLM's commissary and retail outlets in the PX. The expanded Lifestyle Center may be sufficient to meet increased demand for shops and services. Off-post, the services provided through the private sector can be expected to respond to an increased demand for shops and services by increasing supply. During construction, safety measures stated in 29 CFR Part 1926, "Safety and Health Regulations for Construction," and other applicable regulations and guidance will be followed to protect the health and safety of all personnel and employees at the installation, as well as construction workers.

Demand for recreational facilities will increase with the additional population. The demand for some facilities, such as gyms and pools, may be moderated by the use of on-post facilities. Increases in demand for off-post recreational facilities will be met by a combination of private and public sector facilities. The services provided through the private sector can be expected to respond to the increased demand by increasing supply.

Increases in populations may cause an increase in the demand for off-post public safety services (fire, police, emergency response, etc.). Local and State government agencies provide off-post public safety services; funding for these services is derived from sales and gross receipts taxes, property taxes, and other taxes and charges levied on goods and services. With additional Soldiers stationed at JBLM, there will be an increase to the local tax base (e.g., sales tax, property tax) to pay for these services.

Similarly, the location and distribution of new military Soldiers and their Families will have no negative impacts or risks to children in the ROI.

Less than significant, beneficial, cumulative economic effects will occur under the proposed alternatives due to the direct and indirect economic impacts of the new Soldiers and their Families. These will be accompanied by minor or no direct or indirect cumulative impacts on housing, Quality of Life, environmental justice, or protection of children.

Environmental Justice

As noted in Section 4.4.6, increased training at JBLM will result in significant noise effects. The impacts will be realized by both on-post and off-post populations, including minorities, low-income populations, and Native Americans who reside in areas adjacent to JBLM or on the Nisqually reservation. These impacts will be disproportionately realized by residents of the Nisqually reservation (most of whom identify as American Indian or Native Alaskan) and others who live adjacent to the areas of JBLM used for training. The disproportionate realization of the impact is due to the physical proximity to areas used for live-fire training; those who live closest to the training areas will realize greater impacts from increased noise. This is solely a function of the historical development of ranges on JBLM and the resulting locations of training ranges relative to the Nisqually Indian Reservation. JBLM staff conducted a tribal consultation with the Nisqually tribe as part of the JBLM *Grow the Army* FEIS, which included potential CAB stationing. Noise impacts were discussed as one of the issues associated with that consultation. Currently, JBLM implements a variety of BMPs to mitigate the effects of the noise from Army training activities that will be associated with the CAB. These BMPs include implementing the requirements of Fort Lewis Regulation 360–5, *Noise and Vibration Complaint Procedure*, and following the "Fly Friendly" program when flying over congested areas. In addition, JBLM proposed, in their *Grow the Army* FEIS, to maintain 2,000 feet AGL when flying over the Nisqually National Wildlife Refuge. Although the effects of noise will disproportionately affect the Reservation, with these measures, the overall environmental justice effects at JBLM will be less than significant because the noise impact is not anticipated to change or otherwise affect any social, economic, physical, or health conditions that will result in social, cultural, or human health effects to the majority American Indian/Alaska Native population.

Significant disproportional environmental justice impacts are not anticipated at YTC.

Alternative 1 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in socioeconomic impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under Alternative 1 is other than JBLM.

6.11.3. Cumulative Effects

The cumulative impacts of a CAB stationing, along with other past, present, and reasonable foreseeable future actions that affect economy, employment, demographics, housing, Quality of Life, schools, community services, or environmental justice on and around JBLM and YTC is expected to be less than significant.

This increase in both the personnel and residential population on JBLM, as well as increases in nearby communities will translate into increased Army and individual expenditures for purchases of goods, contracting of services, utilities, and rent and lease payments and will, therefore, have a net positive cumulative impact to the local and regional economy. For JBLM, this increase is occurring against a rapid increase in regional population density. School enrollment in the JBLM area will increase as a result of the cumulative increase in regional population. Adverse cumulative effects will be partially offset through the provision of Federal impact aid to offset costs of providing public education to Families of military personnel.

Additional discussion of direct, indirect, and cumulative socioeconomic impacts can be found in the JBLM *Grow the Army* EIS (JBLM, 2010a).

6.12. Transportation and Airspace

The potential impacts on transportation and airspace are defined in the following section.

6.12.1. Affected Environment

Joint Base Lewis-McChord

Traffic and Roadways

As mentioned in Section 6.2, JBLM is located in western Washington just south of Tacoma, 35 miles (56 km) south of Seattle, and seven miles (11 km) east of Olympia. The main transportation corridor in the Puget Sound region, I-5, runs through the installation. I-5 supports the U.S. strategic defense policy by providing access to JBLM and Camp Murray (home of the Washington National Guard, Washington Military Department, and the Washington State Emergency Management Center). I-5 provides access to intermodal transportation facilities and accommodates interstate and interregional travel. It is also classified as a T1 freight route, meaning that it carries more than 10 million tons of freight per year. Trucks make up 10 to 13 percent of the total daily volume of traffic on I-5 within portion adjacent to JBLM. The topography of the area, combined with the presence of JBLM and Camp Murray, make local travel difficult, with I-5 often serving as the only local connection. Increased travel demand through the section of I-5 along JBLM resulting from significant growth in Thurston and Pierce counties has put severe strain on I-5 in this corridor. Compounding the already congested corridor is the fact that the military-related growth exceeded the population projections developed by local jurisdictions Washington State Department of Transportation (WSDOT, 2010).

Appendix E provides detailed information on traffic and roadway conditions in the JBLM ROI. The analysis draws from existing traffic and transportation related documents and the transportation impact analysis in JBLM's *Grow the Army* FEIS (JBLM, 2010a). Impacts from military travel demand are more noticeable at I-5 interchange ramps located near access gates (Access Control Points). The majority of personnel accessing JBLM come from the north and south of JBLM (80 percent of the Fort Lewis area and 75 percent of the McChord AFB area), resulting in the majority of military traffic utilizing the I-5 corridor to access the installations via the gates along I-5. JBLM gates with the highest volume of traffic are all located in close proximity to the I-5 corridor.

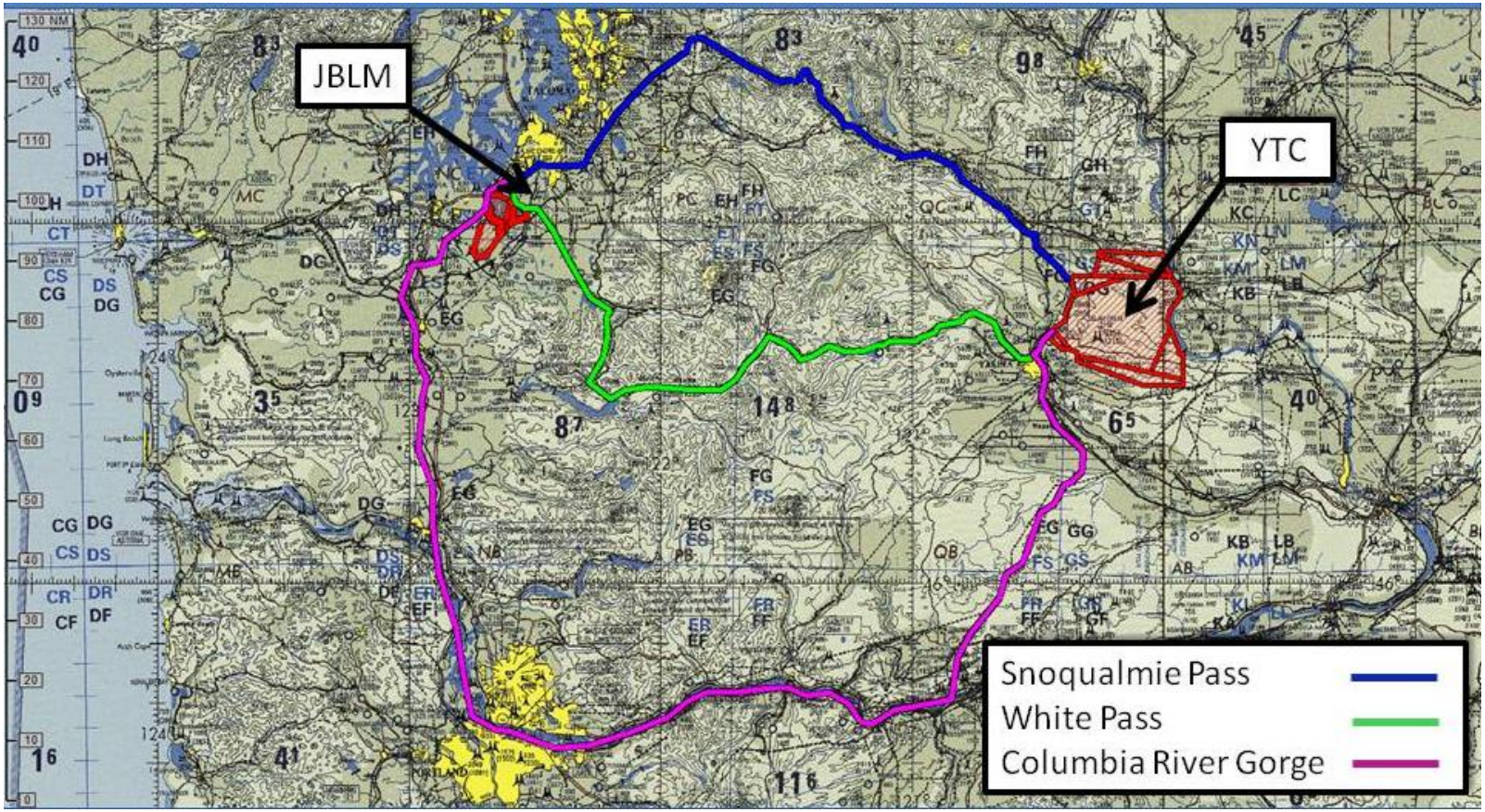
Nonmotorized Transportation

JBLM has several programmed street projects that contain pedestrian and bicycle provisions (e.g., Pendleton Avenue and 41st Division Drive), which will serve a growing nonmotorized demand.

Airspace

JBLM's former Fort Lewis has more than 55 square miles (142 square km) of FAA-designated SUA up to an altitude of 14,000 feet (4,267 km). The installation has access to this airspace in area R6703, Sub-Areas A, B, and D from 0700 to 2300 hours daily, Mondays through Fridays. Sub-Area C is scheduled by Notice to Airmen (NOTAM) (Fort Lewis, 2005a). FAA has designated portions of the airspace as SUA. The primary purpose for this restricted airspace is to support live-fire training with artillery, mortars, small arms, helicopters, USAF aircraft, and demolitions (Fort Lewis, 2005a). Restricted areas within the SUA may be activated, in which case nonmilitary and unauthorized military aircraft are prohibited from entering the airspace. Areas of airspace over artillery practice ranges are restricted from general use (HQDA, 1995).

Aviation units stationed at JBLM will be expected to aerially deploy to YTC to conduct both aviation unit training and training in support of SBCTs and to conduct helicopter gunnery exercises. Multiple routine flights are conducted to and from YTC throughout the year; however, flights of larger formations (10 or more aircraft) are typically conducted approximately only four times per year for helicopter gunnery and for training in support of air-ground-integration with BCTs or for organic unit field training exercises (Hummel, 2010). Units conducting aerial deployment from JBLM to YTC will follow FAA regulations for the airspace in which they are flying and will avoid concentrations of built-up civilian areas (also see Section 6.6.1). Three alternatives exist for routing rotary-wing flight between JBLM and YTC (Figure 12). Flight altitudes adhere to noise-abatement policies that minimize aircraft noise footprint on and near the installation and within the local flying area (see Section 6.6.1)



Source: Hummell, 2010

Figure 12 Rotary-Wing Flight Alternative Routes

Yakima Training Center

Transportation

See Section 6.2 and Figure 10 for information on YTC's location and major roads in the area.

Airspace

YTC has 451 square miles (1,168 square km) of FAA-designated SUA (with restricted areas) up to 55,000 feet (16,764 m), except for 6741H, which is surface to 5,500 feet (1,676 m) MSL. The installation has access to this airspace and it is controlled by YTC. This airspace is released to the FAA when not needed for military use (YTC Staff, 2007, as cited in HQDA, 2007).

There are two types of aircraft stationed at YTC. One is for medical evacuation and the other is seasonal stationing of aerial firefighting helicopters. YTC has one helicopter and fixed-wing aircraft landing area. The VAH is located near the lower boundary of the cantonment area and is used solely for helicopters. The FAA has designated portions of the overlying airspace as SUA, which may be activated during special activities as restricted from nonmilitary uses. Restricted airspace over YTC includes areas located from the surface up to, but not including, 55,000 feet (16,764 m) MSL (Fort Lewis Staff, 2007, as cited in HQDA, 2007).

For the purposes of this analysis, it is assumed that up to 50 percent of the aviation flight hours for the CAB will be flown at YTC during normal aviation unit training and aviation gunnery exercises. The YTC also hosts aviation units from foreign countries that train on the facility on a case-by-case basis.

6.12.2. Environmental Consequences

Alternative 2 and 3

Transportation

With the stationing of a CAB at JBLM, CAB Soldiers and Families are projected to generate approximately 70,750,880 annual vehicle miles traveled on the installation and surrounding area (see Appendix E). Traffic volume on the installation will increase, and the LOS will decrease at four of eight key intersections studied (Appendix E). LOS at four of the eight intersections will be at LOS-F. CAB

stationing will result in a deterioration of traffic conditions on I-5 which is already experiencing significantly degraded service levels. Presuming the additional Soldiers commuting to the GAAF distribute their trips consistent with existing distribution of gate volume, a large majority of new trips from CAB Soldiers will use gates along I-5. It can be expected that stationing a CAB will generate approximately 770 additional inbound and outbound trips through the installation's gates (access control points). This represents an estimated 12 percent increase over the traffic volume that moves through the gates if all other stationing actions outlined in the JBLM *Grow the Army* FEIS occurred. Increased traffic volume from stationing the CAB at JBLM will also contribute to increased traffic congestion on I-5 near and leading to JBLM. These potential effects on traffic leading to JBLM are significant as they will contribute to a deterioration in LOS for a transportation network already severely stressed to accommodate existing traffic.

In responses received following the publication of JBLM's FEIS for *Grow the Army* (JBLM, 2010a), many commenters noted that traffic congestion had greatly increased on I-5 since all three SBTs began training at JBLM and none were absent due to deployment. Some suggested that JBLM make greater use of staggered work hours. JBLM is evaluating this measure.

Army Regulation 385-10, *The Army Safety Program*, contains requirements for traffic safety and loss prevention to reduce the risk of death or injury to Army personnel and civilians. Through training and other means, the Army seeks to instill in our Soldiers the importance of vehicle safety, expecting Soldiers to operate motor vehicles in a safe manner and always to employ risk management principles when using their privately owned vehicles.

Stationing a CAB at JBLM will not involve permanently stationing Soldiers at YTC. Units from the CAB will fly their aircraft and drive their wheeled vehicles by convoy to conduct training at YTC. The stationing of 2,700 Soldiers will have minimal impact on existing traffic congestion of public roads leading to or near YTC. Convoys will be scheduled in conjunction with WSDOT, and limited in the number of vehicles per convoy and number of convoys per day. Stationing the CAB at JBLM will not have significant effects on traffic or transportation at or near YTC.

Airspace

The stationing of a CAB at JBLM's GAAF will involve a substantial increase in helicopter maneuver training on JBLM and YTC. Although the increase in the number of flight hours (approximately 24,800 additional hours), landings, and takeoffs appear substantial when compared to the current conditions, the direct and indirect effects will be less than significant. Even with the units currently stationed at GAAF, the SUA is readily available and can easily accommodate the increase in flight training hours, landings, and takeoffs (Rodriguez, 2009, as cited in JBLM, 2010a). SUA at YTC is also readily available and can easily accommodate the anticipated increase in flight training hours, landings, and takeoffs. Thus, the increase in maneuver training associated with the CAB will not create obstructions to air navigation; affect flight operations at GAAF, VAH or any other airfield; or require the FAA to modify existing SUA or create new SUA. The existing restricted airspace, MOAs, and SUA will allow flight operations to occur safely throughout the maneuver training areas without potential interference from nonparticipating or incompatible aircraft. Units conducting aerial deployment from JBLM to YTC will follow FAA regulations for the airspace in which they are flying and will avoid developed civilian areas. Consequently, stationing a CAB at JBLM, with associated training at JBLM and YTC, will result in less than significant impacts to airspace.

Alternative 1 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in transportation and airspace impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under Alternative 1 is other than JBLM.

6.12.3. Cumulative Effects

Transportation

Cumulative impacts of a CAB stationing at JBLM on transportation infrastructure and traffic is expected to be significant in large part due to the considerable congestion along the I-5 corridor near JBLM.

Multiple long-term capital improvements are being planned in the region that will accommodate the increase in traffic. Included, for example, are regional freeway improvements on I-5 and the 'Bypass of Point Defiance Rail Project'.

Although the YTC region is experiencing population growth, the growth is not significant. CAB Soldiers will not be stationed at YTC. Units from the CAB will fly their aircraft and drive their wheeled vehicles by convoy to conduct training at YTC. Convoys will be scheduled in conjunction with WSDOT and limited in the number of vehicles per convoy and number of convoys per day. Cumulative impacts to transportation infrastructure and traffic is expected to be less than significant at YTC.

Airspace

Cumulative effects to airspace resources will generate less than significant direct or indirect impacts. As evidenced by McChord Airfield, airspace in the region is also used by the USAF for training operations. As a result of the Army's recent Transformation and Growth initiatives, the SBCTs stationed at JBLM are equipped with UASs. The SBCTs also train and employ UASs at the YTC. These systems fly in and sometimes compete for the region's SUAs, to include restricted airspace, and MOAs. There is sufficient restricted and SUA and MOAs available at both JBLM and YTC to safely accommodate the employment of Army aviation assets, UASs, and other allowable aviation assets. There are no known reasonably foreseeable actions that will impact the airspace over either facility.

For additional discussion of transportation and airspace impacts, see the JBLM *Grow the Army* EIS (JBLM, 2010a).

6.13. Utilities

The potential impact on utilities is defined in the following subsections.

6.13.1. Affected Environment

Joint Base Lewis-McChord

Potable Water

JBLM operates four public water systems for the former Fort Lewis that are served entirely by groundwater sources. The primary water system provides potable water to over 47,000 people in the former Fort Lewis cantonment area. The three other potable water systems serve areas on the remainder of the former Fort Lewis. These include the Golf Course, ASP, and Range 17 potable water systems.

This system consists of one drinking water source, Sequalitchew Spring, and eight drinking water source wells at various locations around the installation. It has a supply capacity of approximately 19 mgd (72 million L/day) and a storage capacity of approximately 6.9 mgd (26 million L/day) (Chavez, 2009, as referenced in JBLM, 2010a). There is also an emergency tie-in with the city of DuPont to allow either party to provide water to the other during critical periods.

There are 12 water storage reservoirs that serve the system and have a total storage capacity of 6.9 mgd (29 million L/day), at 4,792 gpm (18,139 liters per minute [L/min]). The Army plans to privatize the potable water distribution system at JBLM (HQDA, 2007)

Wastewater

The wastewater treatment system on JBLM collects industrial and domestic wastewater from the former Fort Lewis Main Post, former Fort Lewis North Fort, former McChord AFB, Veterans Administration Medical Center, and Camp Murray. All wastewater collection lines on the installation are separate from the stormwater runoff and drainage system. JBLM has been replacing some of the older sewer trunk lines, with further improvements still in process. The installation's wastewater treatment system has a permitted capacity of 7.6 mgd (28.8 million L/day), at 5,278 gpm (19,979 L/min), and design capacity of 15 mgd (56.8 million L/day) at 10,417 gpm (39,432 L/min).

The Army discharges treated wastewater from the Solo Point WWTP to Puget Sound under its EPA NPDES permit. Over the 2004-to-2009 period of the previous permit, the Army exceeded the permit treatment requirements six times (EPA, 2009). The Solo Point treatment plant has sufficient hydraulic

5705 design capacity to handle demand. Given the past performance of the facility, however, it is expected that
5706 discharges will violate permit treatment requirements more frequently in the future as demand increases.
5707 Increased demand combined with more stringent requirements that EPA has identified for discharges
5708 under future NPDES permits will render the Solo Point WWTP insufficiently protective of Puget Sound
5709 water quality.

5710 **Stormwater**

5711 JBLM is located adjacent to Puget Sound, with all stormwater from the former Fort Lewis draining
5712 toward Puget Sound via American Lake or Sequalitchew Lake. Several existing pipes and culverts
5713 currently appear to be undersized (JGA and AMEC 2007).

5714 **Solid Waste**

5715 JBLM's solid waste management program includes separate operations for collection and disposal of
5716 municipal solid waste, construction and demolition waste, and regulated medical waste. Nonhazardous
5717 solid waste is land-filled off-post only or recycled. Waste varies from common household to commercial
5718 and industrial sources. Approximately 12,864 tons (11,670 metric tons) of solid waste were generated at
5719 the former Fort Lewis in 2007, more than one-third of which (4,511 tons [4,090 metric tons]) was
5720 recycled (Fort Lewis, 2008). Nonhazardous solid waste is land-filled, either on- or off-post, or recycled.
5721 Waste generated on the former Fort Lewis is collected by a private contract provider, and taken to the
5722 304th Landfill in Graham, WA, for disposal.

5723 **Energy, Heating, and Cooling**

5724 The electrical distribution system at the former Fort Lewis is supplied by Tacoma Power and consists of
5725 four substations located around the installation, each of which is fed from a 115-kV pole line and
5726 collectively contain five 20-mVA transformers (JGA and AMEC, 2007). Each transformer is connected to
5727 a secondary switchgear owned by JBLM, which provides electrical service to the installation via 13.8kV
5728 overhead and underground distribution circuits. Based on utility billing information, peak demand for the
5729 installation was in January 2007 and was 39.4 MW or 41.1 mVA (JGA and AMEC, 2007). For FY 2008,
5730 818,549 million British thermal units (MBTUs) of electricity were required at Fort Lewis (Waehling,
5731 2009, as referenced in JBLM, 2010a).

JBLM uses natural gas as its primary heat source. Natural gas is provided by PSE. PSE currently owns the major gas pipelines on the installation. Fuel oil is used as a backup when gas supplies are turned off and is purchased by contract (Fort Lewis, 2008). The total quantity of natural gas consumed on Fort Lewis in 2008 was 1,145,684 MBTUs (Waehling, 2009, as referenced in JBLM, 2010a). No existing gas piping deficiencies have been identified (JGA and AMEC, 2007). The existing main gas supply is sufficient to accommodate the gas requirements for all currently planned projects. Any major expansion of the gas pipe system will require the involvement and design work of PSE. The cost of this additional work will need to be determined and be a part of a new gas supply contract.

Communications

The telephone system at the former Fort Lewis is government owned and is maintained by the 106th Signal Battalion of the 7th Signal Command. QWEST provides outside telephone service to the JBLM system for the former Fort Lewis area. Communications facilities are divided into four major areas on that part of the installation constituting the former Fort Lewis: the Main Post, North Fort, the Training Areas, and the Madigan Army Medical Center. There are approximately 160 miles (260 km) of aerial cable and 34 miles (55 km) of underground cable in the four areas. System improvements in the North Fort subsystem are planned in conjunction with programmed construction in that area.

Yakima Training Center

Potable Water

The drinking water supply for YTC is provided entirely from groundwater sources. Six wells provide water for three permitted drinking water distribution systems located in the cantonment area and at Yakima Research Station and the MPRC. Prior to distribution and use, this water is treated as needed at the wellhead by chlorination. The remaining wells are located throughout the training area (Bartz, 2009, as referenced in JBLM, 2010a).

Water for the permitted drinking water distribution system in the cantonment area is supplied by three wells and stored in two tanks with a combined storage capacity of 1,130,000 gallons (4.28 million L). At Yakima Research Station, there are two wells with a combined storage capacity of 375,000 gallons (1.42 million L). The MPRC has one well with a storage capacity of 1,200 gallons (4,542 L). The remaining

eight wells located within the range area complex have a combined storage capacity of 415,300 gallons (1.57 million L) (Bartz, 2009, as referenced in JBLM, 2010a).

Water used during training exercises may be drawn from the cantonment area system and hauled to the field or drawn directly from one of the training area wells. Summer demand for water at YTC averages approximately 200,000 gpd (757,082 L/day). Approximately three quarters of this water comes from the cantonment area system.

Wastewater

YTC has a permitted WWTP, the Solo Point WWTP, which is located outside the installation boundary between the cantonment area and the Yakima River. The plant provides primary and secondary treatment of primarily domestic wastewater before discharge of effluent into the Yakima River. Only a portion of the permitted treatment capacity of 720,000 gpd (2.7 million L/day) is currently utilized. Peak daily flow is estimated at approximately 150,000 gpd (570,000 L/day) (Bartz, 2009, as referenced in JBLM, 2010a).

Several of the smaller, remote structures within the cantonment area are self-contained, with individual septic tanks and drain fields. All wastewater outside the cantonment area is treated with the use of septic tanks and drain fields or lagoons. Self-contained field latrines are used to support training activities.

Stormwater

Stormwater drainage at YTC is generally through natural settings, such as interim creeks and valleys. However, in the cantonment area and other developed areas of the installation, drainage is engineered through structures such as ditches, oil-water separators, and culverts. A portion of the cantonment area drainage discharges into an intermittent stream that then enters the Yakima River downstream of Selah Creek. Because of the low hydraulic gradient of vegetated channels of the drainage systems and long distances to receiving waters, storm drainage has not historically resulted in adverse effects on the Yakima River.

Solid Waste

Refuse generated in Yakima County is hauled by Yakima Waste Systems and disposed at the Yakima County Terrace Heights Landfill. Refuse generated in Kittitas County is hauled by Waste Management of

Ellensburg and disposed at Wenatchee Regional Landfill. Commingled recycle is also collected by Yakima Waste Systems.

Energy, Heating, and Cooling

PacifiCorp is the primary supplier of electric power to YTC. The Kittitas Public Utility District provides electric power for the MPRC and the Doris training site. The total annual electricity consumption for YTC in FY 2008 was 12,351,023 kilowatt hours (McDonald, 2009f, as referenced in JBLM, 2010a).

Cascade Natural Gas Corporation supplies natural gas to YTC. Natural gas is the primary source of heating energy. Diesel and propane are also used for heating. During FY 2008, natural gas consumption at YTC totaled 421,155 MBTUs (McDonald, 2009f, as referenced in JBLM, 2010a). In addition, 11,300 gallons (42,800 L) of propane were used as backup sources of fuel (McDonald, 2009f, as referenced in JBLM, 2010a)

Heat energy was updated in the cantonment area at YTC in 2009. The conversions consist of individual natural gas forced air systems that replace steam heat service from boiler plant sources. The programmed new facilities will replace deteriorating facilities, resulting in anticipated energy savings.

Communications

The YTC telephone system is operated and maintained by the Network Enterprise Center, located at JBLM. QWEST provides outside telephone service to the YTC switch. Communications facilities at YTC are also divided into two major areas: the cantonment area, with 4 miles (6 km) of aerial cable and 12 miles (19 km) of underground cable, and the training areas, with approximately 63,360 feet (19 km) of aerial cable and more than 480 miles (772 km) of underground cable (Cumpston, 2009, as referenced in JBLM, 2010a).

6.13.2. Environmental Consequences

Alternative 2 and 3

Implementation of this stationing decision will not cause significant impacts to the infrastructure at JBLM for wastewater capacity, energy sources, communications, and solid waste management (see Section 6.8.2

and 6.9.2 for wastewater effluent issues). Construction of new CAB facilities at JBLM could result in stormwater runoff from land disturbance sites and increased sedimentation in waterways beyond the project site boundary in and around the GAAF and East Division ADP areas. Because there will be no major addition of impervious surfaces for new construction, the JBLM stormwater conveyance system will handle the loadings under existing conditions. Utility demand will increase in the short term during construction of new CAB facilities and in the long term to support CAB Soldiers and their Families. Since the CAB Soldiers and Families will result in a population increase of less than one percent, this impact will be minimal. Extensions of power, water, and sewer lines are under construction, therefore only minor, if any, extensions will be required to provide newly constructed CAB facilities with these utility services.

None of the CAB units will be stationed at YTC; however, CAB units will be expected to conduct training at YTC. Impacts to utility infrastructure at YTC will be minimal.

Alternative 1 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in utility impacts due to training or construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under Alternative 1 is other than JBLM.

6.13.3. Cumulative Effects

As a result of the Army's recent Transformation and Growth initiatives, additional units have been stationed at JBLM and three SBCTs have been stationed on the facility. These increases in units, personnel and family members have increased the demand for utilities on the installation. There is, however, sufficient capability to accommodate the aforementioned increases and the addition of a CAB. The utilities at YTC are sufficient to accommodate the additional training load that the aforementioned force structure changes and the addition of a CAB will conduct on the facility. There are no known reasonably foreseeable actions that will impact additionally on the utilities of either facility. A fuller

discussion of cumulative impacts at JBLM and YTC can be found in JBLM's *Grow the Army* FEIS (JBLM, 2010a).

6.14. Hazardous and Toxic Substances

The presence or potential for generating hazardous and toxic substances is defined in the following section.

6.14.1. Affected Environment

Joint Base Lewis-McChord

Units and activities at JBLM typically use hazardous materials such as fuels, paints, solvents, lubricants, coolants, sealers, adhesives, refrigerants, compressed gases, batteries, cleaners, and sanitation chemicals. Hazardous materials also include munitions; pesticides and herbicides; petroleum, oils, and lubricants (POL); and petroleum storage tanks. Hazardous waste is generated because of facility and equipment maintenance, medical care activities, Soldier training, and motor pool and aviation maintenance operations. Hazardous wastes generated at JBLM include medical and biohazardous waste, asbestos, LBP, and PCBs. Expended ammunition, although inert as an explosive, may constitute a hazardous material, such as lead contamination. Soils with lead contamination may be found at small arms and artillery practice ranges where lead munitions are used. Lead was also a constituent of paints before 1978, therefore buildings constructed before 1978 are assumed to contain LBPs unless lead testing has proven otherwise. Older buildings are also assumed to contain asbestos until proven otherwise, and most of the buildings on the installation suspected to be contaminated with asbestos containing material (ACM) have been tested. There are no Federally regulated PCBs at Fort Lewis (Smith, 2009, as referenced in JBLM, 2010a).

In 1996, Fort Lewis (now JBLM) conducted an RCRA Facility Assessment that identified 81 sites representing potential environmental hazards, most of which were located in the cantonment area (Fort Lewis, 2008). In 1989, the Logistics Center at Fort Lewis (now JBLM) was designated as a NPL site based on soil and groundwater contamination. Off-post, the American Lake Gardens, located west of the McChord AFB area and north of the Fort Lewis area, was placed on the NPL in 1984. The groundwater at this site contained VOCs, which were believed to have come from former landfills at McChord AFB, and

a groundwater treatment plant that has been in operation since 1993. Additionally, the former Fort Lewis area of JBLM has 51 Defense Site Environmental Restoration Tracking System sites (Fort Lewis, 2005a).

The former Fort Lewis operates as a State and Federally permitted large quantity hazardous waste generator (RCRA ID# WA92 14053465). The former Fort Lewis area of JBLM currently operates 418 individual hazardous waste accumulation points located throughout the installation. Hazardous wastes are directed to the installation's storage facility. Contract services are used to collect, recycle, and/or dispose of hazardous wastes off site. During FY 2007, a total of 415,300 pounds (188,400 kg) of hazardous waste were generated on the former Fort Lewis (Smith, 2009, as referenced in JBLM, 2010a).

Management of hazardous materials and wastes at JBLM continues to follow Army, Federal, and State regulations in order to minimize potential impacts to human health or the environment. Programs used to manage hazardous materials and wastes at JBLM include IRP, MMRP, and CC. JBLM has several plans for the former Fort Lewis in place to help manage hazardous materials and waste including a *P2 Plan*; *IPMP*; *Hazardous Material Management Plan*; and *Ozone Depleting Chemical Management Plan*. Ordnance impact areas and buffer zones are off limits to unauthorized personnel. In addition, impact areas are posted with warning signs indicating the potential risks of UXO in the impact area.

Yakima Training Center

The operations at YTC use hazardous materials and generate hazardous wastes that are similar to those used and generated by JBLM (see above), but in much smaller quantities. During FY 2008, 8,151 pounds (3,697 kg) of reportable hazardous waste was generated at YTC (Bartz, 2009, as referenced in JBLM, 2010a). YTC no longer has useable USTs. All previous USTs have been removed, grouted, or filled with gravel. As with JBLM, problems associated with contaminants such as asbestos, LBPs and PCBs will be remediated as they are identified and funding is available.

In 1995, an RCRA Facility Assessment was performed to identify areas of prior contamination at YTC (Bartz, 2009, as referenced in JBLM, 2010a). Currently eight sites in the cantonment area remain under a Land Use Control Plan. Groundwater contamination has not been found in YTC or local residential drinking water (Bartz, 2009, as referenced in JBLM, 2010a).

As with JBLM, management of hazardous materials and wastes at YTC continues to follow Army, Federal, and State regulations in order to minimize potential impacts to human health or the environment with various programs and plans in place to minimize inventory of hazardous materials, hazardous waste generated, and potential for releases of hazardous materials or toxic substances.

6.14.2. Environmental Consequences

Alternative 2 and 3

Effects of a CAB stationing regarding hazardous material, hazardous waste, and toxic substances are expected to be less than significant. Provision of CAB facilities in the GAAF and East Division ADP areas are expected to result in renovation and demolition of some buildings constructed before 1978, which are assumed to contain LBPs and asbestos until proven otherwise. With continued implementation of regulatory and administrative mitigation measures, impacts from construction of CAB facilities at JBLM, to include renovation and demolition activities, will be less than significant because there will be minimal risk of human or environmental exposure to hazardous materials used or hazardous wastes generated during construction. The CAB will conduct aerial gunnery training that will increase live-fire training, therefore increasing the quantities of UXO and lead generated within the live-fire impact zones at JBLM and YTC. Impacts will be less than significant because the impact zones will be temporarily closed and remediated as needed and the current Army protocols for the protection of Army personnel and the public will minimize the risk of human or environmental exposure to UXO or lead. Ammunition handling and storage methods, disposal protocols, and safety procedures will continue to be conducted IAW existing regulations. CAB activities will increase quantities of POLs transported, stored, and used at JBLM and YTC; and a subsequent slightly increased risk of inadvertent spills or releases of fuels or hazardous materials. With continued implementation of standard Army regulatory and administrative requirements, impacts will be less than significant because the likelihood of spills will be minimized and inadvertent spills will be quickly identified and remediated to avoid exposure of military personnel or the public and to prevent endangerment of the public or environment.

Alternative 1 and the No-Action Alternative

The No-Action Alternative retains Army aviation force structure at its current levels, configurations, and locations. There will be no change in hazardous and toxic substance impacts due to training or

construction activities associated with the No-Action Alternative. The No-Action Alternative includes BRAC-directed actions, Grow the Army stationing decisions, and other directed stationing actions that will occur prior to the start of FY 2013 (October 1, 2012). The same will occur for Alternative 1 as the stationing location selected under Alternative 1 is other than JBLM.

6.14.3. Cumulative Effects

The CAB stationing and associated training activities, in combination with continued increases in anticipated regional population, development, and industry (to include reasonably foreseeable increases from JBLM), will continue to add to the generation of solid and hazardous materials and wastes. Regional anticipated population growth around YTC will continue to contribute cumulatively to that region's generation of hazardous and solid wastes. Increased training resulting from a CAB stationing will add slightly to the quantity of potential hazardous waste that will need to be managed at JBLM and YTC. Each increase in training at JBLM and YTC increases the risk of release of hazardous substances. On JBLM and YTC, efforts to achieve zero net waste will help minimize the Army's contribution to each area's regional increases. Regional efforts to use recyclable materials and recycle waste materials will also help offset the general regional increase. With continued implementation of regulatory and administrative measures, including the Army's protocols and SOPs for transport, storage, handling, and disposal of hazardous materials and wastes, cumulative impacts associated with hazardous materials and wastes and toxic substances will be less than significant. A fuller discussion of cumulative impacts at JBLM and YTC can be found in JBLM's *Grow the Army* FEIS (JBLM, 2010a).

7. ACRONYM LIST

A

AAP – Army Alternate Procedure

AC – Active Components

ACHP – Advisory Council on Historic Preservation

ACM – asbestos containing materials

ACP– Army Campaign Plan

ACUB – Army Compatible Use Buffer

ADNL – A-weighted day-night sound level

ADP – Area Development Plan

AEC – U.S. Army Environmental Command

AFB – Air Force Base

AGL – above ground level

AIE – Automated Installation Entry

AIRFA – American Indian Religious Freedom Act

AMC – Air Mobility Command

AOA – Aircraft Operations Area

AQCC – Air Quality Control Commission

AQCR – Air Quality Control Region

AR – Army Regulation

ARFORGEN – Army Force Generation

ARAR - applicable or relevant and appropriate requirements

ASP – Ammunition Supply Point

AST – aboveground storage tanks

B

BAAF – Butts Army Airfield

BAER – Burned Area Emergency Response/Rehabilitation

BASH – Bird Air Strike Hazards

BCT– Brigade Combat Team

BEA - Bureau of Economic Analysis

BLM – Bureau of Land Management

BMP – best management practice

BOD – Biological Oxygen Demand

BRAC– Base Realignment and Closure

C

CAA – Clean Air Act

CAB – Combat Aviation Brigade

CC - Compliance-Related Cleanup

CCR – Code of Colorado Regulations

CDNL – C-weighted day/night sound level

CDOT – Colorado Department of Transportation

CDOW – Colorado Division of Wildlife

CDPHE – Colorado Department of Public Health and Environment

CEQ – Council on Environmental Quality

CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act

CFR – Code of Federal Regulations

cfs – cubic feet per second

CGS – Colorado Geology Survey

CH_4 - Methane

CHPPM – U.S. Army Center for Health Promotion and Preventative Medicine (now the U.S. Army Public Health Command (Provisional))

cm – centimeters

cms – cubic meters per second

CO – carbon monoxide

CO_2^e – carbon dioxide equivalents

COD – Chemical Oxygen Demand

CONUS – Continental United States

COSHPO – Colorado State Historic Preservation Office

CWA – Clean Water Act

CWD – Chronic Wasting disease

CZMA - Coastal Zone Management Act

D

DA – Department of the Army

DAHP – Department of Archaeology and Historic Preservation

dB – decibel

DNL – day-night sound level

DoD – Department of Defense

DoDI – Department of Defense Instruction

E

EA – Environmental Assessment

EIFS -

EIS – Environmental Impact Statement

EMS – Environmental Management System

ENMP – Environmental Noise Management Program

EO – Executive Order

EPA – U.S. Environmental Protection Agency

EPCRA - Emergency Planning and Community Right-to-Know Act

EPP – Environmental Protection Plan

ESA – Endangered Species Act

F

F – Fahrenheit

F^3 - cubic feet

FAA – Federal Aviation Administration

FEIS – Final Environmental Impact Statement

FEMA – Federal Emergency Management Agency

FFA – Federal Facility Agreements

FFCA – Federal Facility Compliance Act

FIRM – Flood Insurance Rate Map

FM – Field Manual

FR – Federal Register

FWS – U.S. Fish and Wildlife Service

FY – Fiscal Year

G

GAAF – Gray Army Airfield

GDPR – Global Defense Posture Review

GHG – Greenhouse Gas

gpm – gallons per minute

GSF – gross square feet

H

ha – hectares

HAAF – Hunter Army Airfield

HAP – hazardous air pollutants

Heavy CAB – Heavy Combat Aviation Brigade

Hg – mercury

HIMARS – High Mobility Artillery Rocket System

HMCC – Hazardous Materials Control Center

HMT - Federal Hazardous Materials Transportation Law

HQ – Headquarters

HQDA – Headquarters Department of the Army

HVAC – heating, ventilating, and air conditioning

HWMP – Hazardous Waste Management Plan

Hz - Hertz

I

I- – Interstate Highway

IAW – in accordance with

IBCT – Infantry Brigade Combat Team

ICRMP – Integrated Cultural Resources Management Plan

INRMP – Integrated Natural Resources Management Plan

IPCC - Intergovernmental Panel on Climate Change

IPMP – Integrated Pest Management Plan

IRP – Installation Restoration Program

ISO 14001 – International Organization for Standardization, Environmental Management Standard 14001

ISWMP – Integrated solid waste management team

ITAM – Integrated Training Area Management

ITE – Institute of Transportation Engineers

IWTP – industrial wastewater treatment plant

J

JBLM – Joint Base Lewis-McChord

K

km – kilometers

kV – kilovolt

kVA – kilovolt ampere

L

L – liters

L/day – liters per day

L/min – liters per minute

LATN – Low Altitude Tactical Navigation

LBP – lead-based paint

LEED® – Leadership in Energy and Environmental Design

LOS – level of service

LUPZ – Land Use Planning Zone

M

m – meters

m^3 – cubic meters

MBTA - Migratory Bird Treaty Act

MBTU – million British thermal units

mcf – million cubic feet

Medium CAB– Medium Combat Aviation Brigade

METL – Mission-Essential Task List

mgd – million gallons per day

mg/L – milligrams per liter

mm – millimeter

MMPA - Marine Mammal Protection Act

MMR – Military Munitions Rule

MMRP – Military Munitions Response Program

MOA – military operations area

MRA – military readiness activities

MS4 – Municipal Separate Storm Sewer System

MSDS – Material Safety Data Sheet

MSFCMA - Magnuson-Stevens Fishery Conservation and Management Act

MSL – mean sea level

MVA – megavolt amperes

MW – megawatts

N

NAAQS – National Ambient Air Quality Standard

NAGPRA – Native American Graves Protection and Repatriation Act

NDAA - National Defense Authorization Act

NEPA – National Environmental Policy Act

NESHAP – national emissions standards for hazardous air pollutant

NFA – No Further Action

NHPA – National Historic Preservation Act

NMFS – National Marine Fisheries Service

NNSR – Nonattainment New Source Review

NO_x – nitrogen oxide

NOAA - National Oceanic & Atmospheric Administration

NOAA Fisheries - National Oceanic & Atmospheric Administration Fisheries

NOE – Nap-of-the-Earth

NOI – Notice of Intent

NPDES – National Pollutant Discharge Elimination System

NRCS – Natural Resources Conservation Service

NRHP – National Register of Historic Places

NSR – New Source Review

NWCG - National Wildfire Coordinating Group

NZ – Noise Zone

O

O_3 – ozone

OCRM - Office of Ocean and Coastal Resource Management

ORTC – Operational Readiness Training Center

OWS – oil-water separator system

P

P2 – pollution prevention

PA – Programmatic Agreement

PCB – Polychlorinated Biphenyls

PCMS – Piñon Canyon Maneuver Site

PEIS – Programmatic Environmental Impact Statement

PM – particulate matter

$PM_{2.5}$ – particulate matter whose diameter is less than or equal to 2.5 µm

PM_{10} – particulate matter whose diameter is less than or equal to 10 µm

POL – petroleum, oils, and lubricants

PPA – Pollution Prevention Act

PPACG – Pikes Peak Area Council of Governments

PSCAA – Puget Sound Clean Air Agency

PSD – Prevention of Significant Deterioration

PSE – Puget Sound Energy

Q

QDR- Quadrennial Defense Review

R

RCRA – Resource Conservation and Recovery Act

ROD – Record of Decision

ROI – region of influence

ROZ - Restricted Operating Zone

RRFA - reasonably foreseeable future actions

RTV - Rational Threshold Values

S

SAR - Second Assessment Report

SBCT – Stryker Brigade Combat Team

SCWSSC – South Central Washington Shrub-Steppe Collaborative

SDWA – Safe Drinking Water Act

Se – selenium

SEMS – Sustainability and Environmental Management System

SF – square feet

SH – State Highway

SHPO – State Historic Preservation Office

SIP – State Implementation Plan

SO_2 – sulfur dioxide

SOP – standard operating procedure

SPCC – Spill Prevention Control plan

SPCCP – Spill Prevention Control and Countermeasures Plan

SUA – special use airspace

SWPPP – stormwater pollutant prevention plan

SY – square yards

T

TC – Army Training Circular

TCP – traditional cultural properties

TNC – The Nature Conservancy

tpy – tons per year

TRI – Toxic Release Inventory

TSCA – Toxic Substance Control Act

TSS – Total Suspended Solids

U

UAS – Unmanned Aerial System

µm – micrometers

U.S. – United States

USACE – U.S. Army Corps of Engineers

USACERL - U.S. Army Construction Engineering Research Lab

USAF – U.S. Air Force

USAG – U.S. Army Garrison

U.S.C. – United States Code

USDA – U.S. Department of Agriculture

USFS – U.S. Forest Service

USGS – U.S. Geological Survey

UST – underground storage tank

UXO – unexploded ordnance US – United States Highway

V

VAH – Vagabond Army Heliport

V/C – volume/capacity

VEC – Valued Environmental Component

VOC – volatile organic compound

W

WARSSS – Watershed Assessment of River Stability and Sediment Supply

WAU – Watershed Administrative Unit

WDFW – Washington Department of Fish and Wildlife

WDNR – Washington Department of Natural Resources

WRIA – Water Resource Inventory Area

WS DOE – Washington State Department of Ecology

WSDOT – Washington State Department of Transportation

WWTP – wastewater treatment plant

Y

YRCAA – Yakima Regional Clean Air Agency

YTC – Yakima Training Center

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- *Final Environmental Impact Statement for Implementation of Fort Carson Grow the Army Stationing Decisions*, February 2009 (Fort Carson, 2009)

- *Final Environmental Impact Statement for the Fort Lewis Army Growth and Force Structure Realignment*, July 2010 (JBLM, 2010a).

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Appendix A. Valued Environmental Component General Descriptions

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A.1. Land Use

Land use refers to the use of land and water for agricultural, industrial, residential, recreational, or other land assets. In the Army, land use planning is the execution of programs to improve, utilize, and maintain all land and water areas for the greatest long-term net public benefit, while supporting optimal sustained use of military lands for the execution of realistic training and testing by integrating mission requirements with sound natural resources management based on established land use categories and criteria.

The land use planning process is a continual, collaborative, and integrated process, because it needs feedback and ideas from garrison directorates, installation units, and tenant organizations. Land use planning is used on a continuing basis as a component of real property master planning.

USAG commanders are the mayors of small cities. Garrison commanders must develop business practices to build enduring, sustainable, and continually improving quality communities and training lands that support mission readiness. They must establish their installations as valued neighbors and trusted partners with surrounding communities (HQDA, 2005).

The garrison commander's instrument for unifying planning, and programming for installation real property management, development and associated services is the master planning process. This process is recorded in an installation's real property master plan (RPMP)., An RPMP typically covers a 20-year planning horizon and is revised and updated as installation changes dictate, but not less than every five years.

Army real property assets include lands, facilities, and infrastructure. This includes interests in land, leaseholds, standing timber, buildings, improvements (e.g., electric and water hook-ups), and appurtenances (i.e., equipment, such as tools and instruments). Though Army Regulation 210-20, *Installations: Real Property Master Planning for Army Installations* (HQDA, 2005) provides Army master planners an in-depth definition of a facility, in essence, facilities are the buildings, structures, and other improvements that support the Army's mission, and include, for example, Army ranges. Infrastructure, discussed further under the Utilities section, is the combination of supporting systems that enable the use of this land and resident facilities.

A.2. Air Quality

Congress intends the CAA to provide Americans healthful air. New or expanding sources of air emissions cannot interfere with the intentions of this act, and in areas where air pollutant concentrations exceed healthful levels, proponets of new or expanding sources should show that these sources will not interfere with the eventual achievement of healthful levels. Projects to build new or projects to expand existing air emissions sources in areas where local air meets healthful levels may only increase local pollutant concentrations by insignificant amounts.

Air resources are affected by pollutants and are influenced by meteorological conditions such as prevailing wind, sunlight, and temperature inversions. The CAA of 1970, 42 United States Code (U.S.C.) 7401 *et seq*., amended in 1977 and 1990, is the primary Federal statute governing air pollution. The CAA applies fully to the Army and all its activities. Pollutants affecting air quality in any region can be characterized as being emitted from either stationary sources (e.g., fuel burning equipment and chemical processing operations), mobile sources (e.g., cars), or are fugitive (i.e., emissions that could not reasonably pass through a stack or tailpipe). The CAA established the NAAQS (40 CFR Part 50) to protect human health and welfare, allowing for an adequate margin of safety (Table 18). Primary and secondary NAAQS have been established for six air pollutants, known as criteria pollutants: O_3, CO, nitrogen dioxide (NO_2), SO_2, lead (Pb), and two types of PM (PM_{10} is coarse PM [10 µm or less in diameter] and $PM_{2.5}$ is fine PM [2.5 µm or less in diameter]). The U.S. EPA classifies the air quality in an AQCR, or in sub-areas of an AQCR, according to whether the concentrations of criteria pollutants in ambient air exceed the primary or secondary NAAQS. Federal regulations designate AQCRs that cannot attain compliance with the NAAQS as nonattainment areas. Areas meeting NAAQS are designated as attainment areas. Areas that have improved air quality from former nonattainment status to attainment are designated maintenance areas for a certain time period. Areas that lack monitoring data to demonstrate attainment or nonattainment status are designated as unclassified, although they are treated as attainment areas for regulatory purposes. EPA generally classifies attainment, nonattainment, or maintenance by county. In some cases, it makes these classifications by county portion.

6537 **Table 18. Federal National Ambient Air Quality Standards**

Pollutant	Averaging Time	NAAQS	NAAQS Violation Determination [PPACG 2008(a)][note 2]
O_3	8-hour	0.075 ppm(note 1)	3-year average of the annual 4th highest daily maximum 8-hour average concentration
CO	8-hour	9.0 ppm	Not to be exceeded more than once per calendar year
	1-hour	35.0 ppm	Not to be exceeded more than once per calendar year
NO_2	Annual arithmetic mean	0.053 ppm	Annual average
SO_2	Annual arithmetic mean	0.03 ppm	Not to be exceeded more than once per calendar year
	24 hour	0.14 ppm	Not to be exceeded more than once per calendar year
	3 hour	0.5 ppm	Not to be exceeded more than once per calendar year
PM_{10}	Annual arithmetic mean	Revoked note 3	Expected number of days per calendar year with a 24-hour average concentration above 150 µg/m^3 cannot be exceeded more than once per year on average over a three year period
	24-hour	150 µg/m^3	
$PM_{2.5}$	Annual arithmetic mean	15 µg/m^3	Three year average of annual arithmetic mean
	24-hour	65 µg/m^3	Three year average of 98th percentile of the 24-hour values determined for each year
Pb	Rolling 3-month average	0.15 µg/m^3 (note 4)	Quarterly arithmetic mean

[1]8-hour standard effective May 30, 2008. EPA reviewing standard; review results due July 31, 2011.
[2]A NAAQS violation results in the re-designation of an area; however, an exceedance of the NAAQS does not always mean a violation has occurred.
[3]Revoked annual PM_{10} standard December 2006
[4]EPA reduced standard from 1.5 ug/m^3 to 0.15 ug/m^3 on October 15, 2008. EPA expects to establish non-attainment areas for this new standard between 2012 and 2016.

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µg/m^3 = micrograms per cubic meter
CO = carbon monoxide
NA = not applicable
NAAQS = National Ambient Air Quality Standards
NO_2 = nitrogen dioxide
O_3 = ozone
Pb = lead Governments
$PM_{2.5}$ = particulate matter (≤ 2.5 µm)
PM_{10} = particulate matter (≤ 10 µm)
ppm = parts per million
SO_2 = sulfur dioxide

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If an installation is a "Major Source" as defined by the CAA, or will be a new or expanding source of of air pollutant emissions that meet the Act's definition of "Major New Source", the CAA may require permitting before construction commences. This "New Source Review" (NSR) program is referred to as construction permitting or actually "preconstruction" permitting. The specific requirements will depend on whether the installation is located in a "nonattainment" or "maintenance" area (where the permitting process is referred to as General Conformity or simply "Conformity"). If the installation is located in an "attainment" or "unclassifiable" area, it may have to assess the project's contribution to the local air shed to ensure PSD. In addition to assessing contributions to the local air shed, the PSD regulations provide special protection from air quality impacts for certain areas, primarily National Parks and Wilderness Areas that have been designated as "Class I" areas. These are areas where air quality has been determined to be an important issue, especially visibility and acid deposition.

Conformity

The CAA, specifically section 176(c), prohibits Federal activities from taking various actions in nonattainment or maintenance areas unless they first demonstrate conformance with the respective SIP[1]. Regardless of compliance with other environmental regulations, failure to satisfy the requirements of the conformity rule can, by itself, prohibit an installation from moving forward with the project. A conformity review is a multi-step process used to determine and document whether a proposed action meets the conformity rule. The conformity review will require the installation to:

- Determine if air emissions increase is large enough to require Conformity;
- Evaluate the nature of the proposed action and associated air pollutant emissions;
- Determine whether the action is exempted by the rule;
- Calculate air pollutant emissions and impacts associated with the proposed action;

[1] SIP – The plan submitted by each State and approved by the U.S. EPA for implementing, maintaining, and enforcing the National Ambient Air Quality Standards within the State.

- Calculate emissions from stationary sources, mobile sources, and affected fugitive sources;
- Mitigate emissions if regulatory thresholds are exceeded;
- Prepare formal documentation of the findings; and,
- Publish findings to the public and regulatory community.

Many Army conformity reviews will find that conformity is satisfied because the action is exempt, clearly presumed to conform, or the projected emissions from the project are below conformity applicability threshold values.

Prevention of Significant Deterioration

Installations that are classified as "major sources," located in areas classified as "attainment" and "unclassifiable" must obtain approval to construct a new emissions source or to modify existing emissions sources if the modification project will result in a significant emission increase. It should be noted that "project" includes operational changes that affect emissions, not only equipment construction or modification. The purpose of the PSD program is to prevent areas that meet the CAA standards from becoming nonattainment areas. A PSD Permit must be obtained in order to:

- Construct a new major stationary source of criteria pollutants, or
- Modify an existing major stationary source such that emissions from the source will increase significantly. (The significance thresholds vary from 0.0004 to 100 tpy depending on the pollutant).

New Source Review

The NNSR Permit Program (also known as Nonattainment Area New Source Review or Major New Source Review) applies in nonattainment areas only. Its purpose is to ensure that emissions in these areas are not increased and preferably decreased as a result of new construction or modification projects. This program applies to operational changes as well as equipment changes. It is important to emphasize that NNSR only applies to the pollutants for which the area is in nonattainment. A NNSR Permit must be obtained in order to:

- Construct a new major stationary source of criteria pollutants, or
- Modify an existing major source such that emissions from the source will increase significantly.

Minor Source Preconstruction Permitting

Minor NSR is actually a confusing title for the "catch-all" preconstruction permit program. To ensure all emission sources are reviewed with respect to CAA regulations and to prevent sources' owners from deliberately incrementing their emission increases to avoid PSD/NNSR, the EPA and the states developed Minor NSR. This program has many different names - Notice of Construction, Approval to Operate, Permit to Operate, etc. Each regulatory agency develops regulations for a preconstruction permit program. Typically the regulations will include a list of exempt sources such as temporary sources to be on-site less than 90 days (this takes care of a lot of construction equipment), small boilers or furnaces (residential size), and ventilation systems. This list may have 100 exempt source types. Most regulators also exempt sources which have a potential to emit below a specific threshold. These thresholds should not be confused with any of the other thresholds previously discussed. For example, some States exempt emissions of any pollutant less than one ton/year from a single emission source from minor NSR permitting - if no other regulations apply.

A.3. Noise

Noise is generally defined as unwanted sound. It may be sound that interferes with normal human activities and may disturb wildlife populations or disrupt breeding cycles. Impulse noise levels from high-intensity military activities may cause buildings and objects nearby the source to vibrate, resulting in potential structural damage.

The physical characteristics of sound include intensity, frequency, and duration. Sound is transmitted by mechanical vibrations through different mediums, like air. When sound energy increases, the noise is perceived louder. Sound levels are typically measured using a logarithmic dB scale.

Measurements and descriptions of sounds are usually based on various combinations of the following factors:

- Vibration frequency characteristics of the sound, measured as sound wave cycles per second (Hertz [Hz]) which determines the "pitch" of a sound;

- Total sound energy being radiated by a source, usually reported as a "sound power level;"

- Actual air pressure changes experienced at a particular location, usually measured as a "sound pressure level" (the frequency characteristics and sound pressure level combine to determine the "loudness" of a sound at a particular location);

- Duration of a sound; and

- Changes in frequency characteristics or pressure levels through time.

Human hearing varies in sensitivity for different sound frequencies. Human hearing is limited to frequencies between about 20 and 20,000 Hz, with the upper limit generally decreasing with age.

Correction factors for adjusting actual sound pressure levels to correspond with human hearing have been determined experimentally. A-weighted correction factors are employed for measuring noise in ordinary environments and de-emphasize the very low and very high frequencies of sound in a manner similar to the response of the human ear. Therefore, the A-weighted dB is a good correlation to a human's subjective reaction to noise. To the average human ear, the apparent increase in "loudness" doubles for every 10-dBA increase in noise (Bell, 1982).

The following discussion provides a basis of familiarity with known and common noise levels. A quiet whisper at 5 feet is 20 dBA; a residential area at night is 40 dBA; a residential area during the day is 50 dBA; a large and busy department store is 60 dBA; rush hour traffic at 100 feet from the road is 60 to 65 dBA; interstate traffic at 200 feet is 65 dBA; a heavy truck at 50 feet is 75 dBA; and a typical construction site is 80 dBA. At the upper end of the noise spectrum, a jet takeoff at 200 feet is 120 dBA. Although sound at 140 dBA causes damage and actual pain in humans, the effects of this noise level on wildlife is unknown.

Although the A-weighting scale is the most widely used dB weighting procedure, other weighting scales are also used. The C-weighted scale and unweighted dB values are commonly used for blast noise, sonic booms, or other low-frequency sounds capable of inducing vibrations in buildings or other structures. The

C-weighted sound level is a measure read from a standard sound level meter that de-emphasizes the low and high frequencies. Additionally, evaluations of blast noise or sonic booms sometimes use a peak overpressure measurement.

Equivalent noise levels (L_{eq}) are used to develop single-value descriptions of average noise exposure over various periods. Such average noise exposure ratings often include additional weighting factors for potential annoyance due to time of day or other considerations. The L_{eq} data used for these average noise exposure descriptors generally are based on A-weighted sound level measurements. L_{eq} are not an averaging of dB values, but are based on the cumulative acoustical energy associated with the component dB values. High dB events contribute more to the L_{eq} value than low dB events.

Peak noise levels are described as L_{max}. It is the highest sound level measured over an entire noise event. Discrete noise events sometimes are characterized using the sound exposure level (SEL). The SEL measure represents the cumulative sound exposure, intensity, and duration, over an entire noise event, integrated with respect to a one-second time frame. SEL measurements are equivalent to the L_{eq} value of a one-second noise event producing the same cumulative acoustic energy as the actual noise event being analyzed. In effect, an SEL measure distributes or compresses the noise event to fit a fixed one-second time interval. SEL values can be computed using any dB-weighting scheme.

Average noise exposure over a 24-hour period is often presented as a day-night average sound level (L_{dn}). L_{dn} values are calculated from hourly L_{eq} values, with the L_{eq} values for the nighttime period (10 p.m. to 7 a.m.) increased by 10 dB to reflect the greater disturbance potential from nighttime noises. The CDNL is used to describe the cumulative or total noise exposure during the prescribed time. The CDNL has been found to be a good measure of annoyance noise in a community.

Ambient background noise is not evaluated in environmental noise calculations because background noise varies by location, with wilderness areas being as low as 10 dBA, and because when calculating noise levels, louder sounds dominate the equation. Therefore, it is reasonable to assume that evaluation of background in calculations will have little impact on CDNL.

Army's Environmental Noise Management

The Army seeks to minimize the impact or annoyance of unwanted noise produced by military operations on communities surrounding its installations. Under its ENMP, the Army evaluates the impact of noise that may be produced by ongoing and proposed Army actions and activities. The ENMP is implemented Army-wide to protect the installation mission and to protect the health and welfare of military personnel, their families, and civilian employees on the installation, while also providing noise abatement and mitigation measures that protects the public by reducing environmental noise from training, where feasible. Army installations develop noise management plans to identify recommended land uses based on noise exposure, and to provide a noise management strategy that supports the installation's mission. To evaluate the potential effects of noise associated with military operations, the Army conducts noise studies and generates noise contours.

Criteria for evaluation of noise levels have been expanded beyond the normal A-weighted L_{dn} descriptor to include the use of C-weighted L_{dn} values to characterize major blast noise sources and the use of peak unweighted dB values to characterize small arms firing and large weapons training.

The Installation Environmental Noise Management Plan includes education, complaint management, noise and vibration mitigation, noise abatement procedures, and the ENMP. The ENMP provides a methodology for analyzing exposure to noise and safety hazards associated with military operations. It also provides land use guidelines for achieving compatibility between the Army and surrounding communities.

Noise Zones and Noise Impacts to the Community

The Army has defined four NZ (Table 19) to be considered in land use planning (AR 200-1). These noise levels apply to humans only and do not apply to animals or wildlife, therefore are used in evaluating noise impacts to communities. The LUPZ day-night sound level (DNL) noise contours (60 dB A-weighted day-night sound level [ADNL] for aviation activity or 57 dB CDNL) represent an annual average that separates NZ II from NZ I. Installations use the LUPZ to provide the means to predict possible complaints, and meet the public demand for a better description of what will exist during a period of increased operations. The contours are generated by taking all operations that occur over the year and dividing by the number of training days. The noise environment varies daily and seasonally because

operations are not consistent through all 365 days of the year. For residential land uses, depending on altitudes and other factors, a 60 dB ADNL or a 57 dB CDNL may be considered by the public as an impact on the community environment. In general, within Zone I, where very few people will be bothered by noise levels, land use is unrestricted and thus deemed compatible with most noise-sensitive land uses. In Zone II, as outdoor noise levels increase and more people become annoyed by the noise, restrictions or qualifications are placed on certain land uses, specifically, residential development. Zone II is normally incompatible with noise-sensitive land uses. In Zone III, as noise levels escalate, fewer and fewer compatible land uses are indicated. Zone III is incompatible with noise-sensitive land uses. Table 19 provides the associated noise levels for each zone (HQDA, 2007). Table 20 identifies the risk of noise complaints by level of noise (HQDA, 2007).

Table 19. Noise Limits for Noise Zones

	Noise Limits (dB)		
Noise Zone	**Aviation ADNL**	**Impulsive CDNL**	**Small Arms – PK 15(met)**
LUPZ	60 – 65	57 – 62	n/a
Zone I	< 65	< 62	< 87
Zone II	65 – 75	62 – 70	87 – 104
Zone III	> 75	> 70	> 104

dB = decibel
LUPZ = land use planning zone
ADNL = A-weighted day-night levels
CDNL = C-weighted day-night levels
PK 15(met) = Single event peak level exceeded by 15 percent of events

< = less than
> = greater than
n/a = not applicable

Source: AR 200-1, Table 14-1

6702 **Table 20. Risk of Noise Complaints by Level of Noise**

Risk of Noise Complaints	Large-caliber weapons noise limits (dB) PK 15 (met)
Low	< 115
Medium	115 – 130
High	130 – 140
Risk of physiological damage to unprotected human ears and structural damage claims	> 140

dB=decibel

PK 15(met) = Single event peak level exceeded by 15 percent of events

NOTES:

1. Although local conditions regarding the need for housing may require noise-sensitive land uses in NZ II, on- or off-post, this type of land use is strongly discouraged. The absence of viable alternative development options should be determined and an evaluation should be conducted locally prior to local approvals indicating that a demonstrated community need for the noise-sensitive land use will not be met if development were prohibited in NZ II.

2. Where the community determines that these uses must be allowed, measures to achieve an outdoor to indoor noise level reduction (NLR) of at least 25 dB to 30 dB in NZ II, from small arms and aviation noise, should be incorporated into building codes and be in individual approvals. The NLR for communities subject to large-caliber weapons and weapons system noise is lacking scientific studies to accomplish the recommended NLR. For this reason it is strongly discouraged that noise-sensitive land uses be allowed in NZ II from large-caliber weapons.

3. Normal permanent construction can be expected to provide a NLR of 20 dB, for aircraft and small arms, thus the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation, upgraded Sound Transmission Class (STC) ratings in windows and doors and closed windows year round. Additional consideration should be given to modifying NLR levels based on peak noise levels or vibrations.

4. NLR criteria will not eliminate outdoor noise problems. However, building location and site planning, and design and use of berms and barriers, can help mitigate outdoor noise exposure NLR particularly from ground level aircraft sources. Barriers are generally not effective in noise reduction for large arms such as artillery and armor, large explosions, or from high-level aircraft sources.

Source: AR 200-1, Table 14-2

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6704 **Noise Impacts to Wildlife**

6705 At ranges where training occurs, noise is generated from fixed-wing and rotary-winged aircraft
6706 overflights, large- and small-caliber weapon fire, and vehicle maneuver throughout the range. Several

reference materials exist that summarize the impact of human activities (including military training) to wildlife. Two examples include the EA for the Aerial Gunnery Range at TYC, WA; and, "Effects of Military Noise on Wildlife." The following trends in animal behavior are common to wildlife exposed to training noise.

- Quality of habitat selection tends to outweigh quality of noise. Animals flock to Army installations because they contain large tracts of undeveloped land, providing ample suitable habitat. Also, due to stringent regulatory policies, the land and wildlife is often managed much more responsibly than on the surrounding lands.

- Ample quality land equates to an abundance of food and vegetative cover. Food supply is a limiting factor for survival. If the food supply is sufficient, the habitat will remain preferable to the animal species regardless of noise disturbance, especially if the noise is predictable. Since Soldiers train according to a prescribed schedule, the noise generated by training reduces the occurrence of responses to unexpected training activities.

- Predator species will often move toward the sound of gunfire, demonstrated in terrestrial and avian raptor species alike, largely due to the disturbance of prey from their shelter. This ultimately provides opportunities for predator species to successfully capture food.

- Studies conducted on military noise impacts to wildlife have determined that mammals will move away from loud noises, but, with few exceptions, will return to their home range.

Noise Modeling

The Army has developed computer models that assess peak noise levels associated with random blast noise events, while also factoring in the statistical variations caused by weather. The noise contour plotted is PK15 (met) (unweighted peak, 15 percent metric). PK15 (met) is the peak sound level that is likely to be exceeded 15 percent of the time. Because weather conditions can cause noise levels to vary significantly, even from hour to hour, the programs calculate a range of peak levels. By plotting the PK15 (met) contour, events are expected to fall within the contours 85 percent of the time. This gives installations a way to consider the areas affected by training noise, but without placing stipulations on land that may receive high sound levels under infrequent weather conditions that favor the propagation of

sound. PK15 (met) does not consider the duration or number of events, so the size of the contours will remain the same regardless of the number of events.

A.4. Geology and Soils

Geology

The field of geology encompasses the study of the composition, structure, properties, and history of the planet's physical material; the processes by which it is formed, moved, and changed; the history of life on Earth; and human interactions with the earth. As geological resources consist of the earth's surface and subsurface materials, these resources are typically described, within a given physiographic province, in terms of topography; soils; geology; minerals; and, where applicable, paleontology. The geology of an area significantly influences soil types, may directly influence local climate (e.g., mountainous region) and economy (e.g., mining), influences the hydrology of the area, and indicates risks to structures and human activities. Geologist and geophysicists study natural hazards in order to enact safe building codes and warning systems that are used to prevent loss of property and life. Natural hazards significantly affected by geology include avalanches, earthquakes, floods, landslides and debris flows, river channel migration and avulsion, liquefaction, sinkholes, subsidence, and volcanoes.

The USGS is the lead Federal agency charged to address major societal issues that involve geologic hazards and disasters, climate variability and change, energy and mineral resources, ecosystem and human health, and ground-water availability.

The geology of an area also influences the presence or absence of economically desired minerals. In a limited number of cases, the presence, distribution, quantity, and quality of mineral resources might affect or be affected by a proposed action. Understanding of the proposed action and minerals is useful in keeping decision makers fully informed of potential socioeconomic and natural resources consequences.

The presence of fossils and human artifacts presents an opportunity for scientists to gain a better understanding of history. In a very limited number of cases, a proposed action might have the potential to damage or destroy paleontological resources. Such resources should be located, quantified, and assessed for their value (including their possible value as cultural resources) before implementation of the proposed action.

Soils

Soils are the unconsolidated materials overlying bedrock or other parent material. They are typically described in terms of their complex type, slope, and physical characteristics. Differences among soil types in terms of their structure, elasticity, strength, shrink-swell potential, and erosion potential affect their abilities to support certain applications or uses.

Soil properties effect biological resources (e.g., vegetation) and human land use. Because of the importance of soil properties to farming and development, the USDA NRCS has classified and described soils throughout the U.S. and elsewhere. The NRSC's "Official Soil Series Descriptions" serve as a national standard.

The soil series is the lowest category of the national soil classification system. The name of a soil series is the common reference term, used to name soil map units. Soil series are the most homogenous classes in the system of taxonomy. "Official Soil Series Descriptions" define specific soil series in the U.S., territories, commonwealths, and island nations served by NRCS. They are descriptions of the taxa in the series category of the national system of soil classification. They serve mainly as specification for identifying and classifying soils. The descriptions contain soil properties that define the soil series, distinguish it from other soil series, serve as the basis for the placement of that soil series in the soil family, and provide a record of soil properties needed to prepare soil interpretations. NRCS soil data includes taxonomic classification, detailed soil profile description, location of the typical soil profile, range in characteristics, competing series, geographic setting, geographically associated soils, drainage and permeability, use and vegetation, distribution and extent (NRCS, 2010).

The prediction of soil impacts requires the consideration of several variables. These variables include soil texture (fine- vs. coarse-grained material) important to wind and water erosion potential, soil strength, slipperiness in connection with surface shear, stickiness, stone content, aggregation, and slope. For example, factors influencing surface water absorption capability include soil surface texture (high clay means less absorption), depth to bedrock, percent organic matter, and slope.

One of the many soil characteristics concern to the Army is erosion potential. Erosion is the gradual wearing away of land by water, wind, and other general weather conditions, and can be influenced by many military and human activities within a given landscape. Erosion impacts can be influenced by the

types of soils, vegetative cover, topography, weather and climate, and may be amplified by the frequency and types of training. The rate of natural soil erosion caused by water depends primarily on the slope of the area in question, properties of the soil, climate/precipitation patterns, and vegetative cover (NRCS, 2001a). Factors influencing wind erosion of soils include natural properties of the soil (stickiness, aggregate content, and organic matter content), climate of an area, and amount of surface disturbance (NRCS, 2001b). Soil erosion caused by wind can occur only when wind speed at the soil surface is sufficient to lift and transport soil particles. In dry environments, there tends to be less organic matter in the soils and less soils aggregation to prevent loss of soil. Finer soil particles, particularly silt, which lacks cohesion of clays, are prone to wind erosion. Wind erosion contributes to the amount of PM in the air (see Air Quality section). Soil erosion can be a significant concern on military lands where maneuver training involving large vehicles (tracked and wheeled), and large and small arms fire occur. It can undermine the ability of the natural environment to support the Army mission, and once the erosion process has started, the direct effects can usually not be reversed.

The Army has numerous programs and management initiatives to minimize environmental damage, including soil erosion, to training lands. The principal mechanism for this management is the ITAM program. The ITAM program provides the Army with the capabilities to manage and maintain training and testing lands by integrating mission requirements with environmental and land management practices (HQDA, 2010).

A.5. Water Resources

Water resources include surface water, groundwater, and floodplains, as well as other conservable resources such as estuaries and watersheds. The USGS collects data across the U.S. and territories on surface water (water flow and levels in streams, lakes, and sprints), ground water (water levels in wells), and water quality (chemical and physical data for streams, lakes, springs, and wells), making it available to the public on their USGS Water Data for the Nation web page (USGS, 2010b).

Surface water

Surface water, which includes lakes, rivers and streams, is important for its contributions to the economic, ecological, recreational, and human health of a community or locale. In some communities, it is the primary source of potable water. Managing storm water (further discussed under the section on utilities) is

important to the management of surface water, in part because of its potential to introduce sediments and other contaminants into lakes, rivers, and streams. Surface waters are grouped by watersheds, with a watershed being defined as the total land area from which water drains into a single stream, lake, or ocean (FWS, 2010a).

The CWA establishes the basic structure for regulating discharges of pollutants into the waters of the U.S. and regulating quality standards for surface waters. Under the CWA, EPA has set water quality standards for all contaminants in surface waters and has implemented pollution control programs. Surface waters that are waters of the U.S. are regulated under the CWA. "Waters of the United States" are defined under 40 CFR 230.3(s) as:

1. All waters which are currently used, or were used in the past, or may be susceptible to use in interstate or foreign commerce, including all waters which are subject to the ebb and flow of the tide;

2. All interstate waters including interstate wetlands;

3. All other waters such as intrastate lakes, rivers, streams (including intermittent streams), mudflats, sand flats, wetlands, sloughs, prairie potholes, wet meadows, playa lakes, or natural ponds, the use, degradation or destruction of which could affect interstate or foreign commerce including any such waters:

   (i) Which are or could be used by interstate or foreign travelers for recreational or other purposes; or
   (ii) From which fish or shellfish are or could be taken and sold in interstate or foreign commerce; or
   (iii) Which are used or could be used for industrial purposes by industries in interstate commerce;

4. All impoundments of waters otherwise defined as waters of the U.S. under this definition;

5. Tributaries of waters identified in paragraphs (s)(1) through (4) of this section;

6. The territorial sea;

7. Wetlands adjacent to waters (other than waters that are themselves wetlands) identified in paragraphs (s)(1) through (6) of this section; waste treatment systems, including treatment ponds or lagoons

designed to meet the requirements of CWA (other than cooling ponds as defined in 40 CFR 423.11(m) which also meet the criteria of this definition) are not waters of the U.S.

40 CFR 230.3(s) also states: "Waters of the United States do not include prior converted cropland. Notwithstanding the determination of an area's status as prior converted cropland by any other Federal agency, for the purposes of the CWA, the final authority regarding CWA jurisdiction remains with EPA."

Further information on CWA regulations is found below.

Groundwater

Groundwater consists of the subsurface hydrologic resources. It is an essential resource often used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater typically may be described in terms of its depth from the surface, aquifer or well capacity, water quality, surrounding geologic composition, and recharge rate. An aquifer is the name given to underground soil or rock through which groundwater can easily move and typically consist of gravel, sand, sandstone, or fractured rock such as limestone (USGS, 1993). The amount of ground water that can flow through soil or rock depends on the size of the spaces in the soil or rock (porosity) and how well the spaces are connected (permeability). Weather conditions influence groundwater availability (e.g., during periods of dry weather, recharge to the aquifers decrease). Contamination of groundwater can occur if pollutants seep into ground water; but, susceptibility to contamination is heavily influenced by geological conditions of the area. Groundwater availability and contamination is also influenced by the amount of water being discharged (e.g., pulled from wells). If the rate of discharge is greater than the rate of recharge, the water level in the aquifer may drop or dry up, or other constituents previously held back by the flow of freshwater may intrude and cause contamination. One type of contamination, saltwater intrusion, can occur, for example, from lateral encroachment from coastal waters and vertical upcoming near discharging wells (USGS, 2008).

Floodplains

Floodplains are areas of low-level ground present along a river or stream channel, usually dry but subject to flooding. Floodplain soils actually are former flood deposits, providing a natural process that has created valuable farmlands in many river valleys over thousands of years. Such lands may be subject to

periodic or infrequent inundation due to rain or melting snow. Risk of flooding depends on topography, the frequency of precipitation events, soil type, and the size (areal extent) of the watershed above the floodplain. These features also affect whether flooding may develop slowly, sometimes over a period of days, or occur as flash floods, developing quickly, sometimes in just a few minutes and without any visible signs of rain. Federal, State, and local regulations generally limit development in floodplains to passive uses, such as recreational and preservation activities, in order to reduce the risks to human health and safety. Since floods may potentially be classified as natural disasters, causing loss of life and property, the FEMA includes floods in its mission of helping communities nationwide prepare for, respond to and recover from natural and manmade disasters (FEMA, 2010). Flood maps showing 100-year and 500-year flood areas are available from FEMA. A hydrologist will describe a "100-year flood" as a flood having a 100-year recurrence interval which, in short, is that, according to historical data about rainfall and stream state, the probability of an area having a "flood" water depth (depth various from place to place) is once in 100 years. In other words, a flood of that magnitude has a one percent chance of happening in any year (USGS, 2010a).

CWA Regulations – Section 404 Permits

Section 404 of the CWA established a program to regulate the discharge of dredged or fill material into waters of the U.S., including wetlands. Activities in waters of the U.S. regulated under this program include fill for development, water resource projects (such as dams and levees), infrastructure development (such as highways and airports) and mining projects (EPA, 2010a). Section 404 permits are administered by the USACE. There are *individual* and *general* Section 404 permits (EPA, 2010a). An individual permit is required for potentially significant impacts. However, for most discharges that will have only minimal adverse effects, a general permit may be suitable. General permits are issued on a nationwide, regional, or state basis for particular categories of activities. The general permit process eliminates individual review and allows certain activities to proceed with little or no delay, provided that the general or specific conditions for the general permit are met. For example, minor road activities, utility line backfill, and bedding are activities that can be considered for a general permit. States also have a role in Section 404 decisions, through State program general permits, water quality certification, or program assumption.

A.6. Biological Resources

Vegetation and Wildlife, including Threatened and Endangered Species

Biological resources include wildlife and vegetation and are an integral component of ecosystems. An ecosystem is a geographic area including all the living organisms (people, plants, animals, and microorganisms), their physical surroundings (such as soil, water, and air), and the natural cycles that sustain them. All of these elements are interconnected. Managing any one resource affects the others in that ecosystem. Ecosystems can be small (a single stand of aspen) or large (an entire watershed including hundreds of forest stands across many different ownerships). The FWS has identified and defined boundaries for 53 ecosystem units by grounding USGS defined watersheds in the Continental U.S. (CONUS), Alaska, Hawaii, Puerto Rico and the Virgin Islands (FWS, 2010a).

Some species, landscapes and seascapes are afforded special protection. These include, marine mammals, migratory birds, fisheries, coastal zones, threatened and endangered species of any kind, and the designated critical habitat of any protected species. In addition, there are specific requirements for the minimization of invasive species. Their protection is provided under a variety of treaties, laws and associated regulations. Federally listed threatened and endangered plant and animal species are protected under the ESA. The Migratory Bird Treaty Act implements U.S. commitments to international conventions for the protection of migratory birds. Bald and Golden Eagles are protected by the Bald and Golden Eagle Protection Act. Essential fish habitat identification and conservation is mandated under the Magnuson-Stevens Fishery Conservation and Management Act (MSFCMA) of 1976. Various programs and initiatives, some of which identify other sensitive wildlife, further biological resources conservation, management and compliance. These include, for example, State natural heritage programs, FWS Birds of Conservation Concern, Partners in Flight, and ecoregional programs and partnerships.

Endangered Species Act

The ESA mandates protection and conservation of threatened and endangered species and their ecosystems. An ***endangered*** species is in danger of extinction, either entirely or in a significant portion of its range; a ***threatened*** species is considered likely to become endangered within the foreseeable future; and, a ***candidate*** species is a petitioned species that is actively being considered for listing as endangered or threatened. For the purposes of the ESA, Congress defined species to include subspecies, varieties, and,

for vertebrates, distinct population segments. The law's ultimate goal is to "recover" species so they no longer need protection under the ESA. It is administered jointly by the FWS and the Commerce Department's National Marine Fisheries Service (NMFS). The agencies are also responsible for the listing of species as endangered or threatened and for the designation of habitat critical to the preservation and recovery of listed species. The FWS has primary responsibility for terrestrial and freshwater organisms, while the responsibilities of NMFS are mainly marine wildlife such as whales and anadromous fish like salmon.

The ESA makes it unlawful for a person to take a listed animal without a permit. Under Section 9 of the ESA, ***take*** is defined as "to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect or attempt to engage in any such conduct." ***Harass*** as defined by FWS regulation (50 CFR 17.3) is "an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to significantly disrupt normal behavioral patterns, which include, but are not limited to, breeding, feeding, or sheltering." ***Harm*** as defined by FWS regulation (50 CFR 17.3) is "an act which actually kills or injures wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures wildlife by significantly impairing essential behavioral patterns, including breeding, feeding, or sheltering." ***Harm*** as defined by NMFS regulation (50 CFR 222.102) is "an act which actually kills or injures fish or wildlife. Such an act may include significant habitat modification or degradation where it actually kills or injures fish or wildlife by significantly impairing essential behavioral patterns, including breeding, spawning, rearing, migrating, feeding or sheltering." Listed plants are not protected from take, although it is illegal to collect or maliciously harm them on Federal land (FWS, 2009a). Protection from commercial trade and the effects of Federal actions do apply for plants (FWS, 2009a). In addition, States may have their own laws restricting activity involving listed species.

Section 7 of the ESA requires Federal agencies to conserve listed species and critical habitat and to consult with the FWS and NMFS, as appropriate, to ensure that effects of actions they authorize, fund, or carry out will not jeopardize the continued existence of endangered or threatened species, or destroy or adversely modify habitat critical to any endangered or threatened species. ***Jeopardize the continued existence of***, as defined by joint FWS and NMFS regulation (50 CFR 402.02), means "to engage in an action that reasonably will be expected, directly or indirectly, to reduce appreciably the likelihood of both the survival and recovery of a listed species in the wild by reducing the reproduction, numbers, or

distribution of that species." Critical habitat includes geographic areas that contain the physical or biological features that are essential to the conservation of the species and may need special management or protection. Critical habitat designations affect only Federal agency actions or Federally funded or permitted activities. In carrying out their Section 7 responsibilities, Federal agencies may prepare Biological Assessments as part of consultations with the FWS and/or NMFS. The oversight agency(ies) will then produce Biological Opinions to ensure that proposed actions that may affect listed species or critical habitat are consistent with the requirements of the ESA. Occasionally the oversight agency renders a jeopardy determination instead.

Migratory Bird Treaty Act and Bald and Golden Eagle Protection Act

The Migratory Bird Treaty Act (MBTA) made it illegal for people to "take" migratory birds, their eggs, feathers, or nests. Migratory birds are any species or family of birds that cross international borders at some point during their life cycle. The Bald and Golden Eagle Protection Act affords additional protection to all bald and golden eagles. ***Take***, as applicable to both Acts and defined by FWS regulation (50 CFR 10.12), is "to pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to pursue, hunt, shoot, wound, kill, trap, capture, or collect." In total, 836 bird species are protected by the MBTA, 58 of which are currently legally hunted as game birds (FWS, 2010B). These two laws and associated "take" permits are administered by the FWS.

The NDAA of 2003 authorized the Secretary of the Interior to prescribe regulations under the MBTA exempting U.S. Armed Forces from the normal prohibitions on the incidental taking of migratory birds, but only during military readiness activities (MRA) authorized by the Secretary of Defense (50 CFR 21.15). The MBTA was amended in 2007 accordingly, defining MRA as including "all training and operations of the Armed Forces that relate to combat, and the adequate and realistic testing of military equipment, vehicles, weapons and sensors" (FR vol.72, no.39, p.8949; Pub.L.107-314). If the Army determines its MRA may have a significant adverse effect on a population of migratory birds, the MBTA, as amended, obligates the Army to confer and cooperate with the FWS on the development and implementation of conservation measures to minimize or mitigate those effects. Wherever the Army determines there is no need for additional consultation with FWS, by definition the impact under NEPA will be judged insignificant.

Marine Mammal Protection Act

The Marine Mammal Protection Act (MMPA) of 1972 (16 USC 1362) established, with limited exceptions, a moratorium on the taking of marine mammals in waters or on lands under U.S. jurisdiction. ***Taking*** is defined in Section 3 of the Act as "to harass, hunt, capture, or kill, or attempt to harass, hunt, capture, or kill any marine mammal." The 1994 amendments to MMPA defined two levels of ***harassment***: Level A involves potential injury and Level B addresses potential disturbance [Section 104(c)(3), 16 USC 1374 (c)(3)]. Besides regulating all individuals and activities within U.S. waters, the act also regulates takes in the open sea by vessels or persons under U.S. jurisdiction (only).

Section 101(a)(5) of the MMPA directs the Secretary of the Department of Commerce to allow, upon request, the incidental (but not intentional) taking of marine mammals by U.S. citizens who engage in a specified activity (exclusive of commercial fishing), if certain findings are made and regulations are issued. Authorization will be granted by the Secretary for the incidental take of marine mammals if the taking will have a negligible impact on the species or stock and will not have an unmitigable adverse impact on the availability of such species or stock for taking for subsistence uses.

The NDAA(2004, Pub.L.108-136) amended the definition of ***harassment***, as the term applied to MRA conducted by or on behalf of the Federal government. NDAA 2004 adopted the definition of "military readiness activity" in the NDAA (2003, Pub.L.107-314). ***MRA*** comprise "training and operations of the Armed Forces that relate to combat" and constitute "adequate and realistic testing of military equipment, vehicles, weapons, and sensors for proper operation and suitability for combat use". For MRA, the Level A definition of harassment then became any act that injures or has significant potential to injure a marine mammal in the wild. The Level B definition became any act that disturbs or is likely to disturb a marine mammal in the wild by causing disruption of natural behavioral patterns, including but not limited to migration, surfacing, nursing, breeding, feeding, or sheltering to a point where such behavioral patterns are abandoned or significantly altered [16 USC 1362 (18)(B)(i)(ii)].

Magnuson-Stevens Fishery Conservation and Management Act

The MSFCMA Act of 1976 (MSFCMA, 16 USC §1801, et seq.), mandates identification and conservation of essential fish habitat (50 CFR 648). The MSFCMA defines ***fish habitat*** as those waters and substrates necessary for spawning, breeding, feeding, or growth to maturity, and therefore critical to

sustainable fisheries and the managed species. ***Waters*** are broadly defined to include associated essential physical, chemical, and biological properties, as well as historic ranges. ***Substrates*** include sediment, hard bottom, underlying geomorphology and associated biological communities.

NMFS and the Fishery Management Council have developed Fishery Management Plans to address fish habitat issues. A key objective is no net loss of productive capacity in habitats that sustain commercial, recreational, and native fisheries. Prior to taking actions that may have adverse impacts to essential fish habitat, Federal agencies are required to consult with NMFS, also known as National Oceanic & Atmospheric Administration Fisheries (NOAA Fisheries), to prepare an Essential Fish Habitat Assessment.

Habitat Areas of Particular Concern are discrete subsets of essential fish habitats. Such a designation by regional Fishery Management Councils does not confer additional protection or restrictions upon an area, but may prioritize conservation efforts. Designation usually stems from one or more of the following conditions: 1) importance of the ecological function served by the habitat; 2) vulnerability of the habitat to degradation; 3) extent to which development activities may stress the habitat; and/or 4) rarity of the habitat type.

Coastal Zone Management Act

The Coastal Zone Management Act (CZMA) of 1972 (CZMA, 16 USC 1451, et seq.) encourages voluntary Federal-State partnerships to protect and restore coastal zone resources. These include wetlands, floodplains, estuaries, beaches, dunes, barrier islands, and coral reefs, as well as the fish and wildlife using those habitat. A special goal is the protection of coastal waters from nonpoint source pollution (16 USC 1455[b]).

CZMA programs are administered by NOAA's Office of Ocean and Coastal Resource Management (OCRM). Federal approval of a State coastal zone management program qualifies the State for Federal grants. Qualified State programs may also be delegated review authority for certain Federal activities in the coastal zone to ensure consistency of those activities with the State plan.

Regardless of the status of State programs under Federal law, coastal states have without exception instituted their own regulations; these are normally considered to be applicable or relevant and appropriate requirements (ARAR) for Federal projects.

Invasive Species

Invasive species are organisms that are introduced into a non-native ecosystem and which cause, or are likely to cause, harm to the economy, environment or human health. Invasive plants and animals have many impacts on fish and wildlife resources. Invasive species degrade, change or displace native habitats and compete with native wildlife and are thus harmful to fish, wildlife and plant resources (FWS, 2009b). Invasive species were addressed in EO 13112 of 1999. Invasive species – whether insect, plant or animal – often outcompete native species and upset ecological balance.

Wetlands

Wetlands are the link between the land and the water. They are transition zones where the flow of water, the cycling of nutrients, and the energy of the sun meet to produce a unique ecosystem characterized by hydrology, soils, and vegetation—making these areas very important features of a watershed (EPA, 2004).

For regulatory purposes under the CWA, the term wetlands means "those areas that are inundated or saturated by surface or ground water at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions" (40 CFR 232.2(r)). Wetlands generally include swamps, marshes, bogs, and similar areas. In more common language, wetlands are areas where the frequent and prolonged presence of water at or near the soil surface drives the natural system meaning the kind of soils that form, the plants that grow, and the fish and/or wildlife communities that use the habitat. Swamps, marshes, and bogs are well-recognized types of wetlands. However, many important specific wetland types have drier or more variable water systems than those familiar to the general public. Some examples of these are vernal pools (pools that form in the spring rains but are dry at other times of the year), playas (areas at the bottom of undrained desert basins that are sometimes covered with water), and prairie potholes (EPA, 2009).

The EPA and the USACE use the 1987 Corps of Engineers Wetlands Delineation Manual to define wetlands for the CWA Section 404 permit program. Section 404 requires a permit from the USACE or authorized State for the discharge of dredged or fill material into the waters of the U.S., including wetlands (see Water Resources section above for further information on Section 404 and Section 404 permits). The 1987 manual organizes environmental characteristics of a potential wetland into three categories: soils, vegetation, and hydrology. The manual contains criteria for each category. With this approach, an area that meets all three criteria is considered a wetland (EPA, 2009).

The FWS has developed a series of topical maps to show wetlands and deepwater habitats (FWS, 2010c). Through this National Wetlands Inventory (NWI), the FWS has identified and mapped most of the known wetlands in the conterminous U.S., including those on military installations (http://www.fws.gov/wetlands/).

Wetland functions are of value to the sustainable management of military lands because of the services they provide in addition to training realism. Three services applicable to sustainable management are flood attenuation, groundwater recharge, and improvement of water quality by filtering sediment, nutrients and toxics. Additionally, Department of Defense Instruction (DODI) 4715.3 states that installations will manage for "no net loss" of wetlands. In order to properly manage wetlands, installations have used the NWI and have conducted planning level surveys to determine the extent and location of wetlands across their installation. By identifying wetlands early in the NEPA process, and utilizing a "Go-No Go" approach where avoidance is preferred to direct or indirect impacts, installations have the ability to avoid costly mitigation and potential delays in implementation of the proposed action.

Wildland Fires

Managing wildland fires, which are any nonstructure fires that occur in the wildland (National Wildfire Coordinating Group [NWCG] 2008), is one of many tools used by the DA to manage habitat and reduce the risk of fires causing damage to life and property. The specific tool includes the prescribed fire, which is any fire ignited by management actions to meet specific objects and for which a written, approved prescribed fire plan exists, and NEPA requirements (where applicable) have been met, prior to ignition (NWCG, 2008). All permit requirements must also be met prior to conducting any prescribed fire. Prescribed fires, combined with other management techniques, such as thinning trees, help reduce the risk of wildfires. A wildfire is an unplanned, unwanted wildland fire including unauthorized human-caused

fires, escaped wildland fire use events, escaped prescribed fire projects, and all other wildland fires where the objective is to put the fire out (NWCG, 2008). Prescribed fires can reduce fuel loading in wildlands; control noxious weeks; enhance or create habitat for wildlife, including some species protected under the ESA; and enhance or create habitat for vegetation that is dependent on periodic fire, including some species protected under the ESA. Specific management techniques will vary dependent on location due to numerous factors including proximity of buildings and urban environments, population density, weather conditions, topography, cultural sites (e.g., archaeology), vegetation, wildlife (e.g., seasonal use), and military training objectives.

A.7. Cultural Resources

The Army is steward to many historic buildings, historic and prehistoric archeological sites, and Native American traditional cultural properties and sacred sites. Management of these resources and compliance with appropriate legal requirements begins with the identification of cultural resources.

The foundation of broad legislation for preservation of cultural resources is the NHPA of 1966 (36 CFR Part 800). The NHPA requires Federal agencies to take into account the effects of their undertakings that may adversely affect significant cultural resources, referred to as historic properties. The NHPA establishes the roles of the NRHP, the State Historic Preservation Office (SHPO), and the ACHP. Of particular importance to military installations are Sections 106 and 110 of the NHPA. Section 106 requires Federal agencies to consider effects of undertakings on resources listed in, or eligible for inclusion in, the National Register through a process of consultation. Section 110 of the NHPA requires Federal agencies to institute programs to identify and evaluate cultural resources to determine their eligibility for inclusion in the National Register under their care. Identification efforts typically involve literature reviews, archival research, oral histories, excavations and physical/pedestrian survey. Two other significant legislations that regulate cultural resources management in the Army include the Archaeological Resrouces Protection Act (ARPA) of 1979 and the NAGPRA of 1990.

Cultural resources include historic properties as defined by the NHPA, cultural items as defined by NAGPRA, archeological resources as defined by ARPA, sacred sites as defined in EO 13007, and collections as defined in 36 CFR 79. The regulations implementing the NHPA (36 CFR 800.16(l)(1)) define historic properties as “any prehistoric or historic district, site, building, structure, or object included

in, or eligible for inclusion on the National Register, including artifacts, records and material remains related to such property or resource."

The breadth of cultural resources management for the Army is enormous. The Army now has over 66,000 buildings and structures that are 50 years old or older, and therefore subject to the requirements of the NHPA. This includes nearly 12,000 buildings that are officially designated as historic properties and 21 National Historic Landmarks. Army lands contain some 90,000 archeological sites. These sites range from those representing the rich and varied Native American past to early pioneer settlements to more contemporary sites related to the history of the Army itself.

To improve management of cultural resources on Army installations, the Army has established the AAPs, a streamlined procedure Army installations can elect to follow to satisfy the requirements of NHPA Section 106. The AAP approaches the installation's management of historic properties programmatically, instead of on a project-by-project review as prescribed by the regulations of the ACHP. The AAP allows installations to implement SOPs for historic properties in the historic properties component of their Integrated Cultural Resource Management Plans (ICRMPs) and to implement actions for five years without formal project-by-project review.

A.8. Socioeconomics

Socioeconomics are defined as the basic attributes and resources associated with the human environment, particularly population and economic activity. Population levels are affected by regional birth and death rates and immigration and emigration. Economic activity typically encompasses employment, personal income, and industrial or commercial growth. Changes in these two fundamental socioeconomic indicators may be accompanied by changes in other components, such as housing availability and the provision of public services. Socioeconomic data at county, State, and national levels permits characterization of baseline conditions in the context of regional, State, and national trends.

Socioeconomic analysis addresses such issues as

- Demographics,
- Housing,

- Economic development,
- Public finance,
- Quality of Life,
- Environmental justice in minority and low-income populations, and
- Protection of children from environmental health risks and safety risks.

A proposed action could have impacts that are concentrated in a specific geographical ROI, defined by the local residential, shopping, and commuting patterns. In short, the ROI defines the limits and distribution of most spending in the affected community encompassing the strongest linkages between local individuals, businesses, and governments.

The principle mechanisms for Army socioeconomic impacts are Army expenditures and employment (and subsequent population) changes. As the Army increases (or decreases) either expenditures or strength (military or civilian) at an Army installation, these are felt within three basic components of the local economic region (or community): local businesses, local individuals, and local governments. The EIFS model addresses business (or sales) volume, personal income, employment, and population. In addition, the system evaluates local yearly changes in three variables, and develops RTVs to evaluate the potential significance of predicted changes.

A.9. Transportation and Airspace

Transportation is the movement of people and goods from one location to another. It is accomplished by a variety of modes, such as road, rail, air, water, and in some cases pipeline and there are different systems within those modes. Examples of principal transportation systems include commercial air carriers, waterway and maritime shipping, railroads, and trucking.

Traffic and Roadways

Changes on Army installations, to include such things as population, mission, unit re-stationing, and construction activities, among others, can impact one, or several, of an installation's modes. The smooth flow of traffic and the adequacy of both the on-post and off-post road networks contribute to the quality

of the human environment both on and near the installation. The primary mode of transportation on Army installations is privately-owned-vehicles (POV). Many actions on the installation, construction activities in particular, frequently impact traffic and transportation on post, as well as in the adjoining communities.

Traffic count and roadway LOS baseline and projected data are used to help determine the impacts of a proposed action to traffic and roadways. The volume-capacity ratio (v/c ratio) of the roadway(s) leading to, or near, the site of the proposed action is a means of identifying direct effects of the proposed action to traffic and roadways, along with peak-hour traffic volume.

Traffic volume effects congestion. The levels of congestion are defined below.

- *Uncongested*. Corridors that generally operate in free-flow conditions, where the driver tends to be able to travel without undue delay except for typical traffic control operations, such as stop signs or traffic signals. During the peak-hour, there might be some delay at a controlled intersection, but generally the driver can get through the intersection within one cycle of the traffic signal (El Paso County, 2004, p. 24).

- *Congesting*. These corridors are roadways where the driver can generally travel in free-flow conditions during the off-peak-hours, but might experience having to wait more than one cycle at a signalized intersection during the peak-hours. Because these corridors have existing traffic volumes approaching capacity, there can be significant variations in congestion from day to day, fluctuating between acceptable to congested (El Paso County, 2004, p. 24).

- *Congested.* The congested corridors within El Paso County are those roadways where traffic volumes have either reached or exceeded the facility's capacity to accommodate these volumes. These facilities experience daily congestion delays where it is not uncommon that a driver might have to wait two or more signal cycles to get through the intersection (El Paso County, 2004, p. 24).

Roads are also rated on their LOS. LOS is a qualitative measure describing operational conditions within a traffic stream, based on service measures such as speed and travel time, freedom to maneuver, traffic interruptions comfort and convenience. LOS is graded on a letter scale from A to F, A being the highest LOS and F being the lowest. At LOS A, traffic flows freely, selecting desired travel speeds with ample passing opportunities. At LOS F, traffic flow is forced, the traffic volume has exceeded the capacity of the

roadway to handle it and there are no passing opportunities. LOS D is generally considered to be the lowest tolerable LOS for roadways. The LOS on an urban street is based on average through-vehicle travel speed for the segment, section, or entire urban street under consideration, and are graded on a scale from A to F

Increased levels of traffic may have direct effects on several environmental media areas, such as traffic congestion, air quality, noise, and environmental justice. Unless mitigation measures are implemented, increased volume can also pose an additional risk to the safety of pedestrians and bicyclists.

Airspace

The FAA manages all airspace within the U.S. and its territories. The FAA recognizes the military's need to conduct certain flight operations and training within airspace that is separated from that used by commercial and general aviation.

Airspace is defined in vertical and horizontal dimensions and by time. Airspace is a finite resource that must be managed to achieve equitable allocation among commercial, general aviation, and military needs. The FAA has established various airspace designations to protect aircraft while operating near and between airports and while operating in airspace identified for defense-related purposes. Flight rules and air traffic control procedures govern safe operations in each type of designated airspace. Most military operations are conducted within designated airspace and follow specific procedures to maximize flight safety for both military and civil aircraft.

Controlled airspace is a generic term for the different types of airspace (Classes A, B, C, D, E, and G airspace) and defined dimensions within which air traffic control service is provided to instrument-flight-rules (IFR) flights and visual-flight-rules (VFR) flights IAW the airspace classification. The classifications of airspace are as follows:

- *Class A Airspace*. This airspace occurs from 18,000 feet (5,486 m) above MSL to 60,000 feet (18,288 m) above MSL. All operations within this airspace are IAW regulations pertaining to IFR flights. This airspace is dominated by commercial aircraft using jet routes between 18,000 and 45,000 feet (5,486 and 13,716 m) above MSL.

- *Class B Airspace*. This airspace occurs from the surface to 14,500 feet (4,420 m) above MSL around the nation's busiest airports. Before operating in Class B airspace, pilots must contact controlling authorities and receive clearance to enter the airspace. Aircraft operating within Class B airspace must be equipped with specialized electronics that allow air traffic controllers to accurately track aircraft speed, altitude, and position.

- *Class C Airspace*. This airspace occurs from the surface to 4,000 feet (1,219 m) above the airport elevation (charted in MSL) surrounding those airports that have an operational control tower, are serviced by a radar approach control, and meet specified levels of IFR operations or passenger enplanements. Aircraft operating within Class C airspace must be equipped with a two-way radio and an operable radar beacon transponder with automatic altitude reporting equipment. Aircraft may not operate below 2,500 feet (762 m) above the surface within 4 nautical miles (7.4 km) of the primary airport of a Class C airspace area at an indicated airspeed of more than 200 knots (230 miles per hour [370 km per hour]).

- *Class D Airspace*. This airspace occurs from the surface to 2,500 feet (762 m) above the airport elevation (charted in MSL) surrounding those airports that have a control tower. Class D airspace encompasses a 5-statute-mile radius from the airport. Unless authorized otherwise by air traffic control (ATC), aircraft must be equipped with a two-way radio. Aircraft may not operate below 2,500 feet (762 m) above the surface within 4 nautical miles (7.4 km) of the primary airport of a Class D airspace area at an indicated airspeed of more than 200 knots (230 miles per hour [370 km per hour]).

- *Class E Airspace*. This airspace is any controlled airspace not designated as Class A, B, C, or D airspace. It includes designated Federal airways, portions of the jet route system, and area low routes. Federal airways have a width of 4 statute miles (6.4 km) on either side of the airway centerline and occur between the altitudes of 700 feet AGL (213 m AGL) and 18,000 feet (5,486 m) above MSL, but they may have a floor located at ground level at nontowered airfields. No specific equipment is required to operate within Class E airspace.

- *Class G Airspace*. Class G airspace (uncontrolled) is that portion of the airspace that has not been designated as Class A, B, C, D, or E airspace. ATC does not have authority over operations within uncontrolled airspace. Primary users of Class G airspace are VFR general aviation aircraft.

- *Special use airspace* permits activities that either must be confined because of their nature or require limitations on aircraft that are not a part of those activities. Prohibited Areas and Restricted Areas are regulatory SUA. They are established in Federal Aviation Regulation (FAR) Part 73 through the rule-making process of the Administrative Procedures Act (5 USC 551-702).

- *Warning Areas, Military Operations Areas, Alert Areas, and Controlled Firing Areas* are nonregulatory SUA. The FAA may designate these types of SUA without resort to the procedures demanded of the Administrative Procedures Act.

Due to the unique nature and frequency of military operations, the airspace over Army installations is generally a form of restricted use or SUA. SUAs are established when necessary to confine or segregate activities incompatible with (or hazardous to) nonparticipating (civilian) aircraft. These activities include, but are not limited to: firing of field artillery, air defense artillery, mortars or small similar weapons; drone or UAS operations; certain types of aircraft ordnance delivery and test flights; some types of laser activity; electronic, chemical, and nuclear warfare measures; and various types of research and development efforts. In order for military aircraft (helicopters and fixed wing aircraft) to operate safely in conjunction with UASs, flight operations are deconflicted by the range operations staff on the installation. In addition, aviation units and units employing UASs develop SOPs to ensure the safety of aviation assets and UASs operating concurrently over the military installation.

A.10. Utilities

Potable Water

Water for potable use is required on military installations for individual use, industrial type applications to including fire suppression and vegetation watering and/or irrigation. Concerns related to water systems typically pertain to availability and quality of water supplies, treatment processes, distribution, and consumption rates. Concerns over potable water include the condition and availability of infrastructure to provide potable water to the end users. The construction on new facilities on an installation will require

the extension of existing water infrastructure to support the users of the new facilities. An increased training load on the installation will require that adequate potable water can be supplied daily to meet the needs of the additional Soldiers training in the field and on military live fire ranges. The SDWA regulates water quality standards for potable water used for human consumption.

Wastewater

Wastewater treatment systems may treat sanitary sewer, industrial, or both kinds of wastes. Most systems are publicly owned treatment works (POTW). For regulatory purposes, there is a subcategory of Federally owned treatment works (FOTW). Wastewater treatment systems consist of a collection system from waste sources that conveys wastes to a central treatment site. As a very general rule, treatment works are identified as primary (mechanical treatment only), secondary (mechanical and biological treatment), or tertiary (mechanical and biological or chemical treatment). WWTPs operate under National Pollutant Discharge Elimination System (NPDES) permits issued by the EPA or the states pursuant to the CWA (further details contained below in Stormwater section). Concerns regarding wastewater systems typically pertain to the age of the system (either its collection system and infiltration/inflow problems or the treatment plant itself), the capacity of a treatment plant (usually expressed in millions of gallons per day) and a treatment plant's record of violations or NPDES permit effluent exceedances.

Stormwater

Stormwater systems convey precipitation away from developed sites to appropriate receiving surface waters. For a variety of reasons, storm water systems may employ a variety of devices to slow the movement of water. For instance, a large, sudden flow could scour a streambed and harm biological resources in that habitat. Storm water systems provide the benefit of reducing amounts of sediments and other contaminants that will otherwise flow directly into surface waters. Failure to appropriately size storm water systems to hold or delay conveyance of the largest predicted precipitation event often leads to downstream flooding and the environmental and economic damages associated with flooding. As a general rule, a higher density of development, such as that found in the cantonment areas of Army installations, requires a greater degree of storm water management because of the higher proportion of impervious surfaces that occurs in such developed areas.

The CWA's NPDES Stormwater Program is a comprehensive two-phased national program for addressing the nonagricultural sources of stormwater discharges which adversely affect the quality of our nation's waters. Polluted stormwater runoff is a leading cause of impairment to the nearly 40 percent of surveyed U.S. water bodies which do not meet water quality standards (EPA, 2010b). Over land or via storm sewer systems, polluted runoff is discharged, often untreated, directly into local water bodies. When left uncontrolled, this water pollution can result in the destruction of fish, wildlife, and aquatic life habitats; a loss in aesthetic value; and threats to public health due to contaminated food, drinking water supplies, and recreational waterways. The NPDES Stormwater Program uses the NPDES permitting mechanism to require the implementation of controls designed to prevent harmful pollutants from being washed by stormwater runoff into local water bodies. The NPDES stormwater permit regulations cover the following classes of stormwater discharges on a nationwide basis:

- Operators of MS4s located in "urbanized areas" as delineated by the Bureau of the Census,
- Industrial facilities in any of the 11 categories that discharge to an MS4 or to waters of the U.S.; all categories of industrial activity (except construction) may certify to a condition of "no exposure" if their industrial materials and operations are not exposed to stormwater, thus eliminating the need to obtain stormwater permit coverage,
- Operators of construction activity that disturbs 1 or more acres of land; construction sites less than 1 acre (.40 ha) are covered if part of a larger plan of development (EPA, 2010b).

Army activities subject to CWA regulation include activities involving the collection and discharge of effluents (e.g., discharging pollutants from a point source into waters of the U.S.) or construction activities near waterways or wetlands. Several compliance responsibilities under the CWA result from the types of facilities used by and the range of activities at Army installations.

Solid Waste.

Solid waste management is primarily concerned with the availability of landfills to support a population's residential, commercial, and industrial needs. Alternative means of waste disposal may involve waste-to-energy programs or incineration. In some localities, landfills are designed specifically for and limited to

disposal of construction and demolition debris. Recycling programs for various waste categories (e.g., glass, metal, and paper) reduce reliance on landfills for disposal.

Energy, Heating, and Cooling

The prevalent sources of energy on Army installations are electricity, natural gas, fuel oil, propane, and to a much lesser extent, solid fuels such as coal and wood. Army installations use all of these forms of energy. Concerns regarding energy can extend to selection of type, conservation measures, availability, costs or consumption rates. Energy consumption is perhaps the major infrastructure and budgetary challenge to Army leadership, encompassing both domestic (stateside) challenges and garrison and tactical challenges abroad. The power generation, transmission and use have significant economic, environmental, and mission implications. Concerns regarding energy can extend to selection of type, conservation measures, availability, costs, or consumption rates. The Army has been very successful in the last decade of privatizing its energy supplies.

Communications

Communications is primarily concerned with the telecommunications required on military installations to support the day-to-day activities of units, the military and civilian workforce, and the Family members that reside on the installation. Telecommunications includes both land line supported telephones as well as cell phone use. Concerns over telecommunications center around the availability and quality of the infrastructure to support the overall telecommunications requirement on the facility. The construction on new facilities on an installation will require the extension of existing telecommunications infrastructure to support the users of the new facilities.

A.11. Hazardous and Toxic Substances

Hazardous material can be defined as any material that, because of its quantity, concentration, or physical or chemical characteristics, may pose a real hazard to human health or the environment. Hazardous materials include the following categories:

- Flammable and Combustible Material
- Toxic Material

- Corrosive Material
- Oxidizers
- Aerosols
- Compressed Gases

Separate directives cover some materials considered hazardous. They include Hg, asbestos, propellants, bulk fuels, ammunition, medical waste, and chemical, biological, and radiological materials. Other examples of hazardous materials are fuels, paints, solvents, lubricants, coolants, sealers, adhesives, refrigerants, batteries, cleaners, sanitation chemicals, pesticides and herbicides and POLs.

Hazardous waste is any solid, liquid, or gaseous by-product of industrial processes that possess at least one of these four characteristics: [1] corrosivity ($2 \geq pH \leq 12$), [2] ignitability (flash point $<140^0$ F), [3] reactivity (as defined in 40 CFR 261.23), and [4] toxicity (as defined in 40 CFR 261.24); and which may have to be handled stored, transported, and disposed of in a controlled manner.

Special hazards are those substances that might pose a risk to human health but are not regulated as contaminants under the hazardous waste statutes. Included in this category are asbestos, radon, LBP, PCBs, and UXO. The presence of special hazards or controls over them may affect or be affected by implementation of a proposed action. Information on special hazards describing their locations, quantities, and condition assists in determining the significance of the effects of the proposed action.

Evaluation of environmental risks from hazardous materials and wastes focuses on USTs and aboveground storage tanks (ASTs) and the storage, transport, use, and leaks/spills of pesticides and herbicides, fuels, POLs, and a variety of toxic chemicals. Risks also extend to generation, storage, transportation, and disposal of hazardous wastes when such activities occur(ed) at or near the project site of a proposed action. In addition to being a threat to humans, the improper release of hazardous materials and wastes threatens the health and well-being of wildlife species, botanical habitats, soil systems, and/or water resources. In the event of hazardous materials or wastes being released to the environment, the extent of contamination and associated risks varies based on type of soil, geography, topography, and water resources/hydrologic condition present.

In general, hazardous material and hazardous waste issues are supported by such statutes as the RCRA, TSCA, Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), the CAA, the CWA, SDWA, Federal Facilities Compliance Act (FFCA), Military Munitions Rule (MMR), and Federal Hazardous Materials Transportation Law (HMT). ARs and EOs have also been established pursuant to these and subsequent Federal and State regulations.

IAW the Pollution Prevention Act (PPA) and Emergency Planning and Community Right-to-Know Act (EPCRA), source reduction, recycling, and treatment activities involving EPCRA Section 313 chemicals must be reported on Toxic Release Inventory (TRI) Form R. EPCRA Section 311 requires that facilities with chemicals stored above certain quantities must submit either copies of their MSDSs or a list of MSDS chemicals. EPCRA Section 312 requires submission of an annual inventory report (Tier II report) for the same chemicals to the State Emergency Response Commission, Local Emergency Planning Committee, and local fire department.

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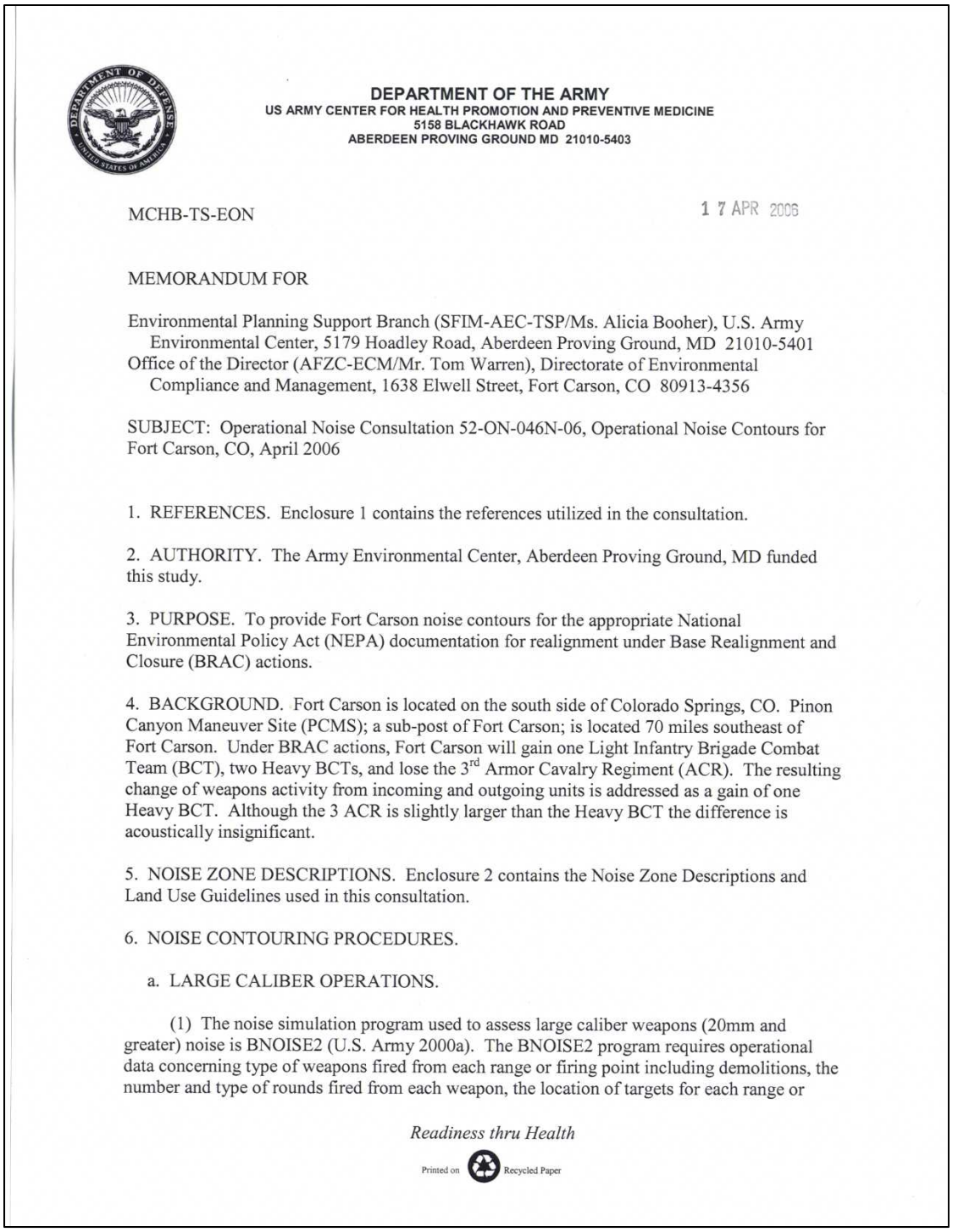
Appendix B. Noise Analyses

The following images display the memorandums for Operational Noise Consultation conducted in 2006 and 2008 for Fort Carson and in 2009 for JBLM.

Image 1. Fort Carson Operational Noise Consultation, 2006.



DEPARTMENT OF THE ARMY
US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-EON

17 APR 2006

MEMORANDUM FOR

Environmental Planning Support Branch (SFIM-AEC-TSP/Ms. Alicia Booher), U.S. Army Environmental Center, 5179 Hoadley Road, Aberdeen Proving Ground, MD 21010-5401
Office of the Director (AFZC-ECM/Mr. Tom Warren), Directorate of Environmental Compliance and Management, 1638 Elwell Street, Fort Carson, CO 80913-4356

SUBJECT: Operational Noise Consultation 52-ON-046N-06, Operational Noise Contours for Fort Carson, CO, April 2006

1. REFERENCES. Enclosure 1 contains the references utilized in the consultation.

2. AUTHORITY. The Army Environmental Center, Aberdeen Proving Ground, MD funded this study.

3. PURPOSE. To provide Fort Carson noise contours for the appropriate National Environmental Policy Act (NEPA) documentation for realignment under Base Realignment and Closure (BRAC) actions.

4. BACKGROUND. Fort Carson is located on the south side of Colorado Springs, CO. Pinon Canyon Maneuver Site (PCMS); a sub-post of Fort Carson; is located 70 miles southeast of Fort Carson. Under BRAC actions, Fort Carson will gain one Light Infantry Brigade Combat Team (BCT), two Heavy BCTs, and lose the 3rd Armor Cavalry Regiment (ACR). The resulting change of weapons activity from incoming and outgoing units is addressed as a gain of one Heavy BCT. Although the 3 ACR is slightly larger than the Heavy BCT the difference is acoustically insignificant.

5. NOISE ZONE DESCRIPTIONS. Enclosure 2 contains the Noise Zone Descriptions and Land Use Guidelines used in this consultation.

6. NOISE CONTOURING PROCEDURES.

a. LARGE CALIBER OPERATIONS.

(1) The noise simulation program used to assess large caliber weapons (20mm and greater) noise is BNOISE2 (U.S. Army 2000a). The BNOISE2 program requires operational data concerning type of weapons fired from each range or firing point including demolitions, the number and type of rounds fired from each weapon, the location of targets for each range or

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firing point, and the amount of propellant used to reach the target. Existing records on range utilization along with reasonable assumptions are used as BNOISE2 inputs. The assessment period used to create the Fort Carson C-weighted Day-Night Level (CDNL) contours is 250 days. The BNOISE2 program accounted for the terrain at Fort Carson when creating the noise contours.

(2) The inputs used to generate the large caliber noise contours for this report were created using the data summarized in Enclosure 3.

b. SMALL CALIBER OPERATIONS.

(1) The noise simulation program used to assess small caliber weapons (50 caliber and below) noise is SARNAM (U.S. Army 2000b). The SARNAM program requires operational data concerning type of weapons fired from each range, firing points, distance to targets, berms, and safety baffles.

(2) The inputs used to generate the small caliber noise contours for this report were created using the data summarized in Enclosure 4.

c. AIRCRAFT OPERATIONS.

(1) The noise simulation program used to assess aircraft noise is NoiseMap/Baseops (U.S. Air Force 2005a). The NoiseMap/Baseops program requires operational data concerning type of type of aircraft, altitude, flight tracks, and number of operations.

(2) The inputs used to generate the aircraft activity noise contours for this report were created using the data summarized in Enclosure 5.

d. FLIGHT CORRIDORS.

(1) The low number of aircraft operations utilizing the flight corridors/routes will not generate A-weighted day-night average level (ADNL) noise contours of 65 dBA or greater. Yet, there is the potential for aircraft to cause annoyance leading to noise complaint while entering/exiting the airspace.

(2) Scandinavian Studies (Rylander 1974 and Rylander 1988) have found that a good predictor of annoyance at airfields with 50 to 200 operations per day is the maximum level of the three noisiest events. The maximum noise levels for the aircraft utilized in the Fort Carson and PCMS flight corridors are listed in Table 1. These maximum levels are compared with the levels listed in Table 2 to determine the percent of the population that would consider itself highly annoyed. While levels may be lower in the flight corridors with fewer than 50 operations per day, it is a tool in providing some indication of the percent of people who might be annoyed.

TABLE 1. MAXIMUM NOISE LEVELS OF AIRCRAFT OPERATING IN THE FORT CARSON AND PCMS FLIGHT CORRIDORS.

Slant Distance (Feet)	Maximum Level, dBA		
	AH-64	CH-47D	UH-60
100	98	98	94
200	92	92	88
500	83	84	80
1,000	77	77	73
1,500	73	74	69
2,000	70	71	66

TABLE 2. PERCENTAGE OF POPULATION HIGHLY ANNOYED FROM AIRCRAFT NOISE.

Maximum, dBA	Percentage Highly Annoyed
70	5
75	13
80	20
85	28
90	35

(3) Flight corridors vary in width depending upon the type of aircraft and type of activity. Generally the aircraft fly the center line of the flight corridor but can vary anywhere within the corridor. Thus, to account for possible annoyance, the area of possible noise impact must be expanded based on the actual aircraft location within the corridor. For example, if a flight corridor is one mile in width for an AH-64 at 500' above ground level (AGL), to account for variation in aircraft location, the overall area of noise impact would be an additional one-third mile on each side of the corridor. This gives an adequate buffer to reduce possible annoyance. The buffer dimensions were determined based on results from the SelCalc Program (U.S. Air Force 2005b) and areas within the buffer may receive a max level dBA above 70, based on the altitude and slant distance of the aircraft. Enclosure 6 contains a graphic description of AGL, ground track, and slant distance.

7. NOISE CONTOUR MODELING RESULTS.

a. LARGE CALIBER WEAPONS NOISE CONTOURS.

(1) Fort Carson.

(a) The existing large caliber weapons noise contours for Fort Carson are shown in enclosure 7. The Land Use Planning Zone (LUPZ) (57 CDNL) extends beyond the eastern

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boundary encompassing El Rancho, Midway Ranches; and crossing Interstate 25 into the city of Fountain. The LUPZ extends less than 1,200 meters beyond the southern boundary; and beyond the western boundary encompassing Turkey Canyon Ranch. The Noise Zone II (62 CDNL) extends beyond the installation boundary eastern boundary less than 2,000 meters, into El Rancho and Midway Ranches; and beyond the western boundary less than 750 meters, into Turkey Canyon Ranch. The Noise Zone II (70 CDNL) extends beyond the eastern boundary less than 1,000 meters between the City of Fountain and El Rancho; less than 200 meters, into the western area of El Rancho; and less than 300 meters into Turkey Canyon Creek. These contours show the updated existing operations and the new range layouts due to the upgrade of Ranges 111 and 143. Replace the existing CDNL contours (Figure 4-2) in the Fort Carson Installation Environmental Noise Management Plan, January 2006.

(b) The future large caliber weapons noise contours for Fort Carson are shown in enclosure 8. The Land Use Planning Zone (LUPZ) (57 CDNL) extends beyond the eastern boundary beyond Interstate 25, encompassing El Rancho, Midway Ranches, and the best part of the city of Fountain. The LUPZ extends less than 2,600 meters beyond the southern boundary; and beyond the western boundary encompassing Turkey Canyon Ranch. The Noise Zone II (62 CDNL) extends beyond the installation boundary eastern boundary less than 1,300 meters into the city of Fountain; less than 4,000 meters, into El Rancho and Midway Ranches; and beyond the western boundary less than 700 meters, into Turkey Canyon Ranch. The Noise Zone II (70 CDNL) extends beyond the eastern boundary less than 500 meters into the city of Fountain; less than 1,000 meters between the City of Fountain and El Rancho; less than 400 meters, into the western area of El Rancho; and less than 400 meters into Turkey Canyon Creek.

(c) To predict the risk of complaints for large caliber weapon operation PK15(met) contours were developed. The Fort Carson existing large caliber weapons PK15(met) noise contours are shown in enclosure 9 and the future large caliber weapons PK15(met) noise contours are shown in enclosure 10. The only difference between the two is due to the hand grenade range located in the northeastern area of Fort Carson, near Interstate 25 and the city of Fountain. The PK15(met), 115 dB contour extends beyond the eastern boundary between 1,700 – 5,400 meters; beyond the southern boundary less than 1,600 meters; and beyond the eastern boundary between 500 – 1,500 meters. The PK15(met) 130 dB noise contour extends beyond the eastern boundary between 500 – 1,200 meters near Fountain, El Rancho and Midway Ranches; and beyond the western boundary between 500 – 1,000 meters near Red Rock Valley Estates and Turkey Canyon Ranch. The contours indicate a moderate probability of receiving noise complaints from most locations; with a higher probability of receiving noise complaints from certain locations. Replace the existing PK15(met) contours (Figure 4-3) in the Fort Carson Installation Environmental Noise Management Plan, January 2006, with enclosure 9.

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(2) PCMS.

(a) The large caliber weapons CDNL noise contours for the proposed Hand Grenade Range are shown in enclosure 11. The LUPZ (57 CDNL) extends beyond the western installation boundary less than 1,250 meters and the Noise Zone II (62 CDNL) extends beyond the installation boundary less than 700 meters. The Noise Zone III (70 CDNL) contour does not extend off-post.

(b) The large caliber weapons PK15(met) noise contours for the proposed Hand Grenade Range are shown in enclosure 12. The PK15(met), 115 dB contour extends beyond the western boundary less than 1,250 meters. The PK15(met) 130 dB noise contour does not extend off-post. The contours indicate a low probability of receiving noise complaints.

b. SMALL CALIBER WEAPONS NOISE CONTOURS.

(a) Fort Carson. The small caliber weapons noise contours for existing operations at the Fort Carson small arms impact area are shown in enclosure 13. The Zone II [PK15(met) 87 dB] extends beyond the eastern boundary less than 700 meters, entering the city of Fountain. The Zone III [PK15(met) 104 dB] contours near range 29 extend beyond the eastern boundary less than 100 meters, just crossing Interstate 25. There will be no changes to the existing small caliber weapons noise contours due to BRAC activity.

(b) PCMS.

(1) Existing Range Facilities. Due to the distance of the ranges from the installation boundary and any noise sensitive land uses only Ranges 1, 3, and 7 were addressed. The noise contours for these existing small arms operations are shown in enclosure 14. The Zone II [PK15(met) 87 dB] contour extends beyond the western boundary less than 650 meters. The Zone III [PK15(met) 104 dB] contour does not extend beyond the installation boundary.

(2) Proposed Range Facilities. As a result of the non-live fire activity and the distance of the facility from the installation boundary; the Combined Arms Collective Training Facility will not create [PK15(met) 87 dB] or Zone III [PK15(met) 104 dB] noise contours that extend beyond the installation boundary. The proposed Live Fire Shoot House will not create [PK15(met) 87 dB] or Zone III [PK15(met) 104 dB] noise contours that extend beyond the installation boundary because the activity takes place inside the structure.

c. AVIATION NOISE CONTOURS.

(1) PCMS COMBAT ASSAULT LANDING STRIP (CALS).

(a) The noise contours for the existing C130 operations utilizing the existing Combat Assault Landing Strip (CALS) are shown in enclosure 15. The LUPZ (60 ADNL) extends beyond the western boundary less than one-tenth of a mile. The Noise Zone II (65 ADNL) and Noise Zone III (75 ADNL) contours do not extend beyond the boundary. However, there is the potential for aircraft to cause annoyance while entering/exiting the airspace.

(b) The noise contours for the future C130 and C17 operations utilizing the expanded CALS are shown in enclosure 16. The LUPZ (60 ADNL) extends beyond the western boundary approximately one mile. The Noise Zone II (65 ADNL) extends beyond the western boundary approximately one quarter of a mile. The Noise Zone III (75 ADNL) contours do not extend beyond the boundary.

(c) The noise contours for the future C130 operations utilizing the two proposed CALS are shown in enclosure 17. The LUPZ (60 ADNL), Noise Zone II (65 ADNL) and Noise Zone III (75 ADNL) contours do not extend beyond the boundary. However, there is the potential for aircraft to cause annoyance while entering/exiting the airspace.

(2) FORT CARSON AND PCMS FLIGHT CORRIDORS. The distances in Table 3 are added to the flight corridors width to account for annoyance created by activity taking place at the edge of the flight corridor. The supplement buffers *do not* account for the terrain at PCMS or Fort Carson. Enclosures 18 and 19 contain the annoyance flight corridor buffers for Fort Carson and PCMS.

TABLE 3. FORT CARSON AND PCMS SUPPLEMENTAL BUFFER FLIGHT CORRIDOR WIDTHS TO REDUCE ANNOYANCE POTENTIAL.

Supplemental Buffer Width to Flight Corridor	
Aircraft Type	**NOE 100' AGL**
Rotary Wing:	
AH-64	1/4 Mile
CH-47D	1/4 Mile
UH-60	1/4 Mile

8. RECOMMENDATIONS.

a. Include the information from this consultation in the Fort Carson appropriate NEPA documentation for realignment under Base Realignment and Closure actions.

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b. Although no Federal Law prohibits the Department of Defense training and testing activities from making noise, the Services have always tried to be good neighbors. Due to the risk of noise complaints from off-post neighboring residents related to the proposed training noise, Fort Carson should continue the existing operational noise management and outreach program to inform the public of possible noise from training.

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

10. The point of contact is Ms. Kristy Broska or Dr. William Russell, Operational Noise Program, USACHPPM, at DSN 584-3829, commercial (410) 436-3829, or e-mail: kristy.broska@us.army.mil or william.russell4@us.army.mil.

FOR THE COMMANDER:

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as

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3. U.S. Army, 2000a, U.S. Army Construction Engineering Research Laboratories, BNOISE2 Computer Model.

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5. Rylander, et.al., 1974, "Re-Analysis of Aircraft Noise Annoyance Data Against the dBA Peak Concept," Journal of Sound and Vibration, Volume 36, pages 399 - 406.

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Enclosure 1

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NOISE ZONES DESCRIPTIONS AND LAND USE GUIDELINES

1. Day Night Level Descriptions.

(a) The Noise Zone III consists of the area around the source of the noise in which the level is greater than 70 decibels (dB), C-weighted day-night sound level (CDNL) for large caliber weapons, greater than 104 PK15(met) for small arms and greater than 75 dB, A-weighted day-night sound level (ADNL) for aircraft activity. The noise level within Noise Zone III is considered so severe that noise-sensitive land uses should not be considered therein.

(b) The Noise Zone II consists of an area where the day-night sound level is between 62 and 70 dB CDNL for large caliber weapons; 87 and 104 PK15(met) for small arms; and 65 and 75 dB ADNL for aircraft activity. Exposure to noise within this area is considered significant, and use of land within Noise Zone II should normally be limited to activities such as industrial, manufacturing, transportation, and resource production. However, if the community determines that land in Noise Zone II areas must be used for residential purposes, then noise level reduction features of 25 to 30 decibels should be incorporated into the design and construction of the buildings.

(c) The Noise Zone I include all areas around a noise source in which the day-night sound level is less than 62 dB CDNL for large caliber weapons, less than 87 PK15(met) for small arms and 65 dB ADNL for aircraft activity. This area is usually acceptable for all types of land use activities.

(d) The Land Use Planning Zone (LUPZ) DNL noise contours, 57 dB CDNL and 60 dB ADNL, represent an annual average that separates the Noise Zone II from the Noise Zone I. Taking all operations that occur over the year and dividing by the number of training days generates the contours. But, the noise environment varies daily and seasonally because operations are not consistent through all 365 days of the year. In addition, the Federal Interagency Committee on Urban Noise document states "Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider." For residential land uses, depending on attitudes and other factors, a 57 CDNL or 60 ADNL may be considered by the public as an impact on the community environment. In order to provide a planning tool that could be used to account for days of higher than average operations and possible annoyance, the LUPZ contour is being included on the noise contour maps.

Enclosure 2

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(e) See Table 1 for land use guidelines.

Table 1. Land Use Planning Guidelines.

Noise Zones	Large-Caliber Weapons (CDNL)	Aircraft Activity (ADNL)	Small Arms PK15(met)
LUPZ	57 – 62	60-65	NA
I	< 62	<65	<87
II	62 - 70	65-75	87-104
III	> 70	>75	>104

Note:
LUPZ = Land Use Planning Zone
< = less than
> = greater than

2. PK15(met) Noise Contour Description.

(a) Community annoyance due to many types of transportation and industrial noise is typically and appropriately assessed based on average noise level over a protracted time period. The DNL is the primary descriptor used for this purpose in the United States. The DNL is the time weighted energy average sound level with a 10-dB penalty added to the nighttime levels (2200 to 0700 hours). The use of average noise level over a protracted time period generally does not adequately assess community noise impact and complaint potential due to relatively infrequent blast noise events or weapon firing. For example, for a small arms range at which hundreds of rounds are fired each year, resultant peak levels (PK) can easily exceed 104 dB in regions that annual DNL values indicate to be adequately quiet for housing.

(b) To account for statistical variation in received weapons noise level due to weather, it is recommended that the PK15(met) noise level be calculated. The peak contours show the expected level that one would get on a sound level meter when a weapon was fired. Since weather conditions can cause noise levels to vary significantly from day to day (even from hour to hour) the programs calculate a range of peak levels. This range is based on weather conditions that favor or hinder sound propagation. By plotting the PK15(met) contour, events would be expected to fall within the contours 85% of the time. This gives the installation and the community a more realistic means to consider the areas impacted by training noise without putting stipulations on land that would only receive high sound levels under infrequent weather conditions that favor sound propagation. This metric represents the best available scientific quantification for assessing the complaint risk of large and small caliber weapons ranges. The complaint risk areas for PK15(met) noise contours are defined as follows:

(1) The high risk of complaint area consists of the area around the source of the noise in which PK15(met) noise contour is greater than 130 dB for large caliber weapons.

(2) The moderate risk of complaint area consists of an area where the PK15(met) noise contour is between 115 dB and 130 dB for large caliber weapons.

(3) The low risk of complaint area includes all areas around a noise source in which the PK15(met) noise contour is less than 115 dB for large caliber weapons.

(c) See Table 2 for complaint risk guidelines.

Table 2. Complaint Risk Guidelines.

Risk of Complaints	Large Caliber Weapons (20mm and greater) PK15(met) dB Noise Contour
Low	< 115
Moderate	115 - 130
High	> 130

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DEMOLITION AND LARGE CALIBER WEAPON EXPENDITURE

FORT CARSON RANGE OPERATIONS

		Existing 2001 Ammuntion		Gain One Heavy BCT	
Firing Location	**Weapon and Ammunition Type**	**DayShots 0700-2200**	**NightShots 2200-0700**	**DayShots 0700-2200**	**NightShots 2200-0700**
Hellfire North	Hellfire Missile, HE	0	0	145	35
Hellfire South	Hellfire Missile, HE	0	0	145	35
Mortar Point 02	120mm Mortar, HE	0	0	250	13
	120mm Mortar Inert	0	0	1173	62
	60mm Mortar, HE	0	0	95	5
	60mm Mortar, Inert	0	0	472	25
	81mm Mortar, HE	45	2	33	2
	81mm Mortar, Inert	38	2	174	1
Mortar Point 03	120mm Mortar, HE	0	0	250	14
	120mm Mortar, Inert	0	0	1173	62
	60mm Mortar, HE	0	0	95	5
	60mm Mortar, Inert	0	0	472	25
	81mm Mortar, HE	14	1	10	0
	81mm Mortar, Inert	12	1	54	1
Mortar Point 16	120mm Mortar, HE	0	0	249	13
	120mm Mortar, Inert	0	0	1172	61
	60mm Mortar, HE	12	0	95	5
	60mm Mortar, Inert	0	0	471	24
	81mm Mortar, HE	29	2	22	1
	81mm Mortar, Inert	24	1	112	1
Mortar Point 17	120mm Mortar, HE	0	0	250	13
	120mm Mortar, Inert	0	0	1173	62
	60mm Mortar, HE	0	0	95	5
	60mm Mortar, Inert	0	0	471	25
	81mm Mortar, HE	149	8	112	6
	81mm Mortar, Inert	126	7	580	4
Mortar Point 20	120mm Mortar, HE	0	0	249	13
	120mm Mortar, Inert	0	0	1172	61
	60mm Mortar, HE	444	9	95	5
	60mm Mortar, Inert	0	0	471	24
	81mm Mortar, HE	192	10	144	8
	81mm Mortar, Inert	162	9	745	5
Mortar Point 24	120mm Mortar, HE	0	0	250	13
	120mm Mortar, Inert	0	0	1173	62
	60mm Mortar, HE	0	0	95	5
	60mm Mortar, Inert	0	0	471	25
	81mm Mortar, HE	476	25	357	19
	81mm Mortar, Inert	403	21	1850	12
Mortar Point 25	120mm Mortar, HE	0	0	250	13
	120mm Mortar, Inert	0	0	1172	62
	60mm Mortar, HE	0	0	95	5
	60mm Mortar, Inert	0	0	471	25
	81mm Mortar, HE	110	6	82	4
	81mm Mortar, Inert	93	5	427	2

Note: Inert is defined as any round that does not create noise upon impact.

Enclosure 3

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DEMOLITION AND LARGE CALIBER WEAPON EXPENDITURE

FORT CARSON RANGE OPERATIONS, CONT'D.

		Existing 2001 Ammuntion		Gain One Heavy BCT	
Firing Location	**Weapon and Ammunition Type**	**DayShots 0700-2200**	**NightShots 2200-0700**	**DayShots 0700-2200**	**NightShots 2200-0700**
Range 35B	Hand Grenade, M67, HE	0	0	10500	0
Range 103	40mm Grenade, HE	46482	2446	0	0
Range 105	120mm Tank, Inert	565	0	696	0
	25mm Gun, Inert	0	0	11588	0
Range 109	120mm Tank, Inert	196	84	81	35
	25mm Gun, Inert	27827	6957	14918	3729
Range 111 DMPTR	120mm Tank, Inert	2271	802	893	383
	25mm Gun, Inert	14178	9337	7601	1900
Range 115A	40mm Grenade HE	9986	526	0	0
Range 121A	Bangalore	0	0	36	0
	Crater Charge 40 lbs	114	0	100	0
	Demolition, C4 1.25 lbs	13659	0	9935	0
	Demolition, PETN 2 lbs	21	0	0	0
	Demolition, TNT 1 lb	1257	0	0	0
	Demolition, TNT 1/4 lb	1163	0	0	0
	M15 Mine	107	0	18	0
	M181A1 Mine	0	0	252	0
	M19 Mine	103	0	18	0
	M21 Mine	189	0	18	0
	Shape Charge 40 lbs	328	0	100	0
Range 123	20mm Gun, Inert	6602	0	0	0
	25mm Gun, Inert	183	0	0	0
	30mm Gun, Inert	0	0	95450	0
Range 125	TOW Missile, Inert	0	0	115	0
Range 127	120mm Tank, Inert	42	0	-42	0
	155mm Howitzer, HE	368	92	-368	-92
	155mm Howitzer, Inert	44	5	-44	-5
	25mm Gun, Inert	9481	499	-9481	-499
	TOW Missile, Inert	445	0	-445	0
	Bangalore	22	0	-22	0
Range 127 IPBC	25mm Gun, Inert	0	0	24395	6099
Range 139	AT4 Rocket, Inert	561	0	174	0
	LAW Rocket, Inert	195	0	36	0
Range 141	155mm Howitzer, HE	0	0	18	0
	155mm Howitzer, Inert	0	0	1	0
	Dragon Rocket, Inert	36	0	8	0
Range 143 DMPRC	120mm Tank, Inert	6705	2138	2598	1114
	25mm Gun, Inert	49376	21161	26471	6618
	TOW Missile, Inert	191	0	230	0
Range 145	120mm Tank, Inert	668	267	284	122
	25mm Gun, Inert	14178	9337	7601	1900
Range 149	Stinger Missile, HE	0	0	72	0
Range 151	20mm Gun, Inert	228	0	0	0
	25mm Gun, Inert	101	0	0	0

Note: Inert is defined as any round that does not create noise upon impact.

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DEMOLITION AND LARGE CALIBER WEAPON EXPENDITURE

FORT CARSON RANGE OPERATIONS, CONT'D.

		Existing 2001 Ammuntion		Gain One Heavy BCT	
Firing Location	Weapon and Ammunition Type	DayShots 0700-2200	NightShots 2200-0700	DayShots 0700-2200	NightShots 2200-0700
Range 155 CALFEX	120mm Tank, Inert	668	0	174	0
	25mm Gun, Inert	1087	0	5184	0
	155mm Howitzer, HE	79	20	124	30
	155mm Howitzer, Inert	744	287	17	12
Range 155E	120mm Mortar, HE	0	0	608	32
	120mm Mortar, Inert	0	0	722	70
	60mm Mortar, HE	0	0	319	17
	60mm Mortar, Inert	0	0	67	3
	81mm Mortar, HE	246	13	365	19
	81mm Mortar, Inert	209	11	76	4
	Demolition, C4 1.25 lbs	628	0	523	0
	Crater Charge, 40 lbs	21	0	8	0
	Shape Charge, 40 lbs	12	0	8	0
Training Area 07	155mm Howitzer, HE	745	166	281	71
	155mm Howitzer, Inert	0	255	15	11
Training Area 09	155mm Howitzer, HE	62	15	24	6
	155mm Howitzer, Inert	0	0	1	1
Training Area 10	155mm Howitzer, HE	268	74	102	26
	155mm Howitzer, Inert	0	42	7	4
Training Area 11	155mm Howitzer, HE	308	76	117	30
	155mm Howitzer, Inert	0	174	7	4
Training Area 12	155mm Howitzer, HE	314	74	119	30
	155mm Howitzer, Inert	0	19	6	4
Training Area 14	155mm Howitzer, HE	51	13	20	5
	155mm Howitzer, Inert	0	21	1	1
Training Area 16	155mm Howitzer, HE	104	26	40	10
	155mm Howitzer, Inert	0	20	2	2
Training Area 17	155mm Howitzer, HE	1019	254	385	97
	155mm Howitzer, Inert	0	381	22	16
Training Area 18	155mm Howitzer, HE	155	38	58	14
	155mm Howitzer, Inert	0	55	3	2
Training Area 20	155mm Howitzer, HE	305	76	115	29
	155mm Howitzer, Inert	0	98	6	5
Training Area 21	155mm Howitzer, HE	543	136	205	51
	155mm Howitzer, Inert	0	94	12	9
Training Area 24	155mm Howitzer, HE	975	244	368	93
	155mm Howitzer, Inert	0	659	21	16
Training Area 25	155mm Howitzer, HE	55	14	20	5
	155mm Howitzer, Inert	0	17	1	1
Training Area 27	155mm Howitzer, HE	23	6	10	3
	155mm Howitzer, Inert	0	7	1	1
Training Area 28	155mm Howitzer, HE	26	7	11	3
	155mm Howitzer, Inert	0	0	1	1

Note: Inert is defined as any round that does not create noise upon impact.

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DEMOLITION AND LARGE CALIBER WEAPON EXPENDITURE

FORT CARSON RANGE OPERATIONS, CONT'D.

		Existing 2001 Ammuntion		Gain One Heavy BCT	
Firing Location	**Weapon and Ammunition Type**	**DayShots 0700-2200**	**NightShots 2200-0700**	**DayShots 0700-2200**	**NightShots 2200-0700**
Training Area 30	155mm Howitzer, HE	46	11	17	4
	155mm Howitzer, Inert	0	45	1	1
Training Area 31	155mm Howitzer, HE	45	11	17	4
	155mm Howitzer, Inert	0	18	1	1
Training Area 40	155mm Howitzer, HE	47	12	17	4
	155mm Howitzer, Inert	0	0	1	1
Training Area 41	155mm Howitzer, HE	44	11	16	4
	155mm Howitzer, Inert	0	0	1	1

Note: Inert is defined as any round that does not create noise upon impact.

PINON CANYON MANEUVER SITE RANGE OPERATIONS

RANGE	DAYTIME (0700-2200) OPERATIONS	NIGHTTIME (2200-0700) OPERATIONS
PROPOSED HAND GRENADE	15,488	0

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SMALL CALIBER WEAPON EXPENDITURE

FORT CARSON RANGE OPERATIONS

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

PINON CANYON MANEUVER SITE RANGE OPERATIONS

	PISTOL, 9 MM, LIVE	RIFLE, 5.56 MM, LIVE	MACHINE GUN, 7.62 MM, LIVE	MACHINE GUN, .50 CAL, LIVE
RANGE 1 - COMBAT PISTOL QUALIFICATION COURSE	X			
RANGE 3 - AUTOMATED RECORD FIRE		X		
RANGE 7 - MULTI PURPOSE MACHINE GUN		X	X	X

Enclosure 4

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PINON CANYON COMBAT ASSAULT LANDING STRIP OPERATIONS

EXISTING COMBAT ASSAULT LANDING STRIP (CALS) OPERATIONS

AIRCRAFT TYPE	DAYTIME (0700-2200) OPERATIONS*	NIGHTTIME (2200-0700) OPERATIONS*
C130	48	0

FUTURE EXPANDED CALS OPERATIONS

AIRCRAFT TYPE	DAYTIME (0700-2200) OPERATIONS*	NIGHTTIME (2200-0700) OPERATIONS*
C130	16	0
C17	10	0

PROPOSED CALS LOCATION #1 OPERATIONS

AIRCRAFT TYPE	DAYTIME (0700-2200) OPERATIONS*	NIGHTTIME (2200-0700) OPERATIONS*
C130	16	0

PROPOSED CALS LOCATION #2 OPERATIONS

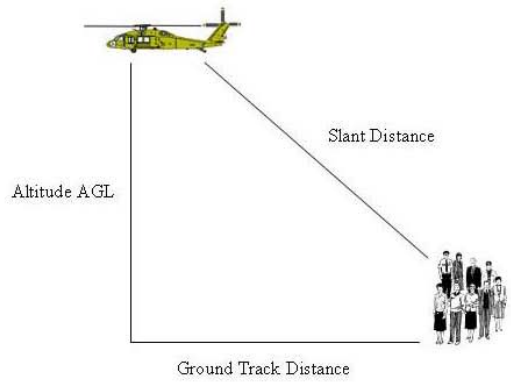
AIRCRAFT TYPE	DAYTIME (0700-2200) OPERATIONS*	NIGHTTIME (2200-0700) OPERATIONS*
C130	16	0

NOTE: Each operation consists of one landing and one takeoff.

Enclosure 5

7472

SUPPLEMENTAL BUFFER FLIGHT CORRIDOR



DEFENITIONS:

Altitude/AGL (Above Ground Level). Distance of the aircraft above the ground.

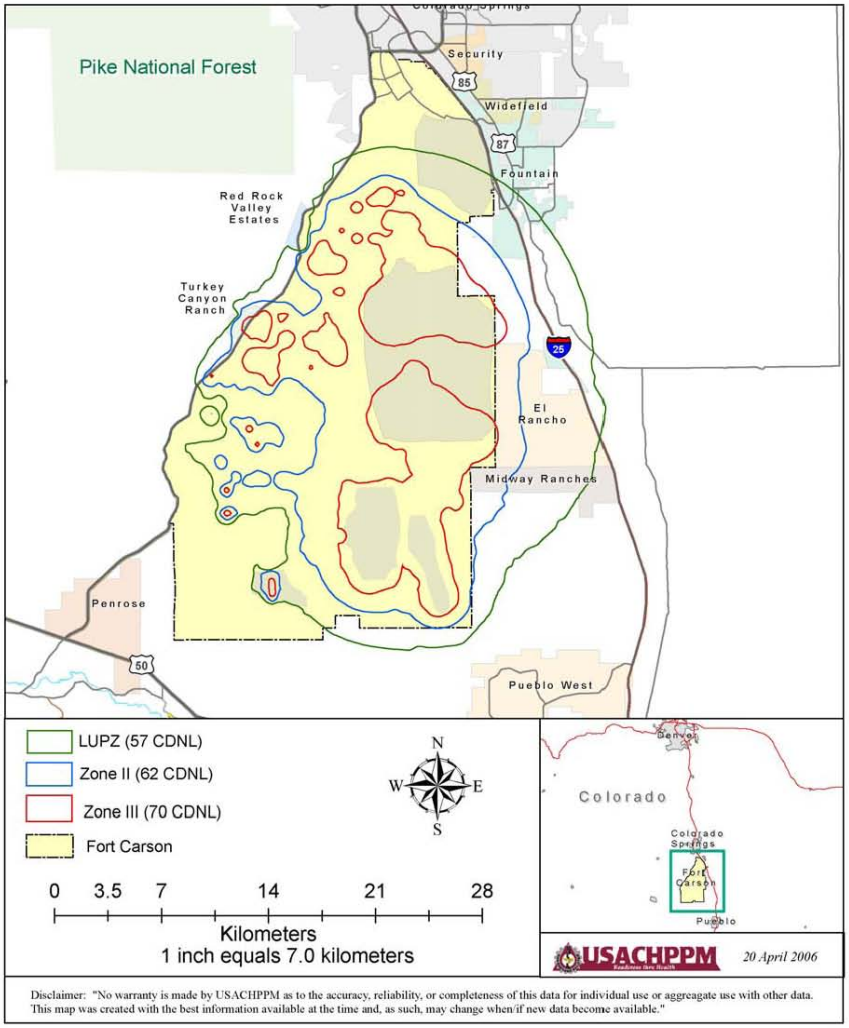
Ground Track Distance. The distance between receiver and the point on the Earth at which the aircraft is directly overhead.

Slant Distance. The line-of-sight distance between the receiver and the aircraft. The slant distance is the hypotenuse of the triangle represented by the altitude of the aircraft and the distance between the receiver and the aircraft's ground track distance.

Enclosure 6

7473

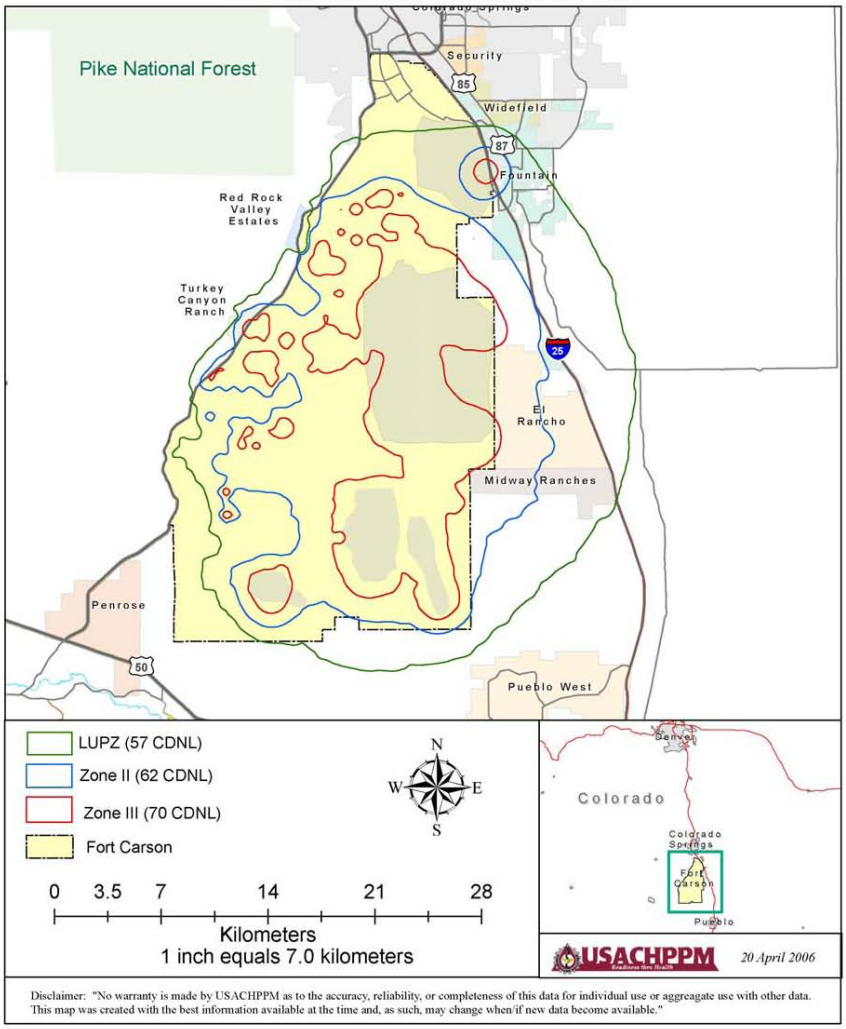
FORT CARSON
EXISTING LARGE CALIBER
OPERATIONAL NOISE CONTOURS



Enclosure 7

7474

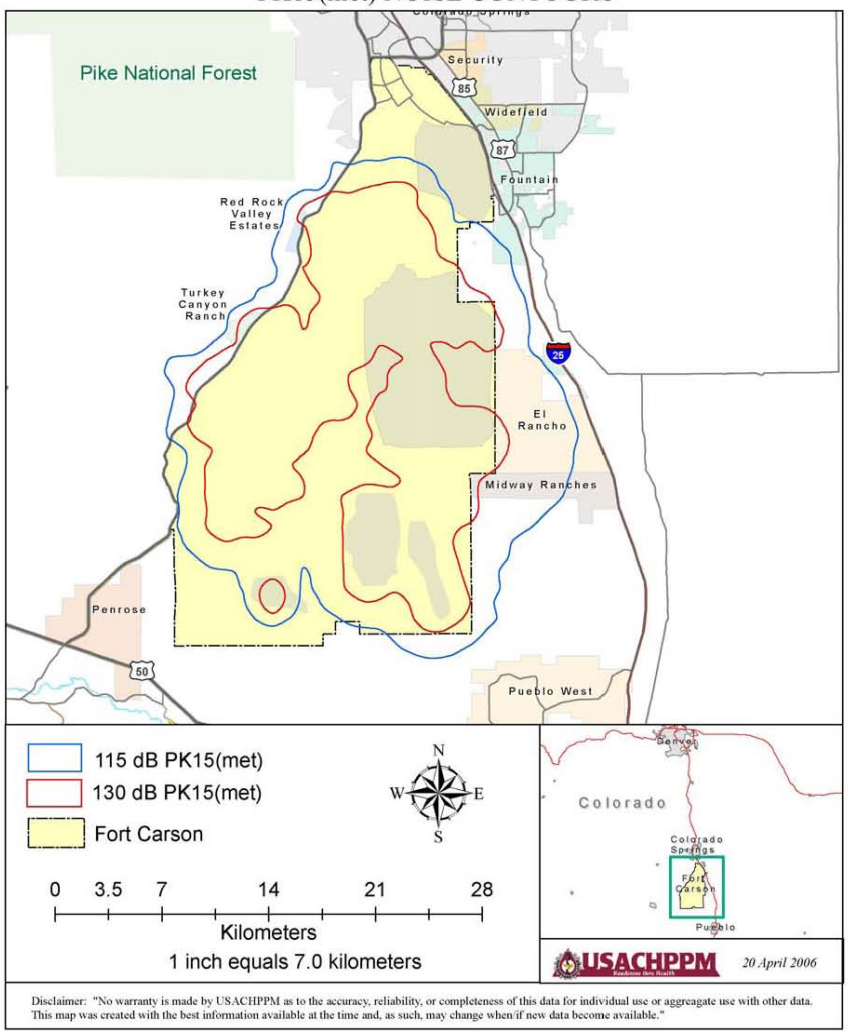
FORT CARSON
FUTURE LARGE CALIBER
OPERATIONAL NOISE CONTOURS



Enclosure 8

7475

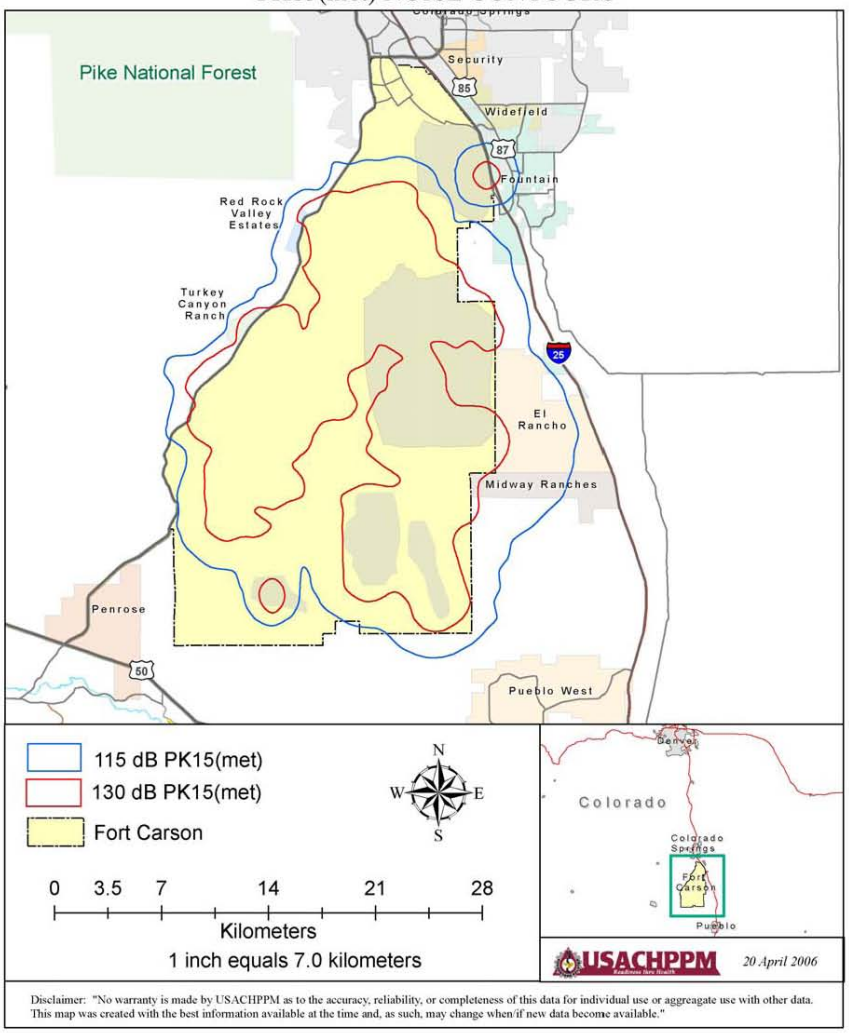
FORT CARSON
LARGE CALIBER OPERATIONAL
PK15(met) NOISE CONTOURS



Enclosure 9

7476

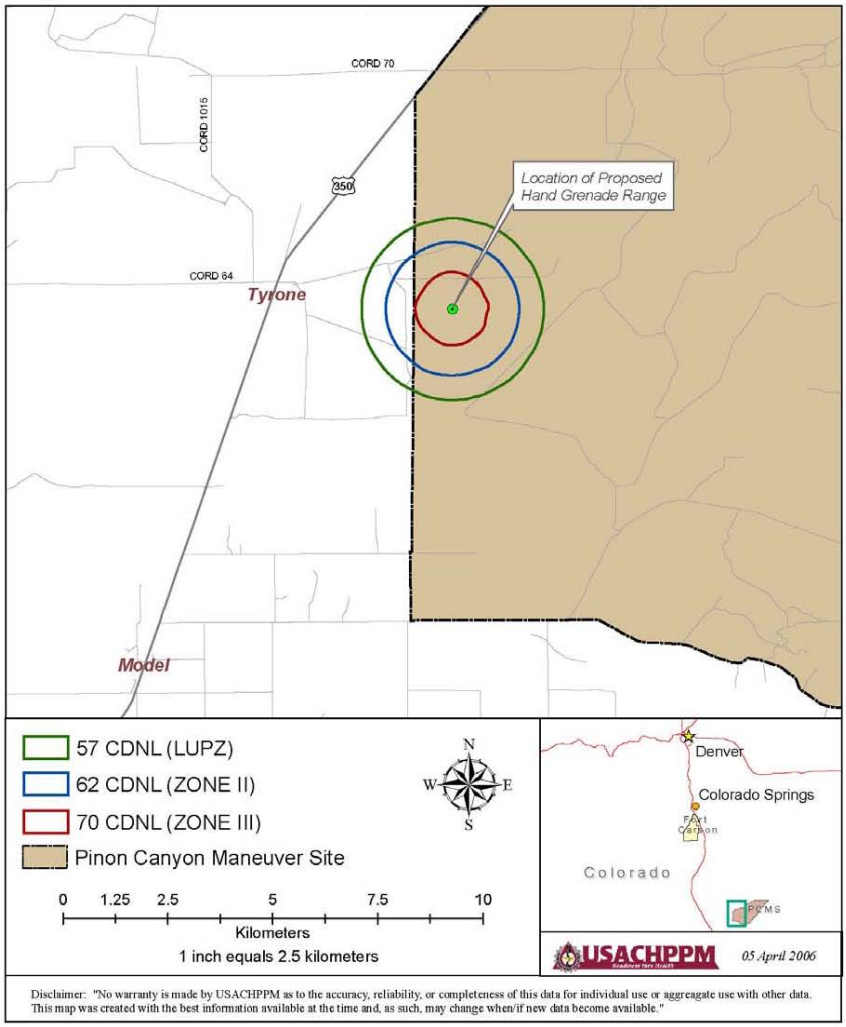
FORT CARSON
FUTURE LARGE CALIBER OPERATIONAL
PK15(met) NOISE CONTOURS



Enclosure 10

7477

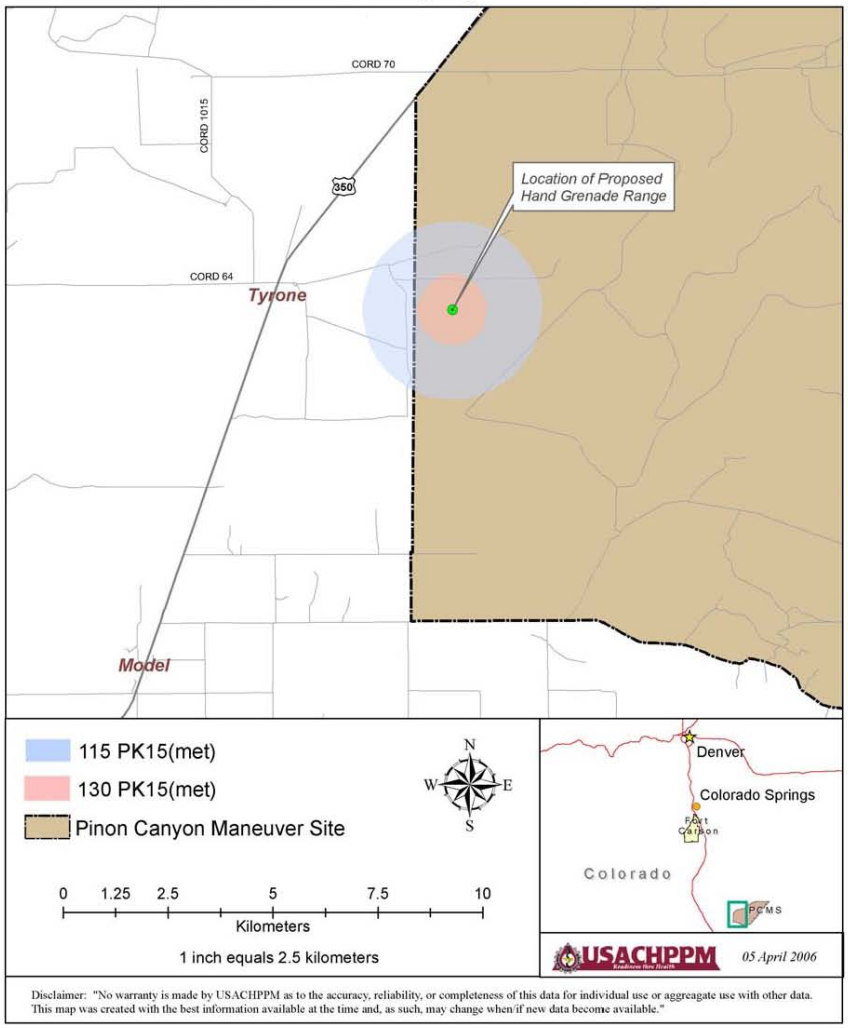
PINON CANYON MANEUVER SITE
PROPOSED HAND GRENADE RANGE
LARGE CALIBER NOISE CONTOURS



Enclosure 11

7478

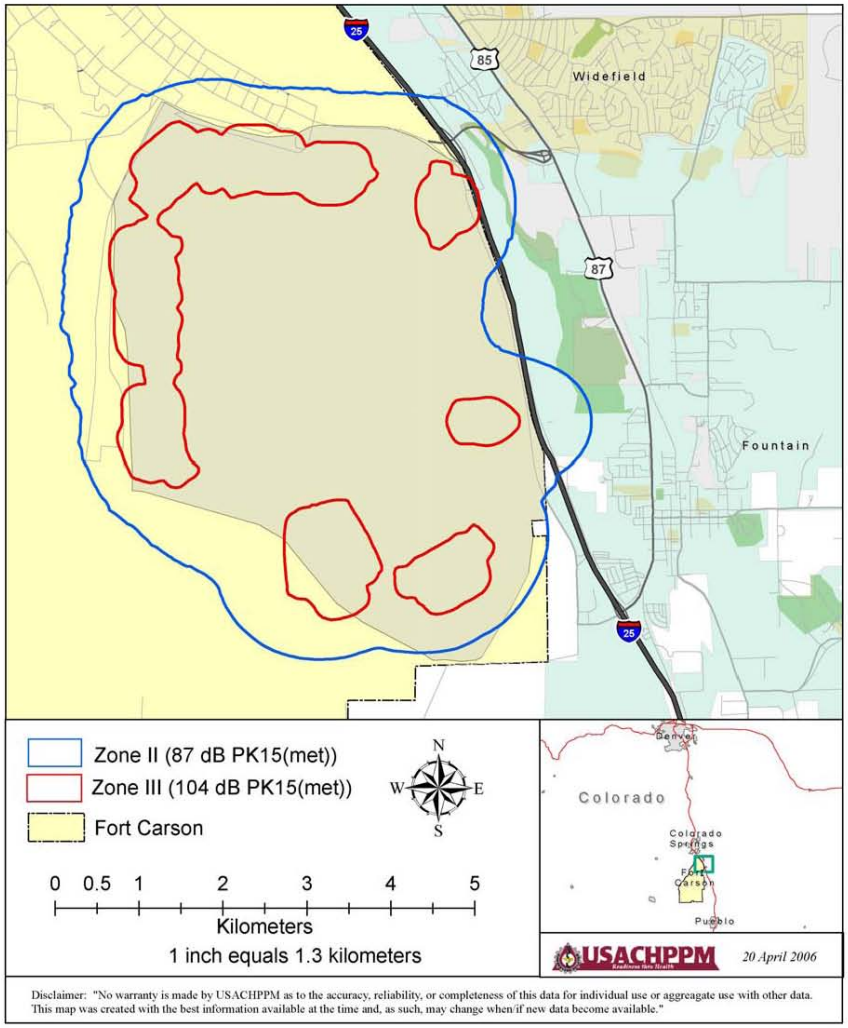
PINON CANYON MANEUVER SITE
PROPOSED HAND GRENADE RANGE
LARGE CALIBER PK15(met) NOISE CONTOURS



Enclosure 12

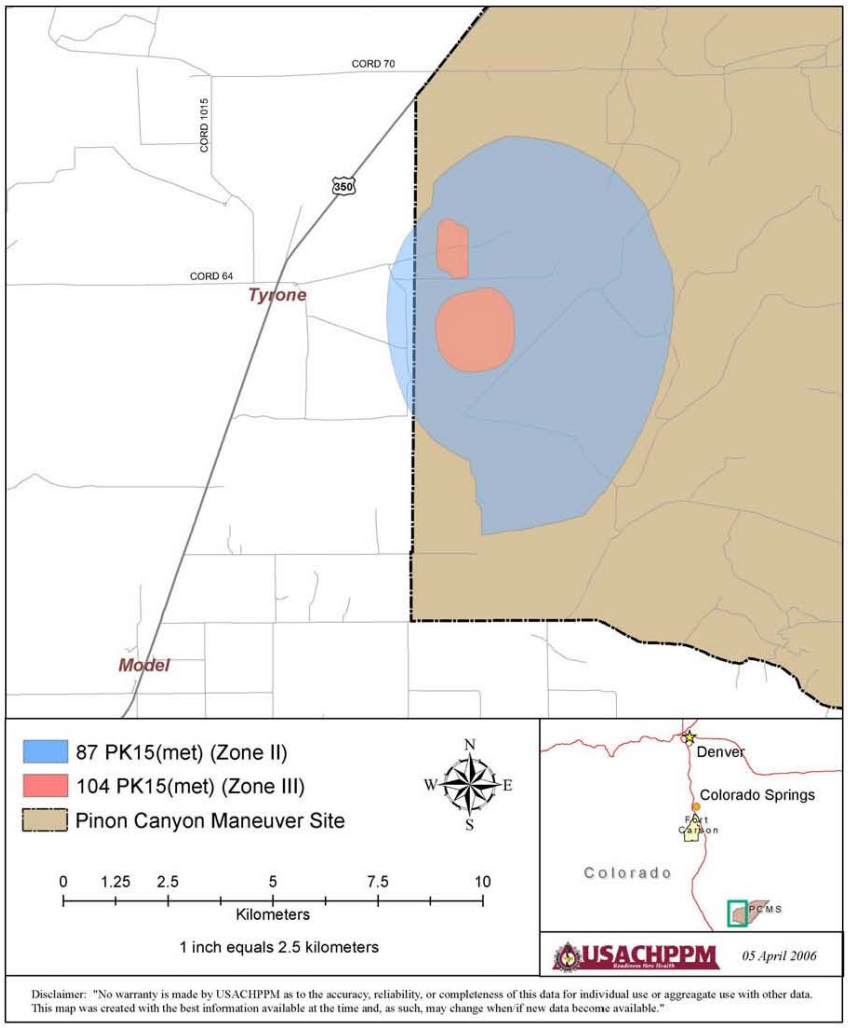
7479

FORT CARSON
SMALL CALIBER
OPERATIONAL NOISE CONTOURS



Enclosure 13

PINON CANYON MANEUVER SITE
SMALL CALIBER NOISE CONTOURS



Enclosure 14

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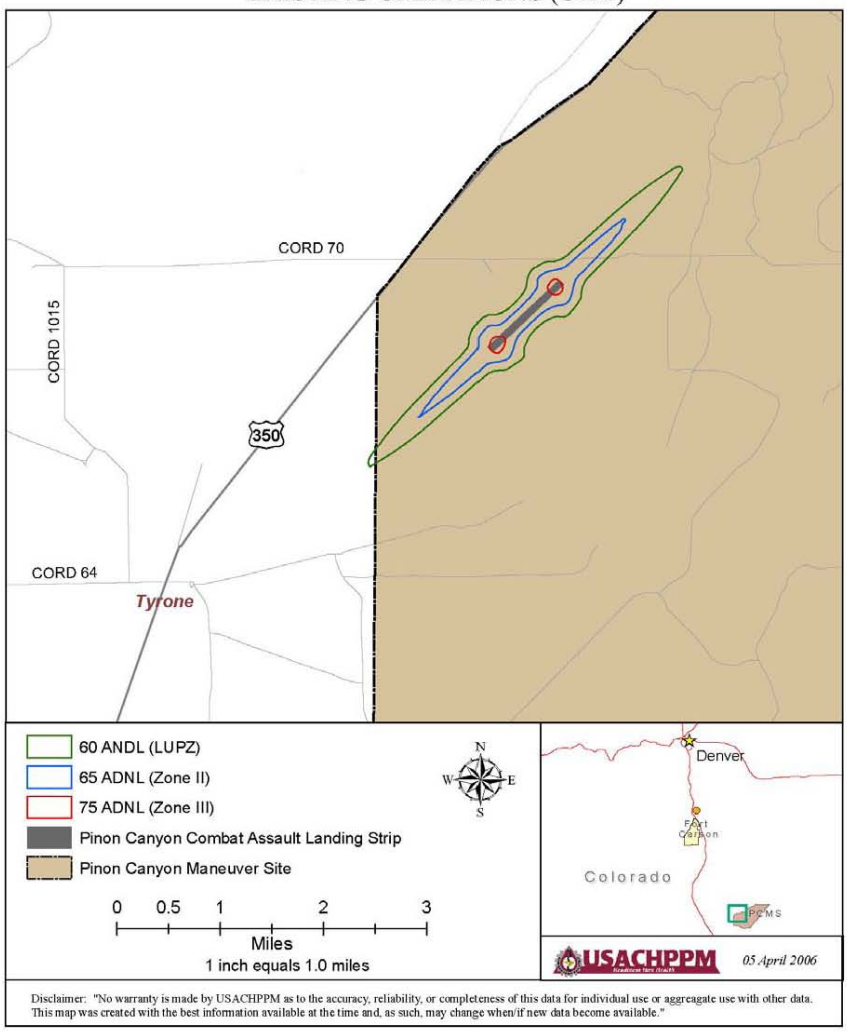
7481

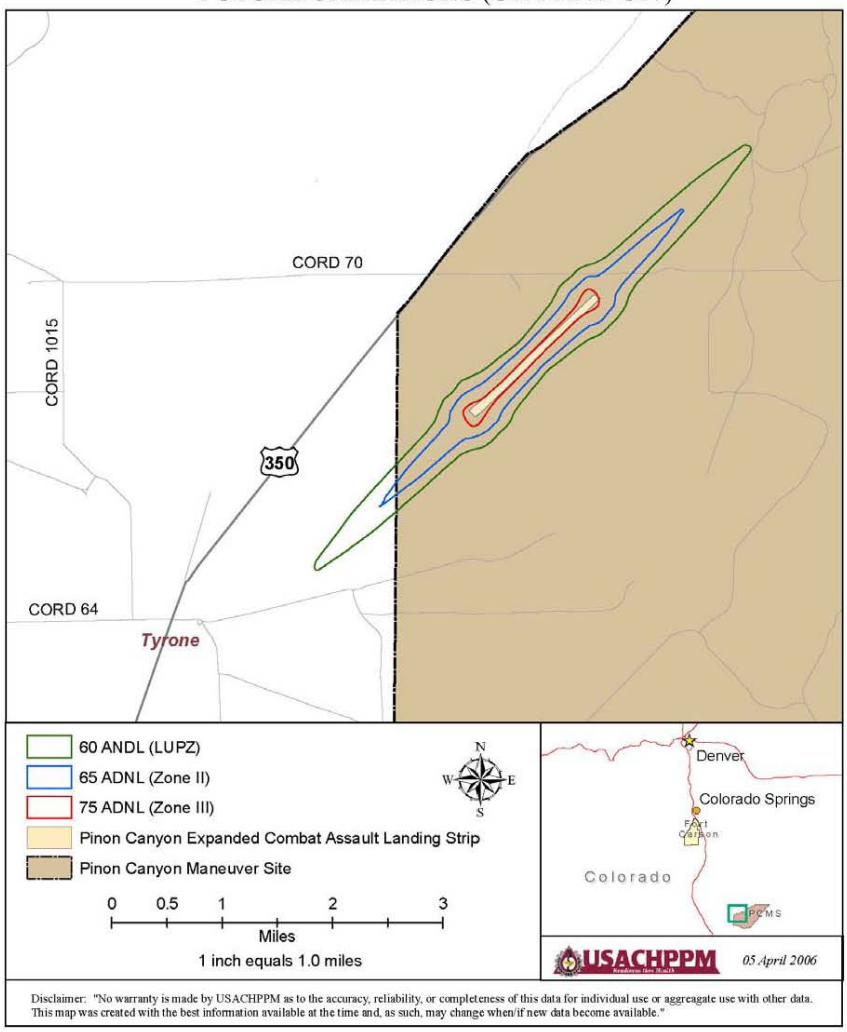
PINON CANYON MANEUVER SITE
COMBAT ASSAULT LANDING STRIP
EXISTING OPERATIONS (C130)



Enclosure 15

7482

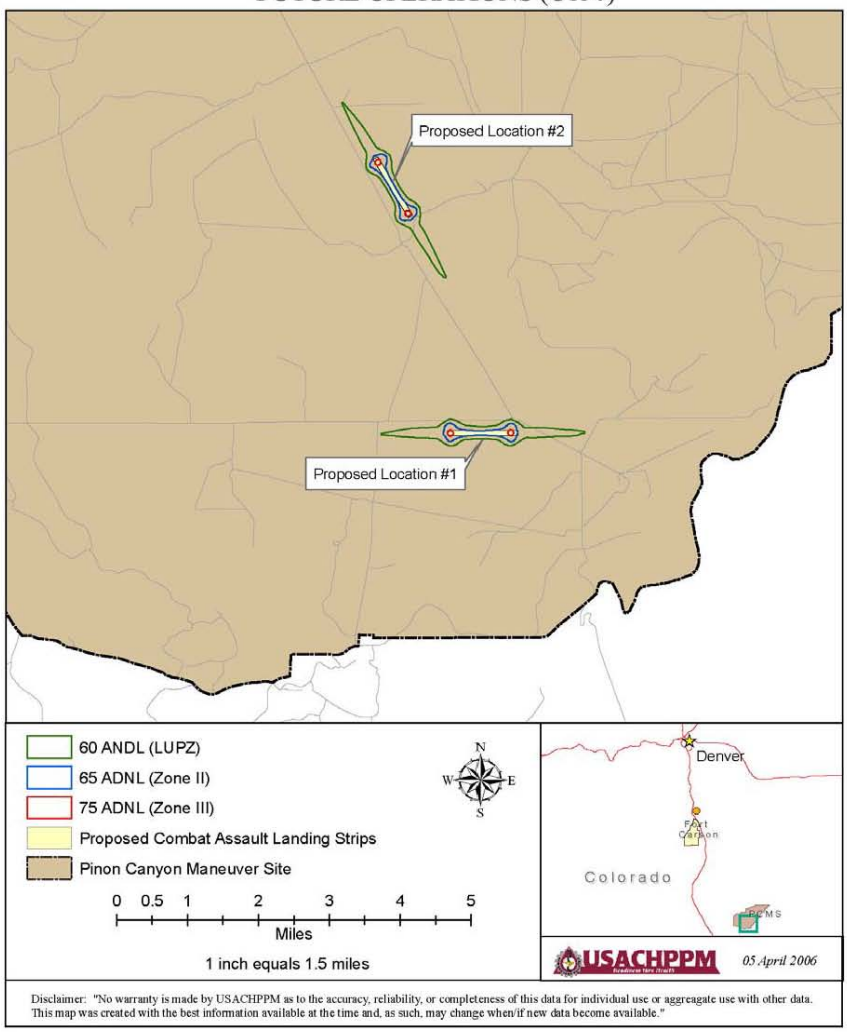
PINON CANYON MANEUVER SITE
COMBAT ASSAULT LANDING STRIP
FUTURE OPERATIONS (C130 AND C17)



Enclosure 16

7483

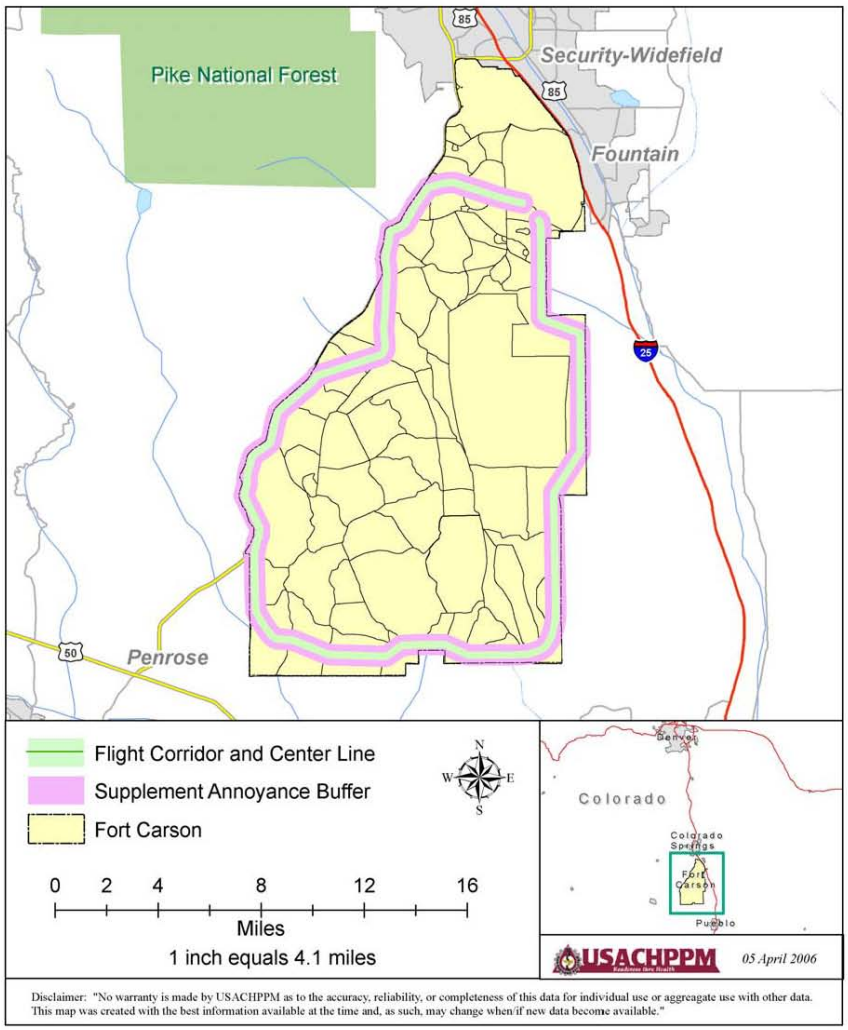
PINON CANYON MANEUVER SITE
PROPOSED COMBAT ASSAULT LANDING STRIPS
FUTURE OPERATIONS (C130)



Enclosure 17

7484

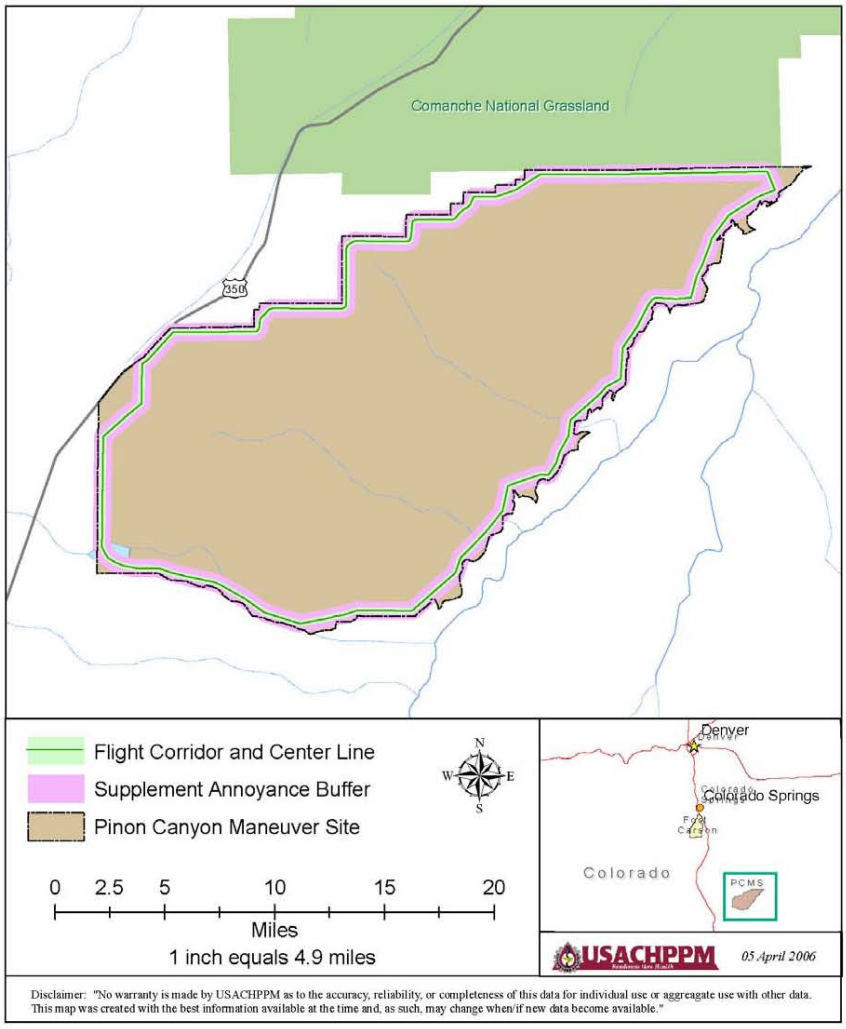
FORT CARSON
NAP OF THE EARTH FLIGHT CORRIDOR



Enclosure 18

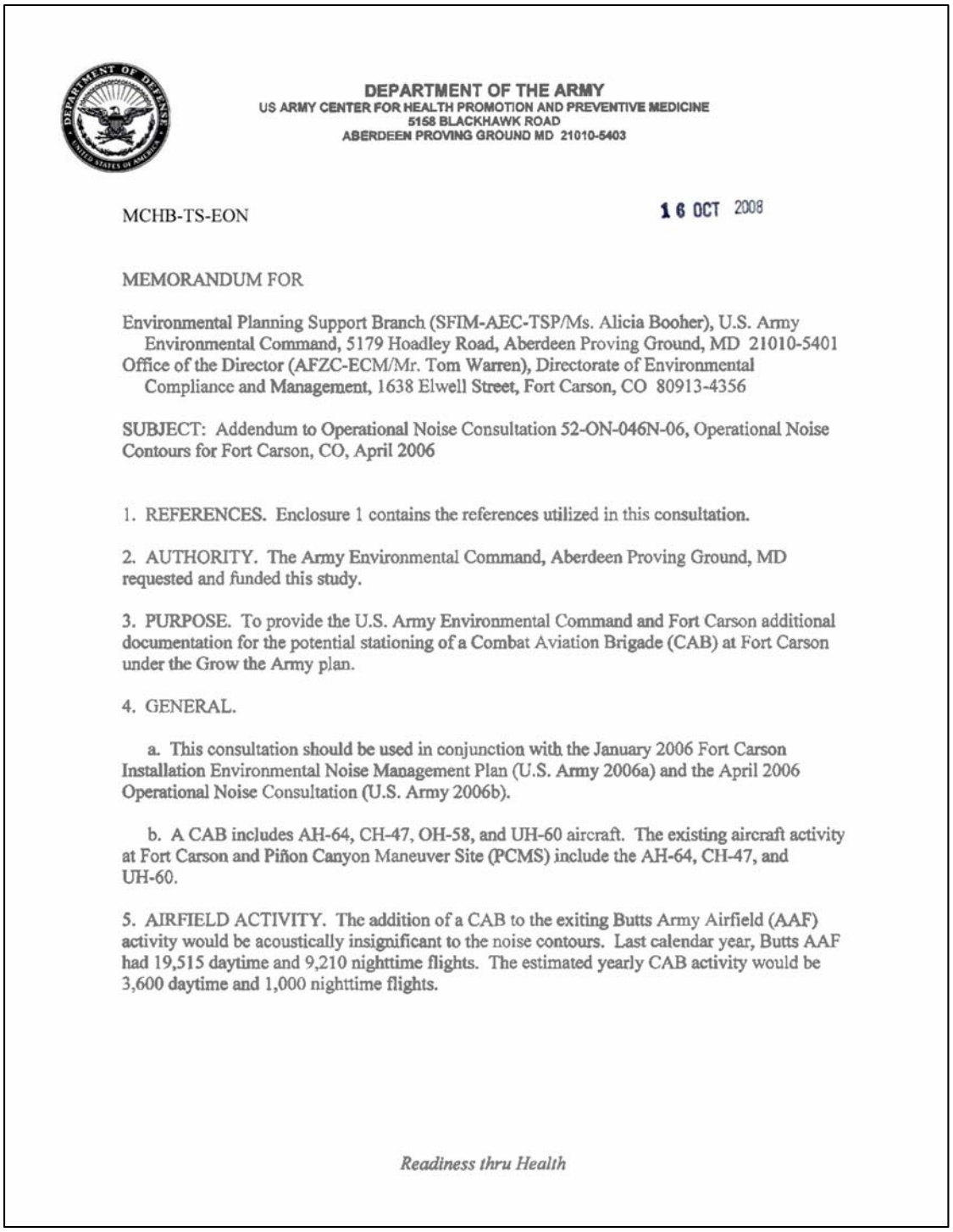
7485

PINON CANYON MANEUVER SITE
NAP OF THE EARTH FLIGHT CORRIDOR



Enclosure 19

7486 **Image 2. Fort Carson Operational Noise Consultation Addendum, 2008**



DEPARTMENT OF THE ARMY
US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-EON

16 OCT 2008

MEMORANDUM FOR

Environmental Planning Support Branch (SFIM-AEC-TSP/Ms. Alicia Booher), U.S. Army Environmental Command, 5179 Hoadley Road, Aberdeen Proving Ground, MD 21010-5401
Office of the Director (AFZC-ECM/Mr. Tom Warren), Directorate of Environmental Compliance and Management, 1638 Elwell Street, Fort Carson, CO 80913-4356

SUBJECT: Addendum to Operational Noise Consultation 52-ON-046N-06, Operational Noise Contours for Fort Carson, CO, April 2006

1. REFERENCES. Enclosure 1 contains the references utilized in this consultation.

2. AUTHORITY. The Army Environmental Command, Aberdeen Proving Ground, MD requested and funded this study.

3. PURPOSE. To provide the U.S. Army Environmental Command and Fort Carson additional documentation for the potential stationing of a Combat Aviation Brigade (CAB) at Fort Carson under the Grow the Army plan.

4. GENERAL.

a. This consultation should be used in conjunction with the January 2006 Fort Carson Installation Environmental Noise Management Plan (U.S. Army 2006a) and the April 2006 Operational Noise Consultation (U.S. Army 2006b).

b. A CAB includes AH-64, CH-47, OH-58, and UH-60 aircraft. The existing aircraft activity at Fort Carson and Piñon Canyon Maneuver Site (PCMS) include the AH-64, CH-47, and UH-60.

5. AIRFIELD ACTIVITY. The addition of a CAB to the exiting Butts Army Airfield (AAF) activity would be acoustically insignificant to the noise contours. Last calendar year, Butts AAF had 19,515 daytime and 9,210 nighttime flights. The estimated yearly CAB activity would be 3,600 daytime and 1,000 nighttime flights.

Readiness thru Health

Addendum to Operational Noise Consultation, No. 52-ON-046N-06, Fort Carson, CO, Apr 06

6. FLIGHT CORRIDORS.

a. Helicopters routinely fly from Fort Carson to PCMS. The area between Fort Carson and PCMS does not have established air corridors. The only restriction is that aircraft must maintain a minimum altitude of 700 feet AGL unless they are operating in a designated low-level or Nap-of-the Earth (NOE) training route.

b. Since the helicopter activity is dispersed over a vast region, the low number of aircraft operations utilizing the airspace will not generate A-weighted day-night average level (ADNL) noise contours of 65 dBA or greater. Yet, there is always the potential for individual aircraft overflights to generate complaints or annoy people when operating nearby.

c. Scandinavian Studies (Rylander 1974 and Rylander 1988) have found that a good predictor of annoyance at airfields with 50 to 200 operations per day is the maximum level of the 3 loudest events. The maximum noise levels for the aircraft utilized in the vicinity of Fort Carson and PCMS are listed in Table 1. These maximum levels are compared with the levels listed in Table 2 to determine the percent of the population that would consider itself highly annoyed. While levels may be lower in the flight corridors with fewer than 50 operations per day, it is a tool in providing some indication of the percent of people who might be annoyed by individual overflights.

TABLE 1. MAXIMUM NOISE LEVELS OF ROTARY WING AIRCRAFT.

Slant Distance (Feet)	Maximum Level, dBA			
	AH-64	CH-47D	OH-58	UH-60
50	102	102	99	100
100	98	98	93	94
200	92	92	87	88
500	83	84	79	80
700	80	81	76	77
1,500	73	74	70	69
2,000	70	71	65	66

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TABLE 2. PERCENTAGE OF POPULATION HIGHLY ANNOYED FROM AIRCRAFT NOISE (Rylander 1974).

Maximum, dBA	Percentage Highly Annoyed
70	5
75	13
80	20
85	28
90	35

d. There is one low-level flight training route, Route Hawk, between Fort Carson and PCMS that is used for NOE training. While utilizing Route Hawk, aircraft avoid all houses, buildings, people, livestock, and moving vehicles by a minimum slant range of ½ nautical miles (0.43 statute miles). Fort Carson may lower the typical altitude flown in Route Hawk from 100 feet above ground level (AGL) to 50 feet AGL. A detailed description of Route Hawk is contained in Enclosure 2.

e. The maximum levels in Table 1 are compared with the levels listed in Table 2 to determine the percent of the population that would consider itself highly annoyed. Based upon these levels, if aircraft in Route Hawk maintain a ½ nautical mile slant distance from buildings, people, livestock, and moving vehicles, the annoyance risk should remain low even if the allowed minimum flight altitude is lowered from 100 to 50 feet AGL within the route.

f. Helicopters flying from Fort Carson to PCMS, outside of Route Hawk, should maintain a slant distance 1,760 feet (0.3 statue miles) from buildings, people, livestock, and moving vehicles to reduce the potential for annoyance.

7. CONCLUSIONS.

a. LAND USE COMPATIBILITY. The addition of a CAB at Fort Carson would not create any additional Zone II noise contours at Butts AAF.

b. ANNOYANCE POTENTIAL. There is a potential that individual overflights of aircraft utilizing the airspace at Fort Carson and PCMS may cause annoyance to those living nearby. However, the low number of operations, minimum flight altitudes, and stand off distances imposed for NOE operations greatly minimize this potential.

8. RECOMMENDATIONS.

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

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Addendum to Operational Noise Consultation, No. 52-ON-046N, Fort Carson, CO, Apr 06

b. Although no Federal Law prohibits the Department of Defense training and testing activities from making noise, the Services have always tried to be good neighbors. Though there are currently few residences exposed to high noise levels, Fort Carson should continue to monitor both the noise environment and any proposed land use changes surrounding the installations.

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

10. The point of contact is Ms. Kristy Broska or Ms. Catherine Stewart, Operational Noise Program, USACHPPM, at DSN 584-3829, commercial (410) 436-3829, or e-mail: kristy.broska@us.army.mil or catherine.stewart@us.army.mil.

FOR THE COMMANDER:

2 Encls
as

DONALD F. ARCHIBALD
COL, MS
Director, Environmental Health Engineering

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REFERENCES

1. U.S. Air Force, 2005, SELCalc2 Noise Model, Wright-Patterson Air Force Base, OH.

2. U.S. Army, 2006a, U.S. Army Center for Health Promotion and Preventive Medicine, Fort Carson Installation Environmental Noise Management Plan, January 2006.

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

4. Rylander, et.al., 1974, "Re-Analysis of Aircraft Noise Annoyance Data Against the dBA Peak Concept," Journal of Sound and Vibration, Volume 36, pages 399 - 406.

5. Rylander and Bjorkman, 1988, "Maximum Noise Levels as Indicators of Biological Effects," Journal of Sound and Vibration, Volume 127, pages 555 - 563.

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Addendum to Operational Noise Consultation, No. 52-ON-046N-06, Fort Carson, CO, Apr 06

ROUTE HAWK OPERATIONAL DETAILS

1. Route Hawk is established for the purpose of conducting both day and night low-level tactical navigation operations. Route Hawk is 1 mile wide; ½ mile either side of centerline with a floor of 100 feet AGL and a ceiling of 300 feet AGL. For noise abatement, aircraft avoid all houses, buildings, people, livestock, and moving vehicles by a minimum slant range of ½ nautical miles (0.43 statute miles).

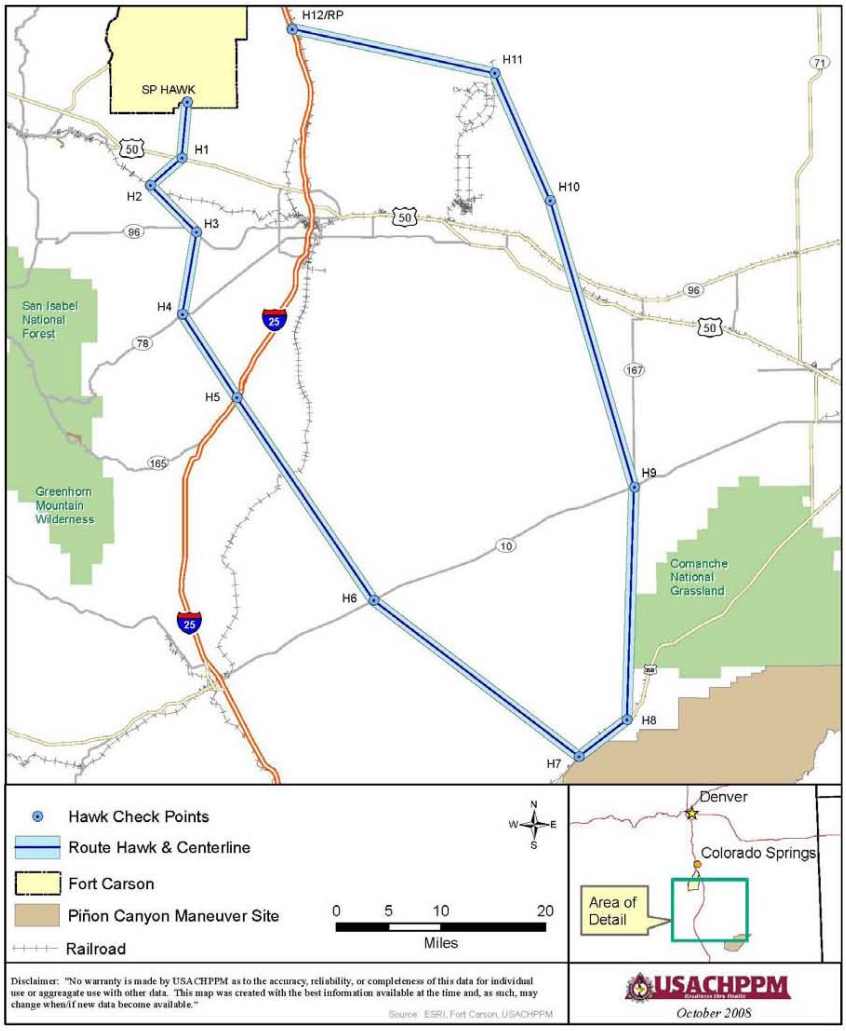
2. The figure depicts Route Hawk and is defined by the following check points:

a. SP Hawk, River Bridge vicinity EC 15365388
b. H-1, Highway Bridge vicinity EC 14544527
c. H-2, Railroad Bridge vicinity EC 09734105
d. H-3, Highway Bridge vicinity EC 16833383
e. H-4, Highway Bridge vicinity EC 14672121
f. H-5, I-25 Bridge vicinity EC 23040836
g. H-6, Highway T-Intersection vicinity EB 44167713
h. H-7, Railroad Bridge vicinity EB 75765310
i. H-8, Railroad Bridge vicinity EB 83205877
j. H-9, Highway T-Intersection vicinity EB 84299465
k. H-10, Road Triangle vicinity EC 71343870
l. H-11, Building on Railroad vicinity EC 62745833
m. H-12/RP, Railroad Bridge vicinity EC 31626513

Enclosure 2

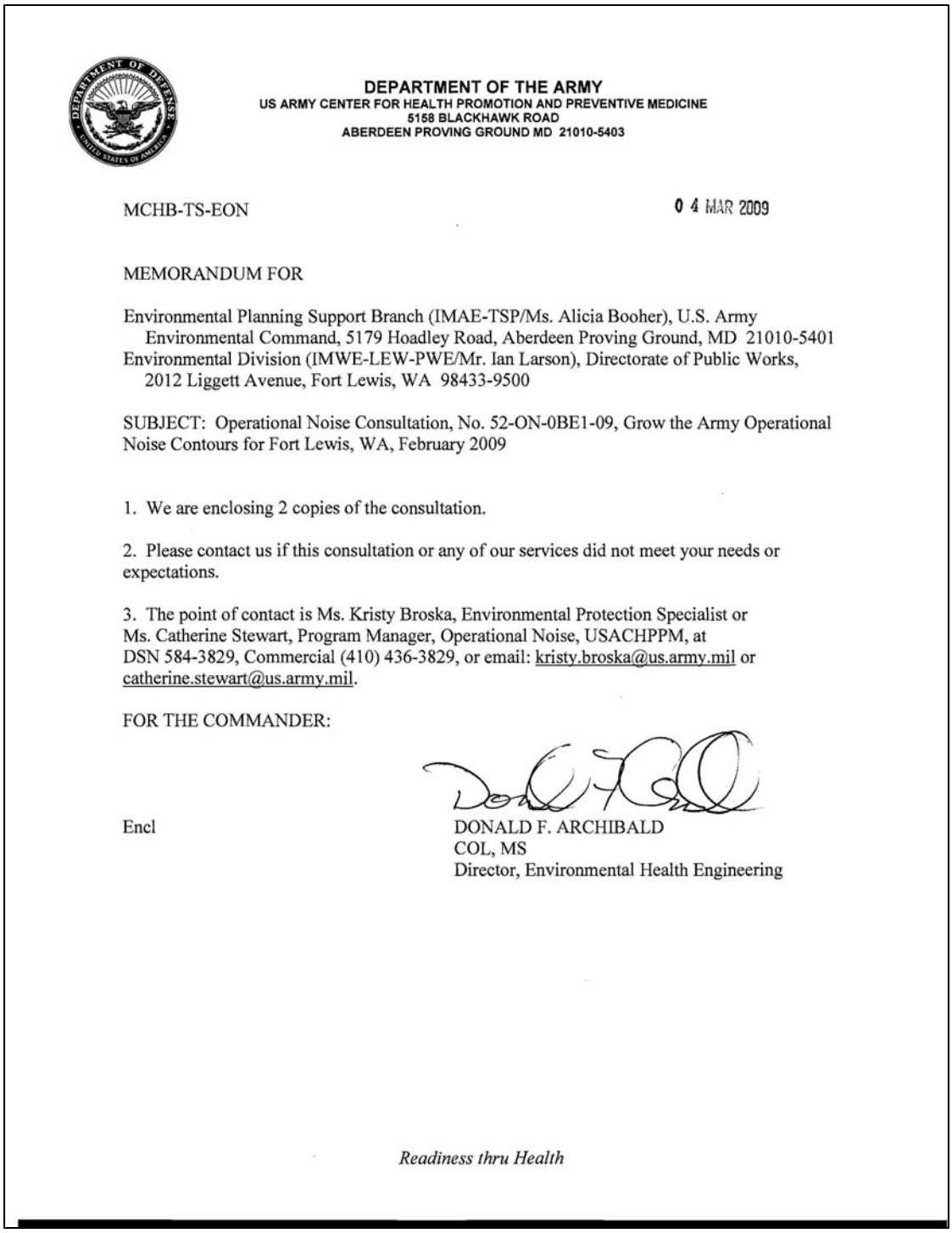
Addendum to Operational Noise Consultation, No. 52-ON-046N-06, Fort Carson, CO, Apr 06

FIGURE. ROUTE HAWK.



Page 2 of Enclosure 2

7493 **Image 3. JBLM (Fort Lewis) Operational Noise Consultation, 2009**



DEPARTMENT OF THE ARMY
US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

MCHB-TS-EON

04 MAR 2009

MEMORANDUM FOR

Environmental Planning Support Branch (IMAE-TSP/Ms. Alicia Booher), U.S. Army Environmental Command, 5179 Hoadley Road, Aberdeen Proving Ground, MD 21010-5401
Environmental Division (IMWE-LEW-PWE/Mr. Ian Larson), Directorate of Public Works, 2012 Liggett Avenue, Fort Lewis, WA 98433-9500

SUBJECT: Operational Noise Consultation, No. 52-ON-0BE1-09, Grow the Army Operational Noise Contours for Fort Lewis, WA, February 2009

1. We are enclosing 2 copies of the consultation.

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

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

FOR THE COMMANDER:

Encl

DONALD F. ARCHIBALD
COL, MS
Director, Environmental Health Engineering

Readiness thru Health

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U.S. Army Center for Health Promotion and Preventive Medicine

USCHPPM

OPERATIONAL NOISE CONSULTATION
NO. 52-ON-0BE1-09
GROW THE ARMY
OPERATIONAL NOISE CONTOURS
FORT LEWIS, WASHINGTON
FEBRUARY 2009

Distribution authorized to U.S. Government agencies only; protection of privileged information evaluating another command; Feb 09. Other requests for this document shall be referred to Environmental Division (IMWE-LEW-PWE/Mr. Ian Larson), Directorate of Public Works, 2012 Liggett Avenue, Fort Lewis, WA 98433-9500

Preventive Medicine Survey: 40-5fl

CHPPM FORM 433-E (MCHB-CS-IPD), OCT 03

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DEPARTMENT OF THE ARMY
US ARMY CENTER FOR HEALTH PROMOTION AND PREVENTIVE MEDICINE
5158 BLACKHAWK ROAD
ABERDEEN PROVING GROUND MD 21010-5403

EXECUTIVE SUMMARY
OPERATIONAL NOISE CONSULTATION
NO. 52-ON-0BE1-09
GROW THE ARMY
OPERATIONAL NOISE CONTOURS
FORT LEWIS, WASHINGTON
FEBRUARY 2009

1. PURPOSE. To provide Fort Lewis updated noise contours for the appropriate National Environmental Policy Act (NEPA) documentation for realignment under the Grow the Army Plan.

2. CONCLUSIONS.

a. The return to a full-up training component of 3 Stryker Brigade Combat Teams could result an in increase in the number of complaints received from residents who were previously unexposed or infrequently exposed to the noise from military training.

b. The additional activity of a Combat Service Support unit, Headquarters Unit, and a Combat Aviation Brigade would not have a perceptible impact upon the noise contours.

c. Although the local conditions at Fort Lewis require noise-sensitive land uses in Noise Zone II, on and off post, this type of land use is strongly discouraged.

3. RECOMMENDATIONS.

a. Include the information from this consultation in the appropriate Fort Lewis NEPA documentation.

b. Although no Federal Law prohibits Department of Defense training and testing activities from making noise, the Services have always tried to be good neighbors. Fort Lewis should continue with its Operational Noise Management Program including complaint management and monitoring both the noise environment and any proposed land use changes surrounding the installation as recommended in the Fort Lewis Installation Operational Noise Management Plan (U.S. Army 2005c).

Readiness thru Health

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Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA: Feb 09

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OPERATIONAL NOISE CONSULTATION
NO. 52-ON-0BE1-09
GROW THE ARMY
OPERATIONAL NOISE CONTOURS
FORT LEWIS, WASHINGTON
FEBRUARY 2009

1. REFERENCES. A list of the references used in this consultation is in Appendix A. A glossary of terms and abbreviations used are in Appendix B.

2. AUTHORITY. The Army Environmental Command, Aberdeen Proving Ground, MD funded this consultation.

3. PURPOSE. To provide Fort Lewis updated noise contours for the appropriate National Environmental Policy Act (NEPA) documentation for realignment under the Grow the Army Plan.

4. GENERAL. This consultation addresses the contemporary and projected operating environments at Fort Lewis.

a. The contemporary operating environment was based upon the activity utilized between December 2007 and November 2008. The operations include all of the units at Fort Lewis; including a Stryker Brigade Combat Team (SBCT), the Army Reserve, and Army National Guard.

b. The projected operating environment includes:

(1) Projected Operating Environment Scenario 1. Fort Lewis has 3 SBCTs assigned; however, only 1 SBCT has been at Fort Lewis in a full-up training mode at a time due to deployments. Scenario 1 reflects the contemporary operating environment with the full-up training mode of three SBCTs.

(2) Projected Operating Environment Scenario 2. Fort Lewis is programmed to receive a 1,000 soldier Combat Service Support (CSS) unit and a 1,900 soldier Headquarters (HQ) Unit. The additional weapons activity of the CSS and HQ unit would consist of small caliber (.50 caliber and below) operations only.

(3) Projected Operating Environment Scenario 3. Fort Lewis may also receive a Combat Aviation Brigade (CAB). The additional weapons activity of the CAB unit would consist of small caliber (.50 caliber and below) operations only. The stationing of a CAB would increase the rotary wing aircraft stationed at Gray Army Airfield (AAF).

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c. Appendix C contains the Noise Zone Descriptions and Land Use Guidelines used in this consultation.

5. NOISE CONTOURING PROCEDURES.

a. DEMOLITION AND LARGE CALIBER OPERATIONS.

(1) The noise simulation program used to assess demolition and large caliber weapons (20mm and greater) noise is the Blast Noise Impact Assessment (BNOISE2) program (U.S. Army 2003a). The BNOISE2 program requires operational data concerning the types of weapons fired from each range or firing point (including demolitions), the number and types of ammunition fired from each weapon, the location of targets for each range or firing point, and the amount of propellant used to reach the target. Existing records on range utilization along with reasonable assumptions are used as BNOISE2 inputs. The assessment period used to create the Fort Lewis C-weighted Day-Night average sound Level (CDNL) contours was 250 days.

(2) The inputs used to generate the demolition and large caliber noise contours for this consultation were created using the data summarized in Appendix D.

b. SMALL CALIBER OPERATIONS.

(1) The noise simulation program used to assess small caliber weapons (.50 caliber and below) noise is the Small Arms Range Noise Assessment Model (SARNAM) (U.S. Army 2003b). The SARNAM program requires operational data concerning types of weapons.

(2) The inputs used to generate the small caliber noise contours for this report were created using the data summarized in Appendix E. Due to the interior location of most of the small caliber ranges, only those ranges that could have an impact on the cantonment area or the civilian community were analyzed.

c. AVIATION OPERATIONS.

(1) AIRFIELD ACTIVITY.

(a) The noise simulation program used to assess aircraft noise is NoiseMap/Baseops (U.S. Air Force 2005a). The NoiseMap/Baseops program requires operational data concerning type of aircraft, altitude, flight tracks, and number of operations. The metric used to create the airfield noise contours is the A-weighted Day-Night average Level (ADNL). The ADNL is based upon a daily average.

(b) The inputs used to generate the airfield activity noise contours for Gray AAF were created using the data summarized in Appendix G.

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(2) FLIGHT CORRIDORS.

(a) The low number of aircraft operations utilizing the flight corridors/routes will not generate ADNL noise contours. Yet, there is the potential for aircraft to cause annoyance leading to noise complaints while entering/exiting the airspace.

(b) Scandinavian Studies (Rylander 1974 and Rylander 1988) have found that a good predictor of annoyance at airfields with 50 to 200 operations per day is the maximum level of the 3 loudest events. The maximum noise levels for the aircraft utilized in the flight corridors are listed in Table 1. These maximum levels are compared with the levels listed in Table 2 to determine the percent of the population that would consider itself highly annoyed. While levels may be lower in the flight corridors with fewer than 50 operations per day, it is a tool in providing some indication of the percent of people who might be annoyed.

TABLE 1. MAXIMUM NOISE LEVELS OF ROTARY WING AIRCRAFT.

Slant Distance (feet)	Maximum Level, dBA			
	AH-64	CH-47	OH-58	UH-60
100	98	98	93	94
200	92	92	87	88
500	83	84	79	80
1,000	77	78	72	73
1,500	73	74	68	69
2,000	70	71	65	66
2,500	67	68	62	63

TABLE 2. PERCENTAGE OF POPULATION HIGHLY ANNOYED FROM AIRCRAFT NOISE. (Rylander 1974)

Maximum, dBA	Percentage Highly Annoyed
70	5
75	13
80	20
85	28
90	35

(c) Flight corridors vary in width depending upon the type of aircraft and type of activity. Generally, the aircraft fly the centerline of the flight corridor, but at times may fly anywhere within the corridor. Thus, to account for possible annoyance, the area of possible noise impact must be expanded based on the actual aircraft location within the corridor. For example, if a flight corridor is 1 mile in width for an AH-64 at 500 feet above ground level (AGL), to account for variation in aircraft location, a buffer should be delineated that would account for activity

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anywhere within the corridor, not just along the centerline. The SELCalc2 Program (U.S. Air Force 2005b) was used to calculate how far from the outer edges of the flight corridor the maximum A-weighted (dBA) noise level would be above 70, based on the altitude, ground track distance, and slant distance of the aircraft. Based on these results, a buffer area of 1/3 mile was added to each side of the corridor. This gives an adequate buffer to reduce possible annoyance. Appendix G contains a graphic description of AGL, ground track, and slant distance.

6. DEMOLITION AND LARGE CALIBER NOISE CONTOUR MODELING RESULTS.

a. DEMOLITION AND LARGE CALIBER WEAPONS CDNL NOISE CONTOURS.

(1) Contemporary Operating Environment.

(a) Figure 1 contains the demolition and large caliber weapons contours for the Contemporary Operating Environment at Fort Lewis. These contours were developed using the Contemporary Operating Environment table (Table D-1) in Appendix D.

(b) The Land Use Planning Zone (LUPZ) 57 decibel (dB) CDNL extends approximately 4,500 meters beyond the western boundary, towards the town of Lacey; approximately 1,500 meters into the DuPont area; approximately 4,000 meters beyond the southern boundary, encompassing the towns of North Yelm and Yelm; and approximately 5,500 meters beyond the southeastern boundary. The Noise Zone II (62 dB CDNL) extends beyond the western boundary approximately 1,000 meters encompassing the Nisqually Indian Community; less than 500 meters beyond the southern boundary, into North Yelm; and beyond the southeastern boundary 2,000 meters, encompassing the town of Roy. The Noise Zone III (70 dB CDNL) contour extends beyond the western boundary less 500 meters into the Nisqually Indian Community and approximately 200 meters beyond the southeastern boundary near the town of Roy.

(2) Projected Operating Environment. Under the Projected Scenarios 2 and 3, there was no difference between the projected ammunition expenditure or operational data for large caliber and demolition activity. Therefore, only one contour is presented in this consultation for the Projected Operating Environment.

(a) Figure 2 contains the demolition and large caliber weapons contours for the Projected Operating Environment (Scenario 1) at Fort Lewis. These contours were developed using the Projected Operating Environment table (Table E-2) in Appendix D.

(b) The LUPZ (57 dB CDNL) extends approximately 7,000 meters beyond the boundary in most directions. The Noise Zone II (62 dB CDNL) extends beyond the western boundary approximately 2,000 meters encompassing the Nisqually Indian Community; less than 1,500 meters beyond the southern boundary, into Yelm; and beyond the southeastern boundary 3,000 meters, encompassing the town of Roy. The Noise Zone III (70 dB CDNL) contour extends

beyond the western boundary approximately 1,000 meters into the Nisqually Indian Community and approximately 400 meters beyond the southeastern boundary near the town of Roy. The increased size is driven by the full-up training mode of 3 SBCTs. The increased size is a cumulative effect and is not driven by one particular weapon or activity.

(3) Land Use Compatibility. Current land use in the Zone II area consists of residential, scattered residential, and undeveloped areas. The lands in the Zone III areas are undeveloped. Although the local conditions at Fort Lewis require noise-sensitive land uses in Noise Zone II, on and off post, this type of land use is strongly discouraged in Army Regulation 200-1 (AR 200-1) (U.S. Army 2007). Noise-sensitive land uses are acceptable within the LUPZ and the Noise Zone I, normally not recommend in Noise Zone II, and not recommended in Noise Zone III.

(4) Grenade Launchers. The Inert 40mm grenade activity is not included in the noise contours. The launch noise of a 40mm grenade launcher is relatively low. Additionally, the other large caliber activity occurring overpowers the launch noise of the grenade launchers.

(5) Simulator Activity. Simulator noise levels will vary depending on the type (i.e. artillery, ground burst, and grenade) but typically the variation will be limited to a few decibels. Due to the nature of simulator activity occurring in a training area, the activity was not included in the noises contours unless it occurred at a fixed firing point or range. For simulator activity occurring at a non-fixed location, Table 3 gives an approximation of noise levels that would be anticipated under average weather conditions and under weather conditions that favor sound propagation. Based on the levels below, it can be inferred that under average weather conditions, the risk of complaints will be low beyond 500 meters. Under bad weather conditions, such as during a temperature inversion, or when there is a strong wind blowing in the direction of the receiver, the distance increases to approximately 800 meters.

TABLE 3. PREDICTED PEAK NOISE LEVELS FOR TYPICAL ARMY SIMULATORS.

Distance from source (meters)	Average Weather Conditions (PK50(met))	Bad Weather Conditions (Pk15(met))
200	125	130
300	120	127
400	117	123
500	114	121
600	111	118
700	109	116
800	107	114

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Operational Noise Consultation, No. 52-ON-0B1E-09, Fort Lewis, WA; Feb 09

FIGURE 1.
FORT LEWIS - CONTEMPORARY OPERATING ENVIRONMENT
DEMOLITION AND LARGE CALIBER OPERATIONAL NOISE CONTOURS

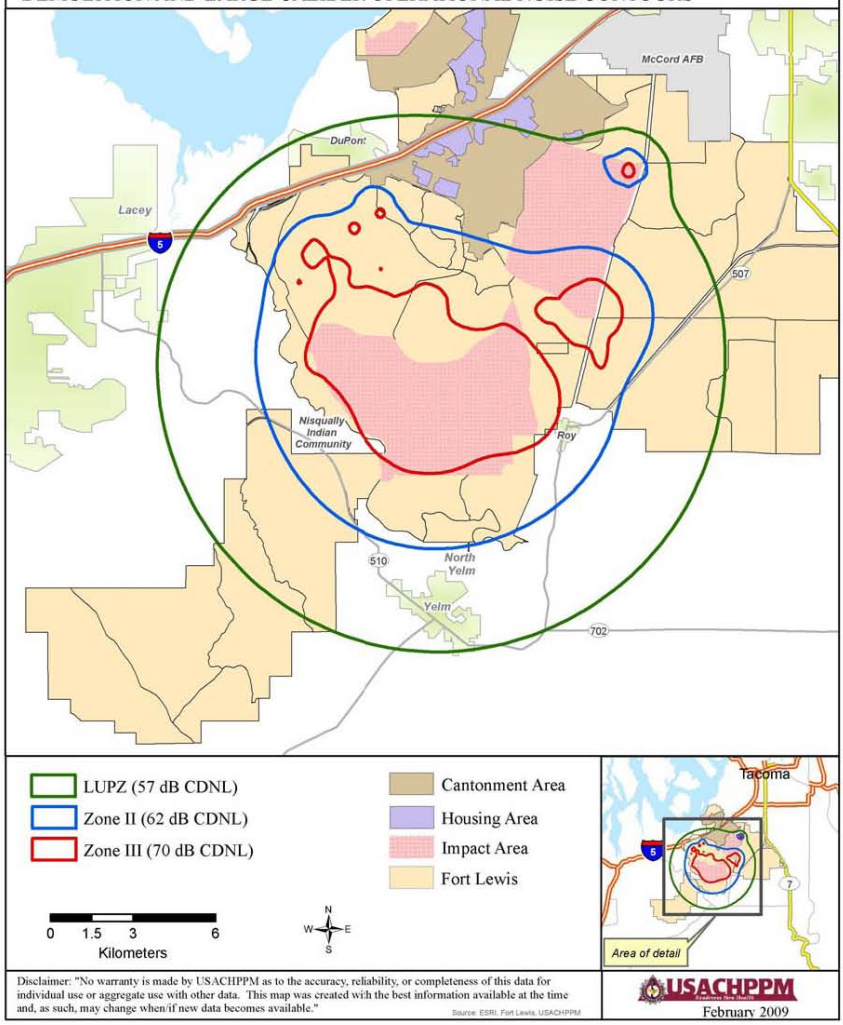

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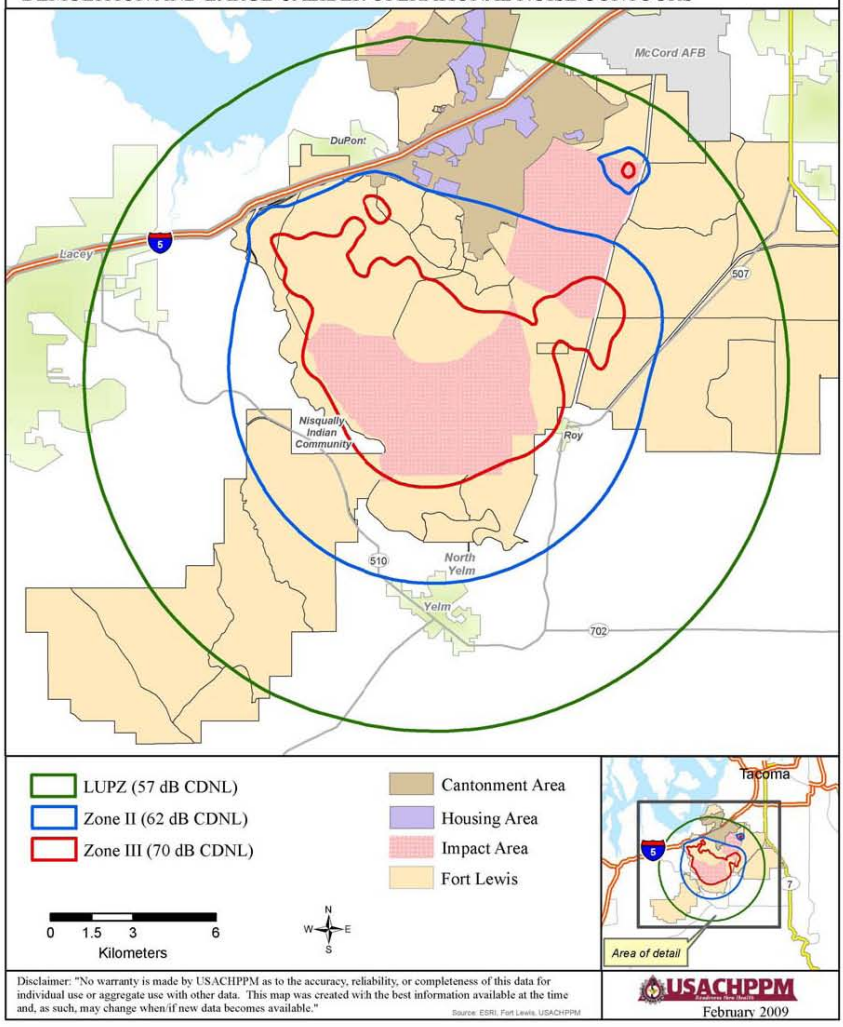
FIGURE 2.
FORT LEWIS - PROJECTED OPERATING ENVIRONMENT
DEMOLITION AND LARGE CALIBER OPERATIONAL NOISE CONTOURS



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b. DEMOLITION AND LARGE CALIBER WEAPONS PK15(met) NOISE CONTOURS. To predict the risk of complaints for demolition and large caliber weapon operations, PK15(met) contours were developed. Appendix C contains the complaint risk guidelines.

(1) Complaint Risk for the Contemporary Operating Environment. Figure 3 contains the complaint risk contours for the demolition and large caliber weapons for the contemporary operating environment at Fort Lewis. The moderate complaint risk contour (PK15(met) 115 dB) extends beyond much of the boundary. The high complaint risk contour (PK15(met) 130 dB) extends beyond the boundary into the Nisqually Indian Community and near the town of Roy.

(2) Complaint Risk for the Projected Operating Environment. Figure 4 contains the complaint risk contours for the demolition and large caliber weapons for the projected operating environment, including the High Mobility Artillery Rocket System (HIMARS) firing. The weapon and ammunition types utilized are identical between the contemporary and projected operating environments except for the addition of the HIMARS. The HIMARS firing increased the area of complaint risk contours near the firing point.

(3) Complaint Risk for the Projected HIMARS Firing. Figure 5 contains the complaint risk contours for the projected HIMARS firing. The moderate complaint risk contour (PK15(met) 115 dB) extends beyond the Fort Lewis boundary. The high complaint risk contour (PK15(met) 130 dB) extends beyond the western boundary approximately 500 meters.

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Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

FIGURE 3.
FORT LEWIS CONTEMPORARY OPERATING ENVIRONMENT
COMPLAINT RISK CONTOURS FOR DEMOLITION & LARGE CALIBER OPERATIONS

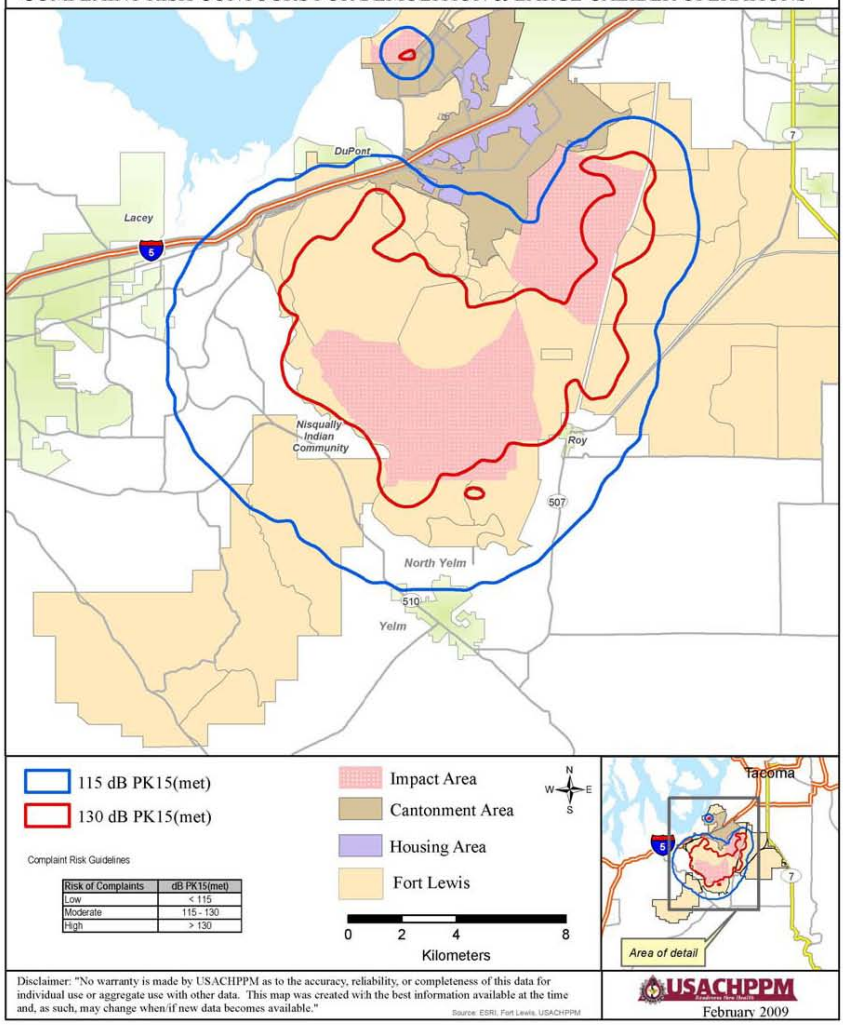

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FIGURE 4.
FORT LEWIS PROJECTED OPERATING ENVIRONMENT
COMPLAINT RISK CONTOURS FOR DEMOLITION & LARGE CALIBER OPERATIONS

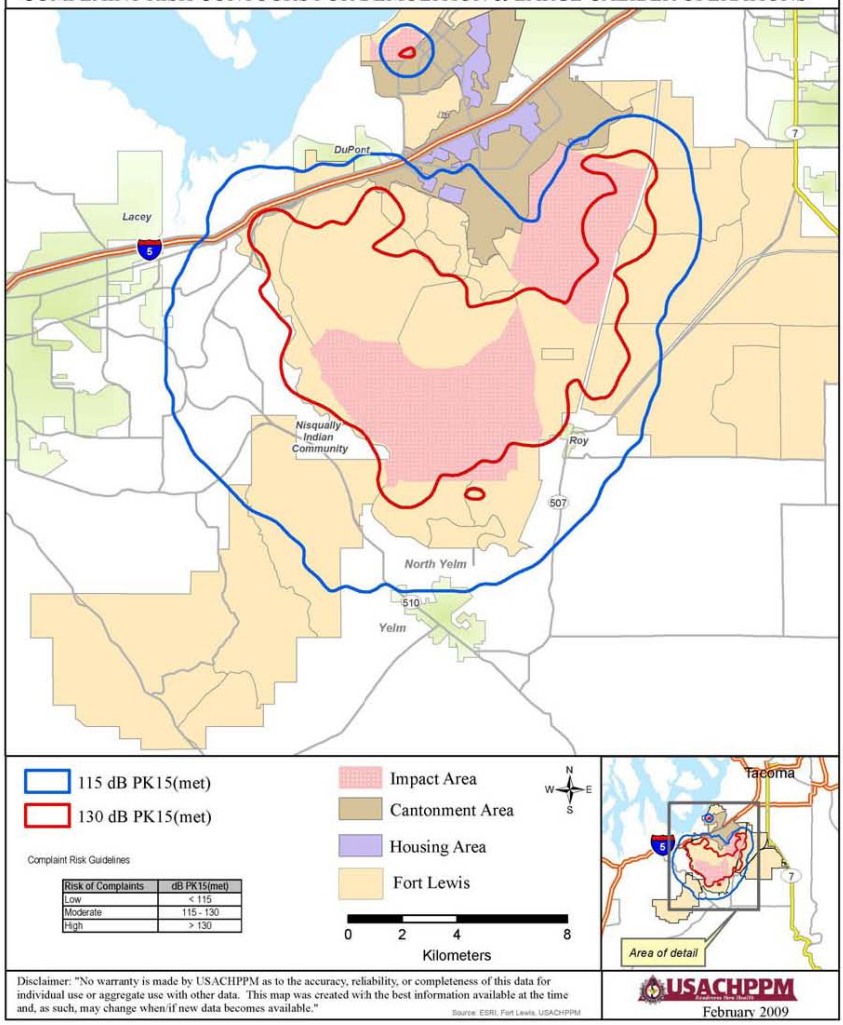

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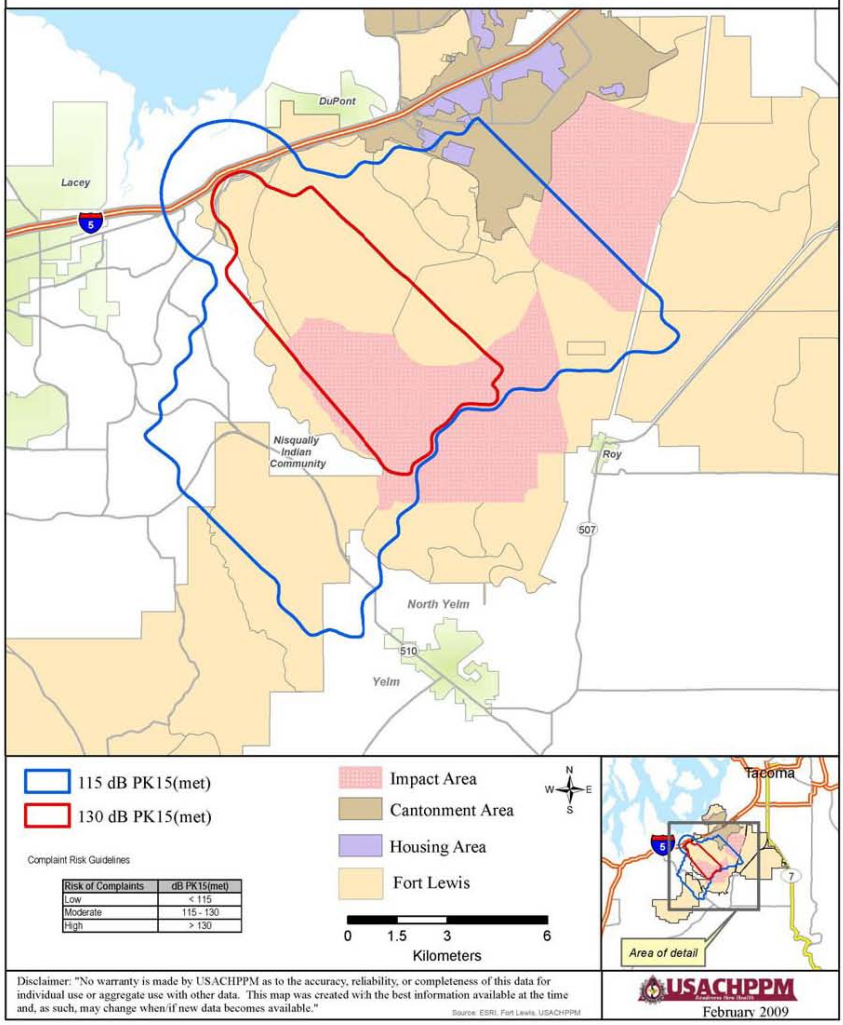
FIGURE 5.
FORT LEWIS COMPLAINT RISK CONTOURS FOR THE HIMARS (Inert) FIRING



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7. SMALL CALIBER WEAPONS NOISE CONTOURS MODELING RESULTS.

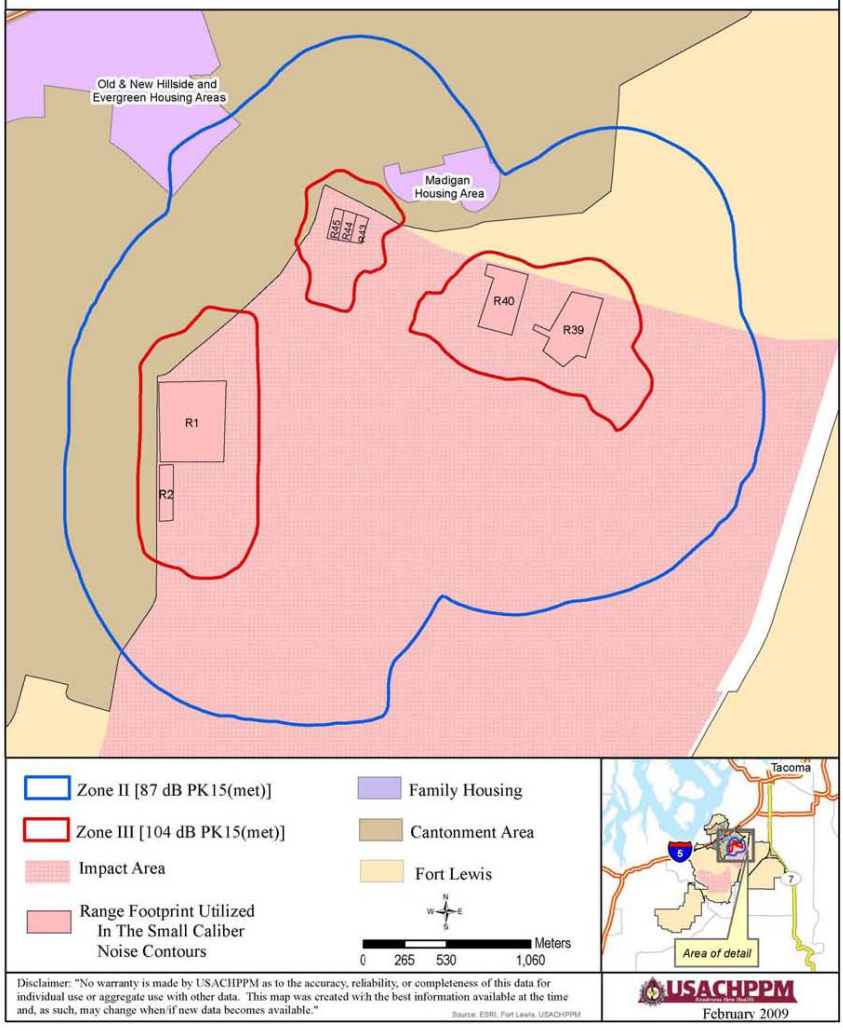
a. The contours for small arms operations at Fort Lewis were created using PK15(met) as prescribed in AR 200-1 (U.S. Army 2007). The contours show the predicted peak levels for individual rounds (metric term is PK15(met)). Since the contours are based on peak levels rather than a cumulative or average level, the size of the contours will not change if the number of rounds fired increases. Therefore, it was only necessary to develop one small arms noise contour. The noise contours were created using the data from the table in Appendix F.

b. The noise contours for small arms operations near the Fort Lewis cantonment area are shown in Figure 6. The Zone II [PK15(met) 87 dB] noise contour extends into the Evergreen, Hillside, and Madigan housing areas. The Zone III [PK15(met) 104 dB] noise contours do not extend into the housing areas.

c. Although the local conditions at Fort Lewis require noise-sensitive land uses in Noise Zone II, on post, this type of land use is strongly discouraged in AR 200-1 (U.S. Army 2007). Noise-sensitive land uses are acceptable within the LUPZ and the Noise Zone I, normally not recommend in Noise Zone II, and not recommended in Noise Zone III. However, if the community determines that land in Noise Zone II (attributable to small arms) areas must be used for residential purposes, then the noise level reduction (NLR) features of 25 to 30 dB should be incorporated into the design and construction of new buildings to mitigate interior noise levels. Normal construction can be expected to provide a NLR of 20 dB.

Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

FIGURE 6.
FORT LEWIS SMALL CALIBER OPERATIONAL NOISE CONTOURS



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8. AVIATION NOISE CONTOURS MODELING RESULTS.

a. GRAY AAF ADNL NOISE CONTOURS.

(1) CONTEMPORARY OPERATING ENVIRONMENT. The noise contours for the airfield in the Contemporary Operating Environment are shown in Figure 7. These contours were developed using Table F-1 in Appendix F. The LUPZ (60 ADNL) and Zone II (65 ADNL) noise contours do not extend into the family housing areas or beyond the installation boundary. The low number of operations does not produce a Zone III (75 ADNL) noise contour.

(2) PROJECTED OPERATING ENVIRONMENT. The noise contours for the airfields in the projected operating environment are shown in Figure 8. These contours were developed using Table F-2 in Appendix F. The additional airfield activity reflects the possibility of fielding a CAB. Due to the small increase in operations, the projected operating noise contours are indistinguishable from the contemporary operating contours.

b. FLIGHT CORRIDORS.

(1) The Fort Lewis flight corridor generally follows the installation boundary avoiding areas that are off limits to aviation or that have altitude restrictions. There may be multiple aircraft or multiple types of aircraft in the corridor at one time. Since the buffers are based on maximum levels, the number of aircraft in the corridor at one time does not affect the size of the annoyance potential buffer.

(2) The supplemental buffer width is based upon achieving maximum values of 70 dBA and/or a 5 percent complaint risk or more at the receiver. The distance in Table 4 is added to the flight corridor width to account for annoyance created by activity taking place at the edge of the flight corridors. The supplemental buffers *can not* account for any terrain features.

TABLE 4. SUPPLEMENTAL BUFFER TO REDUCE ANNOYANCE POTENTIAL.

Aircraft Type	Supplemental Buffer Width to Flight Corridor 2,000 feet AGL and below
AH-64	1/3 Mile
CH-47	1/3 Mile
OH-58	1/4 Mile
UH-60	1/4 Mile

c. ANNOYANCE POTENTIAL. There is the potential for aircraft utilizing the Fort Lewis airspace to cause annoyance.

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Operational Noise Study, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

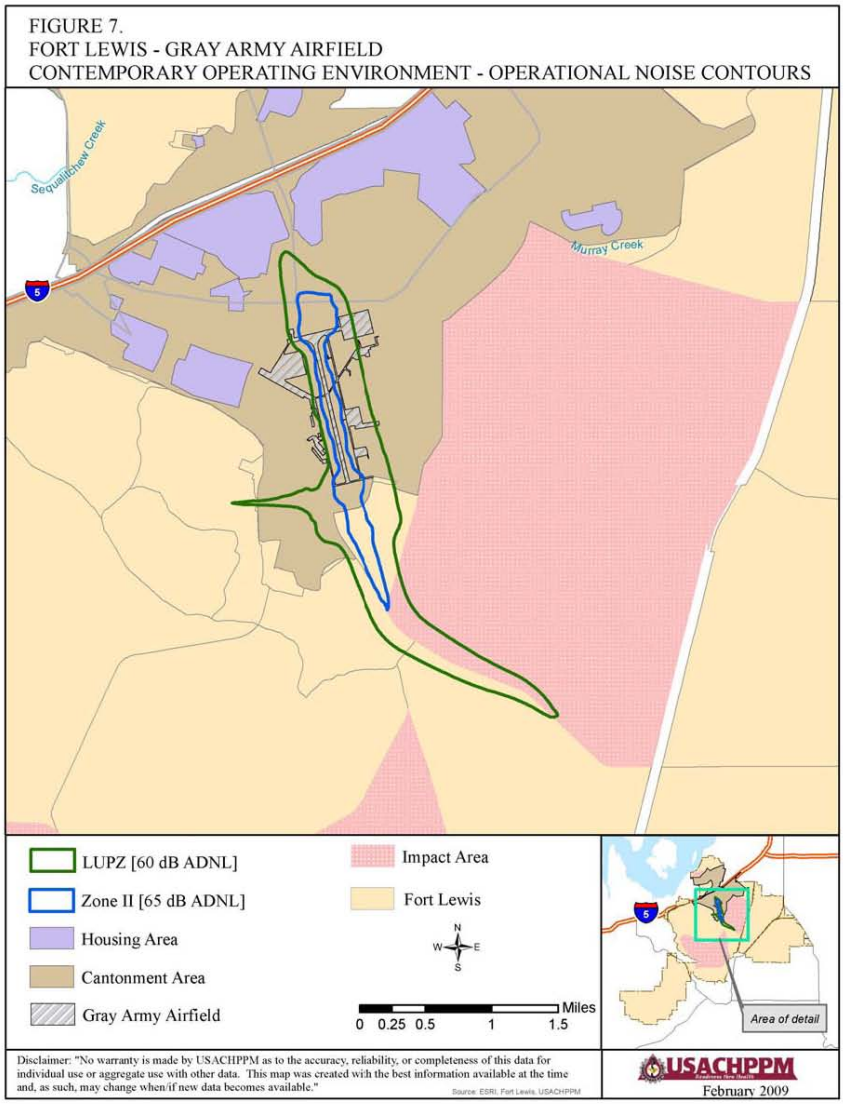

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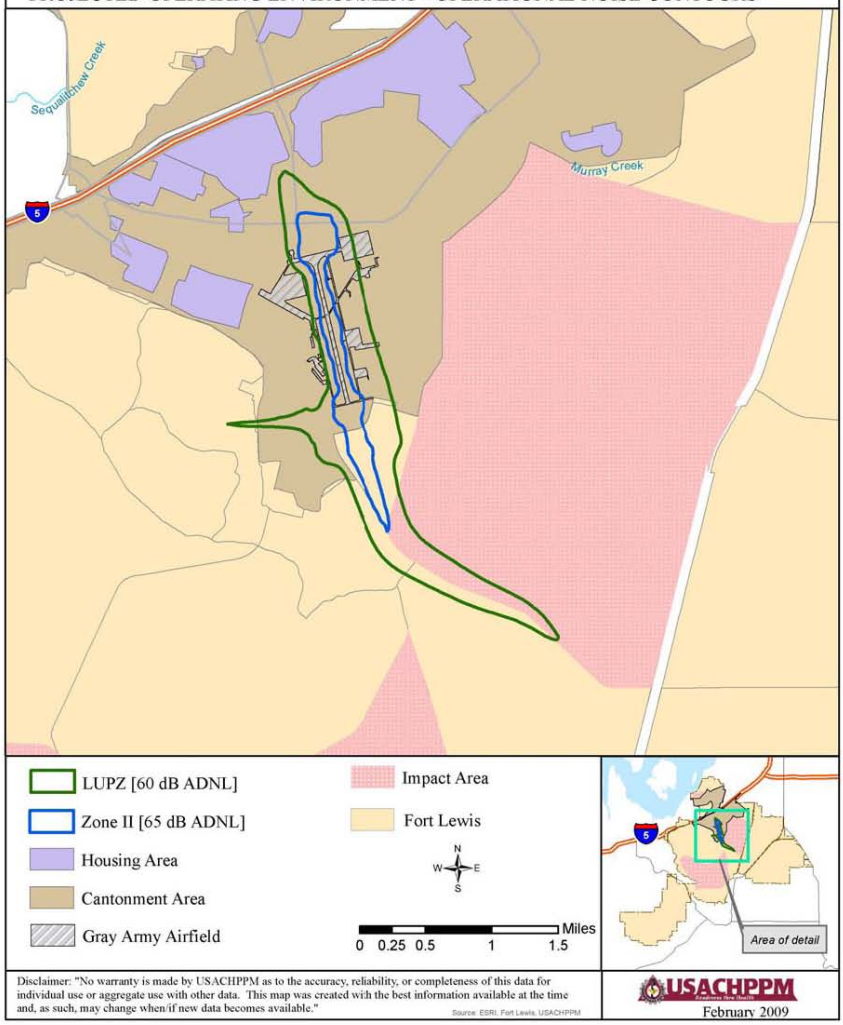
FIGURE 8.
FORT LEWIS - GRAY ARMY AIRFIELD
PROJECTED OPERATING ENVIRONMENT - OPERATIONAL NOISE CONTOURS



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9. CONCLUSIONS.

a. The return to a full-up training component of 3 SBCTs could result in an increase in the number of complaints received from residents who were previously unexposed or infrequently exposed to the noise from military training.

b. The additional activity of the CSS, HQ, and/or CAB would not have a perceptible impact upon the noise contours.

c. Although the local conditions at Fort Lewis require noise-sensitive land uses in Noise Zone II, on and off post, this type of land use is strongly discouraged.

10. RECOMMENDATIONS.

a. Include the information from this consultation in the appropriate Fort Lewis NEPA documentation.

b. Although no Federal Law prohibits the Department of Defense training and testing activities from making noise, the Services have always tried to be good neighbors. Fort Lewis should continue with its Operational Noise Management Program including complaint management, and monitoring both the noise environment and any proposed land use changes surrounding the installation as recommended in the Fort Lewis Installation Operational Noise Management Plan (U.S. Army 2005c).

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APPENDIX A

REFERENCES

1. U.S. Air Force, 2005a, NOISEMAP/BASEOPS, Wright-Patterson Air Force Base, OH.

2. U.S. Air Force, 2005b, SELcalc Noise Model, Wright-Patterson Air Force Base, OH.

3. U.S. Army, 2003a, U.S. Army Construction Engineering Research Laboratories, BNOISE2 Computer Model, Version 1.3.2003-07-03.

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

5. U.S. Army, 2005c, U.S. Army Center for Health Promotion and Preventive Medicine, Fort Lewis Installation Operational Noise Management Plan, September 2005.

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

7. Rylander, et.al., 1974, "Re-Analysis of Aircraft Noise Annoyance Data Against the dBA Peak Concept," Journal of Sound and Vibration, Volume 36, pages 399 - 406.

8. Rylander and Bjorkman, 1988, "Maximum Noise Levels as Indicators of Biological Effects," Journal of Sound and Vibration, Volume 127, pages 555 - 563.

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APPENDIX B

GLOSSARY OF TERMS, ACRONYMS & ABBREVIATIONS

B-1. GLOSSARY OF TERMS.

Above Ground Level – distance of the aircraft above the ground.

A-Weighted Sound Level - The ear does not respond equally to sounds of all frequencies, but is less efficient at low and high frequencies than it is at medium or speech range frequencies. Thus, to obtain a single number representing the sound pressure level of a noise containing a wide range of frequencies in a manner approximating the response of the ear, it is necessary to reduce, or weight, the effects of the low and high frequencies with respect to the medium frequencies. Thus, the low and high frequencies are de-emphasized with the A-weighting.

The A-scale sound level is a quantity, in decibels, read from a standard sound-level meter with A-weighting circuitry. The A-scale weighting discriminates against the lower frequencies according to a relationship approximating the auditory sensitivity of the human ear. The A-scale sound level measures approximately the relative "noisiness" or "annoyance" of many common sounds.

Average Sound Level - the mean-squared sound exposure level of all events occurring in a stated time interval, plus ten times the common logarithm of the quotient formed by the number of events in the time interval, divided by the duration of the time interval in seconds.

C-Weighted Sound Level - a quantity, in decibels, read from a standard sound level meter with C-weighting circuitry. The C-scale incorporates slight de-emphasis of the low and high portion of the audible frequency spectrum.

Day-Night Average Sound Level (DNL) - the 24-hour average frequency-weighted sound level, in decibels, from midnight to midnight, obtained after addition of 10 decibels to sound levels in the night from midnight up to 7 a.m. and from 10 p.m. to midnight (0000 up to 0700 and 2200 up to 2400 hours).

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

Ground Track Distance – the distance between the receiver and the point on the Earth at which the aircraft is directly overhead.

Land Use Planning Zone (LUPZ) - DNL noise contours represent an annual average that separates the Noise Zone II from the Noise Zone I.

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Noise – any sound without value.

Noise Level Reduction (NLR) – the difference, in decibels, between the A-weighted sound level outside a building and the A-weighted sound level inside a designated room in the building. The NLR is dependent upon the transmission loss characteristics of the building surfaces exposed to an exterior noise source, the particular noise characteristics of the exterior noise source and the acoustic properties of the designated room in the building.

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

Slant Distance – the line of sight distance between the receiver and the aircraft. The slant distance is the hypotenuse of the triangle represented by the altitude AGL of the aircraft and the distance between the receiver and the aircraft's ground track distance.

B-2. GLOSSARY OF ACRONYMS AND ABBREVIATIONS.

AAF	Army Airfield
ADNL	A-weighted Day-Night Level
AGL	Above Ground Level
BNOISE2	Blast Noise Impact Assessment
CDNL	C-weighted Day-Night Level
CSS	Combat Support Service
dB	Decibels
dBA	Decibels, A-weighted
DNL	Day-Night Average Sound Level
HQ	Headquarters
LUPZ	Land Use Planning Zone
MAX	Maximum sound level
NEPA	National Environmental Policy Act
NLR	Noise Level Reduction
PK15(met)	Unweighted Peak, 15% Metric
SARNAM	Small Arms Range Noise Assessment Model
SBCT	Stryker Brigade Combat Team
USACERL	U.S. Army Construction Engineering Research Laboratories
USACHPPM	U.S. Army Center for Health Promotion and Preventive Medicine

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APPENDIX C

NOISE ZONE DESCRIPTIONS

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

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

C-3. Day Night Level (DNL). DNL is used to describe the cumulative or total noise exposure during a prescribed time period. DNL is the energy average noise level calculated with a 10 decibel penalty for operations occurring between 2200 and 0700.

C-4. PK15(met) Noise Contour Description. PK15(met) is the peak sound level, factoring in the statistical variations caused by weather, that is likely to be exceeded only 15 percent of the time (i.e., 85 percent certainty that sound will be within this range). This "85 percent solution" gives the installation and the community a means to consider the areas impacted by training noise without putting stipulations on land that would only receive high sound levels under infrequent weather conditions that greatly favor sound propagation. PK15(met) does not take the duration or the number of events into consideration, so the size of the contours will remain the same regardless of the number of events.

C-5. Land Use Guidelines.

a. The Noise Zone III consists of the area around the noise source in which the level is greater than 70 decibels (dB) C-weighted day-night average sound level (CDNL) for large caliber weapons, greater than 104 PK15(met) for small caliber weapons, or greater than 75 dB A-weighted DNL. Noise-sensitive land uses (such as housing, schools, and medical facilities) are not recommended within Noise Zone III.

b. The Noise Zone II consists of an area where the DNL is between 62 and 70 dB CDNL for large caliber weapons, between 87 and 104 PK15(met) for small caliber weapons, or between 65 and 75 dB ADNL. Land within Noise Zone II should normally be limited to activities such as industrial, manufacturing, transportation, and resource production. However, if the community determines that land in Noise Zone II (attributable to small arms or aviation) areas must be used for residential purposes, then noise level reduction (NLR) features of 25 to 30 decibels should be incorporated into the design and construction of *new* buildings to mitigate noise levels. For large caliber weapons, NLR features can not adequately mitigate the low-frequency component of large caliber weapons noise.

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c. The Noise Zone I includes all areas around a noise source in which the day-night sound level is less than 62 dB CDNL for large caliber weapons, less than 87 PK15(met) for small arms weapons, or less than 65 dB ANDL. This area is usually acceptable for all types of land use activities.

d. The Land Use Planning Zone (LUPZ) DNL noise contours (57 dB CDNL or 60 dB ADNL) represent an annual average that separates the Noise Zone II from the Noise Zone I. Taking all operations that occur over the year and dividing by the number of training days generates the contours. But, the noise environment varies daily and seasonally because operations are not consistent through all 365 days of the year. In addition, the Federal Interagency Committee on Urban Noise document states "Localities, when evaluating the application of these guidelines to specific situations, may have different concerns or goals to consider." For residential land uses, depending on attitudes and other factors, a 57 CDNL or 60 ADNL may be considered by the public as an impact on the community environment. In order to provide a planning tool that could be used to account for days of higher than average operations and possible annoyance, the LUPZ contour is being included on the noise contour maps.

e. See Table C-1 for land use guidelines.

Table C-1. LAND USE PLANNING GUIDELINES.

Noise Zones	Large-Caliber Weapons (CDNL)	Aircraft Activity (ADNL)	Small Arms PK15(met)
LUPZ	57 – 62	60-65	NA
I	< 62	<65	<87
II	62 - 70	65-75	87-104
III	> 70	>75	>104

C-6. Complaint Risk Guidelines for Demolition Activity and Large Caliber Weapons.

a. The peak contours show the expected level that one would get on a sound level meter when a weapon was fired. Since weather conditions can cause noise levels to vary significantly from day to day (even from hour to hour) the programs calculate a range of peak levels. By plotting the PK15(met) contour, events would be expected to fall within the contours 85 percent of the time. This metric represents the best available scientific quantification for assessing the complaint risk of large caliber weapons ranges. The complaint risk areas for PK15(met) noise contours are defined as follows:

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(1) The high risk of complaint consists of the area around the noise source in which PK15(met) is greater than 130 dB for large caliber weapons.

(2) The moderate risk of complaint area consists of where the PK15(met) noise contour is between 115 dB and 130 dB for large caliber weapons.

(3) The low risk of complaint area is where the PK15(met) noise level is less than 115 dB for large caliber weapons.

b. See Table C-2 for complaint risk guidelines.

Table C-2. COMPLAINT RISK GUIDELINES.

	Large Caliber Weapons
Risk of Complaints	PK15(met) dB Noise Contour
Low	< 115
Moderate	115 - 130
High	> 130

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APPENDIX D

DEMOLITION AND LARGE CALIBER WEAPON EXPENDITURE
FORT LEWIS, WASHINGTON

1. Under the Grow the Army Plan, Fort Lewis requested the analysis of the contemporary and projected operating environments.

a. The contemporary operating environment was based upon the activity utilized between December 2007 and November 2008. The operations included all of the units at Fort Lewis; a Stryker Brigade Combat Team (SBCT), the Army Reserve, and Army National Guard.

b. The projected operating environments included:

- Scenario 1. Fort Lewis has three SBCTs assigned; however, only one SBCT has been at Fort Lewis in a full-up training mode at a time due to deployments. The Projected Operational Environment reflects the contemporary operating environment with the full-up training mode of three SBCTs.

- Scenario 2. Fort Lewis is programmed to receive a 1,000 soldier Combat Service Support (CSS) unit and a 1,900 soldier Headquarters (HQ) Unit. The additional weapons activity of the CSS and HQ unit would consist of small caliber (.50 caliber and below) operations only.

- Scenario 3. Fort Lewis may also receive a Combat Aviation Brigade (CAB). The additional weapons activity of the CAB would consist of small caliber (.50 caliber and below) operations only.

2. Under the Projected Scenarios 2 and 3 there was no difference between the projected ammunition expenditure or operational data for large caliber and demolition activity (20mm and greater). Therefore, only one contour is presented in this consultation for the Projected Operating Environment.

3. Table D-1 lists the quantity of ammunition expended by type and range facility for the Contemporary Operating Environment. Table D-2 lists the quantity of ammunition expended by type and range facility for the Projected Operating Environment.

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TABLE D-1. DEMOLITION AND LARGE CALIBER WEAPONS: CONTEMPORARY OPERATING ENVIRONMENT.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)
Firing Point 2511B	155mm Howitzer, HE	309	77
	155mm Howitzer, Inert	8	33
Firing Point 2512	60mm Mortar, HE	36	9
	81mm Mortar, HE	35	9
	120mm Mortar, HE	76	19
	120mm Mortar, Inert	2	0
	155mm Howitzer, HE	476	119
	155mm Howitzer, Inert	74	22
Firing Point 3409	155mm Howitzer, HE	747	197
	165mm Cannon, HE	120	30
Training Area 04	120mm Mortar, HE	11	17
	120mm Mortar, Inert	512	216
	155mm Howitzer, HE	1471	368
	155mm Howitzer, Inert	28	113
	165mm Cannon, HE	37	9
Training Area 06	105mm Howitzer, HE	80	20
	155mm Howitzer, HE	424	106
Training Area 12	155mm Howitzer, HE	110	28
Mortar Point 01	60mm Mortar, Inert	13	3
	81mm Mortar, HE	131	32
	81mm Mortar, Inert	17	4
	120mm Mortar, HE	16	4
	120mm Mortar, Inert	16	4
Mortar Point 02	81mm Mortar, HE	3	1
Mortar Point 04	60mm Mortar, HE	62	0
	60mm Mortar, Inert	74	18
	81mm Mortar, HE	7	2
	81mm Mortar, Inert	70	17
	120mm Mortar, HE	288	72
	120mm Mortar, Inert	296	110
Mortar Point 05	60mm Mortar, Inert	205	51
	81mm Mortar, HE	138	32
	81mm Mortar, Inert	312	76
	120mm Mortar, Inert	990	278
Mortar Point 06	60mm Mortar, HE	854	214
	60mm Mortar, Inert	19	82
	81mm Mortar, HE	21	5
	81mm Mortar, Inert	177	30
	120mm Mortar, HE	145	37
	120mm Mortar, Inert	693	303
Mortar Point 07	60mm Mortar, HE	385	96
	60mm Mortar, Inert	343	101
	81mm Mortar, HE	316	80
	81mm Mortar, Inert	140	82
	120mm Mortar, HE	416	104
	120mm Mortar, Inert	1885	615

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

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TABLE D-1. DEMOLITION AND LARGE CALIBER WEAPONS: CONTEMPORARY OPERATING ENVIRONMENT, CONT'D.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)
Mortar Point 08	60mm Mortar, HE	58	14
	60mm Mortar, Inert	24	6
	81mm Mortar, HE	24	6
	120mm Mortar, HE	168	42
	120mm Mortar, Inert	700	248
Mortar Point 10	60mm Mortar, HE	67	17
	81mm Mortar, HE	80	19
	120mm Mortar, HE	38	10
	120mm Mortar, Inert	136	34
Mortar Point 11	AT4 Rocket, HE	80	20
	60mm Mortar, HE	19	5
	60mm Mortar, Inert	448	112
	81mm Mortar, HE	102	25
	81mm Mortar, Inert	115	25
	120mm Mortar, HE	659	169
	120mm Mortar, Inert	1594	654
Mortar Point 12	60mm Mortar, HE	96	24
	60mm Mortar, Inert	132	160
	81mm Mortar, Inert	82	47
	120mm Mortar, HE	392	88
	120mm Mortar, Inert	1048	476
Mortar Point 13	60mm Mortar, HE	13	3
	60mm Mortar, Inert	26	6
	81mm Mortar, HE	153	39
	81mm Mortar, Inert	14	34
NBC1	Simulator, Hand Grenade, M116	50	0
OP02	TOW Missile, Inert	17	0
	TOW Missle, HE	6	0
	155mm Howitzer, HE	188	46
REGENBURG	Demolition, C4, 1.25 lbs	2	0
	Simulator, Hand Grenade, M116	61	0
	Simulator, Ground Burst, M115A2	19	0
Range 24	Hand Grenade, Fragmenting	31293	0
Range 25 Maze	Demoliton, Sheet, 38 ft p/roll, 0.5 lbs p/ft	5	0
Range 28	Simulator, Ground Burst, M115A2	3	0
	Simulator, Hand Grenade, M116	3	0
Range 31	Demolition, C4, 1.25 lbs	2	0
	Simulator, Hand Grenade, M116	96	0
	Simulator, Main Tank Gun, M30	4	0
Range 36	Hand Grenade, Fragmenting	821	0
	Simulator, Hand Grenade, M116	19	0
Range 39	Simulator, Ground Burst, M115A2	185	0
	Simulator, Hand Grenade, M116	207	0
	Simulator, Main Tank Gun, M30	125	0

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

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TABLE D-1. DEMOLITION AND LARGE CALIBER WEAPONS: CONTEMPORARY OPERATING ENVIRONMENT, CONT'D.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)
Range 40	Simulator, Anti-Tank/GM/Rocket Launch, M22	15	0
	Simulator, Ground Burst, M115A2	15	0
Range 52	RAAWS, Inert	6	16
	60mm Mortar, HE	24	6
	81mm Mortar, HE	113	29
	120mm Mortar, HE	70	18
Range 58	Demolition, C4, 1.25 lbs	341	85
	Mine, Claymore M18A1	39	9
	Shape Charge, 40 lbs	4	1
	155mm Howitzer, HE	1	0
Range 59	AT4 Rocket, HE	1716	255
	LAW Rocket, HE	137	15
	SMAW, HE	41	5
	RAAWS, Inert	142	38
	RPG-7, HE	13	1
	Hand Grenade, Fragmenting	13	1
Range 60	RAAWS, Inert	62	15
Range 62	Demolition, C4, 1.25 lbs	320	80
	Demoliton, Sheet, 38 ft p/roll, 0.5 lbs p/ft	1	0
Range 72	Simulator, Hand Grenade, M116	30	0
Range 74	60mm Mortar, HE	101	25
	60mm Mortar, Inert	467	117
	81mm Mortar, HE	160	39
	81mm Mortar, Inert	69	5
	120mm Mortar, HE	101	15
	120mm Mortar, Inert	173	43
	155mm Howitzer, HE	15	4
	155mm Howitzer, Inert	8	0
	Demolition, C4, 1.25 lbs	3	1
Range 75	RAAWS, Inert	5	0
	60mm Mortar, HE	19	5
	60mm Mortar, Inert	78	20
	81mm Mortar, Inert	21	5
	120mm Mortar, HE	56	14
	120mm Mortar, Inert	90	44
	105mm Howitzer, HE	3	1
	Hand Grenade, Fragmenting	2	1
	Simulator, Hand Grenade, M116	7	0
	Simulator, Ground Burst, M115A2	7	0
Range 76	RAAWS, Inert	23	5
	60mm Mortar, HE	38	10
	60mm Mortar, Inert	27	26
	120mm Mortar, HE	21	5
	Simulator, Ground Burst, M115A2	23	0

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

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TABLE D-1. DEMOLITION AND LARGE CALIBER WEAPONS: CONTEMPORARY OPERATING ENVIRONMENT, CONT'D.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)
Range 79	AT4 Rocket, HE	50	13
	Dragon Misssile, HE	9	3
	RAAWS, HE	11	3
	40mm Grenade, HE	14453	3613
	81mm Mortar, HE	1553	388
	155mm Howitzer, HE	226	57
	155mm Howitzer, Inert	11	0
	Mine, Claymore M18A1	54	14
Range 87	Simulator, Ground Burst, M115A2	60	16
	Simulator, Hand Grenade, M116	84	20
Range 94	40mm Grenade, HE	5	0
Range 109	Simulator, Ground Burst, M115A2	11	0
Range 113	Simulator, Main Tank Gun, M30	30	0

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

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TABLE D-2. DEMOLITION AND LARGE CALIBER WEAPONS: PROJECTED OPERATING ENVIRONMENT.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)	DIFFERENCE FROM CONTEMPORARY OPERATIONS
Firing Point 2412	MLRS, Inert	216	0	*new activity*
Firing Point 2511B	155mm Howitzer, HE	926	232	*increase of rounds*
	155mm Howitzer, Inert	16	99	
Firing Point 2512	60mm Mortar, HE	36	9	
	81mm Mortar, HE	35	9	
	120mm Mortar, HE	76	19	
	120mm Mortar, Inert	2	0	
	155mm Howitzer, HE	476	119	
	155mm Howitzer, Inert	74	22	
Firing Point 3409	155mm Howitzer, HE	747	197	
	165mm Cannon, HE	120	30	
Training Area 04	120mm Mortar, HE	11	17	
	120mm Mortar, Inert	512	216	
	155mm Howitzer, HE	4327	1082	*increase of rounds*
	155mm Howitzer, Inert	277	48	*increase of rounds*
	165mm Cannon, HE	45	9	*increase of rounds*
Training Area 06	105mm Howitzer, HE	80	20	
	155mm Howitzer, HE	424	106	
Training Area 12	155mm Howitzer, HE	110	28	
Mortar Point 01	60mm Mortar, Inert	13	3	
	81mm Mortar, HE	131	32	
	81mm Mortar, Inert	17	4	
	120mm Mortar, HE	16	4	
	120mm Mortar, Inert	16	4	
Mortar Point 02	81mm Mortar, HE	3	1	
Mortar Point 03	Mine, Claymore M18A1	245	61	
Mortar Point 04	60mm Mortar, HE	62	0	
	60mm Mortar, Inert	74	18	
	81mm Mortar, HE	7	2	
	81mm Mortar, Inert	70	17	
	120mm Mortar, HE	288	72	
	120mm Mortar, Inert	296	110	
Mortar Point 05	60mm Mortar, Inert	374	94	
	81mm Mortar, HE	146	35	
	81mm Mortar, Inert	787	197	
	120mm Mortar, Inert	2011	533	
Mortar Point 06	60mm Mortar, HE	854	214	
	60mm Mortar, Inert	19	82	
	81mm Mortar, HE	21	5	
	81mm Mortar, Inert	177	30	
	120mm Mortar, HE	145	37	
	120mm Mortar, Inert	693	303	
Mortar Point 07	60mm Mortar, HE	732	183	*increase of rounds*
	60mm Mortar, Inert	871	101	*increase of rounds*
	81mm Mortar, HE	393	99	*increase of rounds*
	81mm Mortar, Inert	211	155	*increase of rounds*
	120mm Mortar, HE	416	104	
	120mm Mortar, Inert	2957	871	*increase of rounds*

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

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TABLE D-2. DEMOLITION AND LARGE CALIBER WEAPONS: PROJECTED OPERATING ENVIRONMENT, CONT'D.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)	DIFFERENCE FROM CONTEMPORARY OPERATIONS
Mortar Point 08	60mm Mortar, HE	58	14	
	60mm Mortar, Inert	24	6	
	81mm Mortar, HE	24	6	
	120mm Mortar, HE	168	42	
	120mm Mortar, Inert	700	248	
Mortar Point 10	60mm Mortar, HE	67	17	
	81mm Mortar, HE	80	19	
	120mm Mortar, HE	38	10	
	120mm Mortar, Inert	136	34	
Mortar Point 11	AT4 Rocket, HE	80	20	
	60mm Mortar, HE	19	5	
	60mm Mortar, Inert	448	112	
	81mm Mortar, HE	102	25	
	81mm Mortar, Inert	115	25	
	120mm Mortar, HE	659	169	
	120mm Mortar, Inert	1594	654	
Mortar Point 12	60mm Mortar, HE	96	24	
	60mm Mortar, Inert	132	160	
	81mm Mortar, Inert	82	47	
	120mm Mortar, HE	392	88	
	120mm Mortar, Inert	1579	633	*increase of rounds*
Mortar Point 13	60mm Mortar, HE	13	3	
	60mm Mortar, Inert	26	6	
	81mm Mortar, HE	153	39	
	81mm Mortar, Inert	14	34	
NBC1	Simulator, Hand Grenade, M116	50	0	
OP02	TOW Missile, Inert	17	0	
	TOW Missle, HE	6	0	
	155mm Howitzer, HE	188	46	
REGENBURG	Demolition, C4, 1.25 lbs	2	0	
	Simulator, Hand Grenade, M116	61	0	
	Simulator, Ground Burst, M115A2	19	0	
Range 24	Hand Grenade, Fragmenting	35053	0	*increase of rounds*
Range 25 Maze	Demoliton, Sheet, 38 ft p/roll, 0.5 lbs p/ft	5	0	
Range 28	Simulator, Ground Burst, M115A2	3	0	
	Simulator, Hand Grenade, M116	3	0	
Range 31	Demolition, C4, 1.25 lbs	2	0	
	Simulator, Hand Grenade, M116	96	0	
	Simulator, Main Tank Gun, M30	4	0	
Range 32	Simulator, Hand Grenade, M116	154	0	*new activity*
Range 36	Hand Grenade, Fragmenting	821	0	
	Simulator, Hand Grenade, M116	19	0	
Range 39	Simulator, Ground Burst, M115A2	185	0	
	Simulator, Hand Grenade, M116	207	0	
	Simulator, Main Tank Gun, M30	125	0	
Range 40	Simulator, Anti-Tank/GM/Rocket Launch, M22	15	0	
	Simulator, Ground Burst, M115A2	15	0	

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

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Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

TABLE D-2. DEMOLITION AND LARGE CALIBER WEAPONS: PROJECTED OPERATING ENVIRONMENT, CONT'D.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)	DIFFERENCE FROM CONTEMPORARY OPERATIONS
Range 52	RAAWS, Inert	6	16	
	60mm Mortar, HE	24	6	
	81mm Mortar, HE	113	29	
	120mm Mortar, HE	70	18	
Range 58	Demolition, C4, 1.25 lbs	341	85	
	Mine, Claymore M18A1	39	9	
	Shape Charge, 40 lbs	4	1	
	155mm Howitzer, HE	1	0	
Range 59	AT4 Rocket, HE	1881	255	*increase of rounds*
	LAW Rocket, HE	137	15	
	SMAW, HE	41	5	
	RAAWS, Inert	142	38	
	RPG-7, HE	13	1	
	Hand Grenade, Fragmenting	13	1	
Range 60	AT4 Rocket, HE	12	3	*new activity*
	RAAWS, Inert	62	15	
Range 62	Demolition, C4, 1.25 lbs	432	108	*increase of rounds*
	Demoliton, Sheet, 38 ft p/roll, 0.5 lbs p/ft	1	0	
Range 72	Simulator, Hand Grenade, M116	30	0	
Range 74	60mm Mortar, HE	302	76	*increase of rounds*
	60mm Mortar, Inert	570	142	*increase of rounds*
	81mm Mortar, HE	478	119	*increase of rounds*
	81mm Mortar, Inert	165	5	*increase of rounds*
	120mm Mortar, HE	302	76	*increase of rounds*
	120mm Mortar, Inert	173	43	
	155mm Howitzer, HE	46	9	*increase of rounds*
	155mm Howitzer, Inert	19	5	*increase of rounds*
	Demolition, C4, 1.25 lbs	3	1	
Range 75	RAAWS, Inert	5	0	
	60mm Mortar, HE	19	5	
	60mm Mortar, Inert	78	20	
	81mm Mortar, Inert	21	5	
	120mm Mortar, HE	87	12	*increase of rounds*
	120mm Mortar, Inert	90	44	
	105mm Howitzer, HE	3	1	
	Hand Grenade, Fragmenting	7	2	*increase of rounds*
	Simulator, Hand Grenade, M116	7	0	
	Simulator, Ground Burst, M115A2	7	0	
Range 76	RAAWS, Inert	23	5	
	60mm Mortar, HE	38	10	
	60mm Mortar, Inert	27	26	
	120mm Mortar, HE	21	5	
	Simulator, Ground Burst, M115A2	23	0	

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

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Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

TABLE D-2. DEMOLITION AND LARGE CALIBER WEAPONS: PROJECTED OPERATING ENVIRONMENT, CONT'D.

RANGE	WEAPON	DAYTIME (0700-2200)	NIGHTTIME (2200-0700)	DIFFERENCE FROM CONTEMPORARY OPERATIONS
Range 79	AT4 Rocket, HE	50	13	
	Dragon Misssile, HE	9	3	
	RAAWS, HE	11	3	
	40mm Grenade, HE	22083	5521	*increase of rounds*
	81mm Mortar, HE	1553	388	
	155mm Howitzer, HE	226	57	
	155mm Howitzer, Inert	11	0	
	Mine, Claymore M18A1	54	14	
Range 87	Simulator, Ground Burst, M115A2	60	16	
	Simulator, Hand Grenade, M116	84	20	
Range 94	40mm Grenade, HE	15	0	*increase of rounds*
Range 109	Simulator, Ground Burst, M115A2	11	0	
Range 113	Simulator, Main Tank Gun, M30	30	0	

Inert is defined as any round that does not make noise upon impact, i.e. TP-T, illum, wp, smoke.

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Operational Noise Consultation, No. 52-ON-0BE1-09, Fort Lewis, WA; Feb 09

APPENDIX E

SMALL CALIBER RANGE UTILIZATION

1. Under the Grow the Army Plan, Fort Lewis requested the analysis of the contemporary and projected operating environments.

a. The contemporary operating environment was based upon the activity utilized between December 2007 and November 2008. The operations included all of the units at Fort Lewis; a Stryker Brigade Combat Team (SBCT), the Army Reserve, and Army National Guard.

b. The projected operating environments included:

- Scenario 1. Fort Lewis has three SBCTs assigned; however, only one SBCT has been at Fort Lewis in a full-up training mode at a time due to deployments. Scenario 1 reflects contemporary operating environment with the full-up training mode of 3 SBCTs.

- Scenario 2. Fort Lewis is programmed to receive a 1,000 soldier Combat Service Support (CSS) unit and a 1,900 soldier Headquarters (HQ) Unit. The additional weapons activity of the CSS and HQ unit would consist of small caliber (.50 caliber and below) operations only.

- Scenario 3. Fort Lewis may also receive a Combat Aviation Brigade (CAB). The additional weapons activity of the CAB would consist of small caliber (.50 caliber and below) operations only.

2. The small arms range utilization and type of ammunition expenditure was identical under all the operating environments. The difference between operating environments was an increase quantity of round expenditure. The contours show the predicted peak levels for individual rounds (metric term is PK15(met)). Since the contours are based on peak levels rather than a cumulative or average level, the size of the contours will not change if the number of rounds fired increases. Therefore it was only necessary to develop one small arms noise contour.

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3. Ammunition Expenditure. The table lists the ranges and type of weapons utilized to develop the small arms noise contours.

TABLE E. SMALL CALIBER WEAPONS UTILIZATION

	PISTOL, 9 MM	PISTOL, 9 MM, NON-LETHAL	PISTOL, .45 CAL	TRAINER AT4, 9MM TPT	RIFLE, 5.56 MM	RIFLE, 5.56 MM, BLANK	MACHINE GUN, 7.62 MM	MACHINE GUN, 7.62 MM, BLANK	MACHINE GUN, .50 CAL, BLANK	SHOTGUN, 12 GAUGE
Range 01					√					
Range 02	√				√					
Range 39		√		√	√	√	√	√	√	√
Range 40					√	√	√		√	
Range 43	√		√		√		√			
Range 44	√				√		√			
Range 45	√		√		√		√			√

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APPENDIX F

AVIATION ACTIVITY
FORT LEWIS, WASHINGTON

F-1. Tables F-1 and F-2 contain the aviation activity for the Gray Army Airfield (AAF). The activity is illustrated in both an estimated daily summary and an annual summary.

TABLE F-1. GRAY AAF – CONTEMPORARY OPERATING ENVIRONMENT.

Estimated Daily Sorties*

Aircraft Type	Daytime Activity (0700-2200)	Nighttime Activity (2200-0700)
CH-47	20	6
OH-58	25	7
UH-60	20	6
C-12	2	<1
C-23	2	<1

Annual (Dec 07 - Nov 08) Sorties*

Aircraft Type	Daytime Activity (0700-2200)	Nighttime Activity (2200-0700)
CH-47	5,118	1,419
OH-58	6,216	1,723
UH-60	5,118	1,419
C-12	549	152
C-23	366	102

** Sortie is defined as either an arrival or a departure.*

TABLE F-2. GRAY AAF – PROJECTED OPERATING ENVIRONMENT.

Projected Estimated Daily Sorties*

Aircraft Type	Daytime Activity (0700-2200)	Nighttime Activity (2200-0700)
AH-64	2	1
CH-47	22	7
OH-58	27	8
UH-60	22	7
C-12	2	<1
C-23	2	<1

Projected Annual Sorties*

Aircraft Type	Daytime Activity (0700-2200)	Nighttime Activity (2200-0700)
AH-64	470	202
CH-47	5,387	1,534
OH-58	6,686	1,925
UH-60	5,588	1,621
C-12	549	152
C-23	366	102

** Sortie is defined as either an arrival or a departure.*

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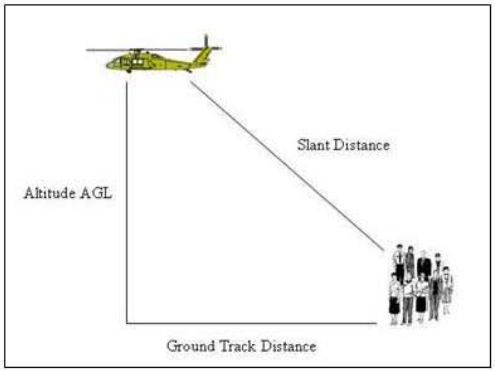
F-2. Figure F depicts the terminology used in the supplemental annoyance buffers for aircraft over flights.

FIGURE F. SUPPLEMENTAL BUFFER FLIGHT CORRIDOR DESCRIPTION



DEFINITIONS:
Altitude/AGL (Above Ground Level). Distance of the aircraft above the ground.
Ground Track Distance. The distance between receiver and the point on the Earth at which the aircraft is directly overhead.
Slant Distance. The line-of-sight distance between the receiver and the aircraft. The slant distance is the hypotenuse of the triangle represented by the altitude of the aircraft and the distance between the receiver and the aircraft's ground track distance.

F-2

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Appendix C. EIFS Explanation and Detailed Results for Fort Carson and JBLM Analyses

The analysis of socioeconomic effects at Fort Carson and JBLM is facilitated by the use of the EIFS and the use of three recent analyses associated with the transformation and restructuring of the Army. They are *Final Environmental Impact Analysis for Army Growth and Force Structure Realignment*, October, 2007, *Final Environmental Impact Statement for Implementation of Fort Carson Grow the Army Stationing Decisions, Vol. 1*, February 2009, and *Final Environmental Impact of the Fort Lewis Army Growth and Force Structure Realignment, Vol. 1*, July 2010.

C.1. Introduction

The socioeconomic analysis requirements of NEPA have been established over the years through successful early NEPA litigation ("McDowell v. Schlesinger", U.S. District Court, Western District of Missouri, Western Division, No. 75-CV-234-W-4 (June 19,1975) and "Breckinridge v. Schlesinger", U.S. District Court, Eastern District of Kentucky, No. 75-100 (October 31,1975)), as well as the practical need for communication and collaboration with affected communities. The social and economic effects of BRAC actions are especially relevant and important, as these issues are often the source of community concerns and subsequent controversies.

C.2. The EIFS and the Hierarchical Approach.

The Model:

The EIFS (Huppertz, Claire E.; Bloomquist, Kim M.; Barbehenn, Jacinda M.; *EIFS 5.0 Economic Impact Forecast System, User's Reference Manual*; U.S. Army Construction Engineering Research Lab [USACERL] Technical Report TA-94/03; July 1994.) has been a mainstay of Army NEPA practice since its initial development and implementation in the mid-1970s. EIFS provides a mechanism to estimate impacts, and ascertain the "significance" of projected impacts, using the RTV technique. This analysis and determination can be readily documented, and if significance thresholds are not exceeded, the analysis can be completed. EIFS was designed to address NEPA applications, providing a "two-tier" approach to the process. That process includes a simple and quick aggregate model (sufficient to ascertain

the overall magnitude of impacts) and a more detailed, sophisticated input-output (I-O) model to further analyze impacts that appear significant, in NEPA terms, and worthy of additional expenditures and analyses. This "two-tier" approach is consistent with the two common levels of NEPA analysis, the EA and the EIS. EIFS has facilitated efficient and effective completion of such analyses for approximately three decades.

Complete documentation of the model, its development, and applicable theoretical underpinnings is available in numerous publications:

Huppertz, Claire E.; Bloomquist, Kim M.; Barbehenn, Jacinda M.; *EIFS 5.0 Economic Impact Forecast System, User's Reference Manual*; USACERL Technical Report TA-94/03; July 1994.

Isard, W., *Methods of Regional Analysis*, MIT Press, 1960.

Isard, W. and Langford,T., *Regional Input-Output Study: Recollections, Reflections, and Diverse Notes on the Philadelphia Experience*, MIT Press, 1971.

Isserman, A., "The Location Quotient Approach to Estimating Regional Economic Impacts", *AIP Journal*, January, 1977, pp. 33-41.

Isserman, A., "Estimating Export Activity in a Regional Economy: A Theoretical and Empirical Analysis of Alternative Methods", *International Regional science Review*, Vol. 5, 1980, pp. 155-184.

Leigh, R., "The Use of Location Quotients in Urban Economic Base Studies," *Land Economics*, Vol 46, May, 1970, pp 202-205.

Mathur, V.K. and Rosen, H.S. , "Regional Employment Multiplier: A New Approach," *Land Economics*, Vol 50, 1974, pp 93-96.

Mayer, W. and Pleeter, S., "A Theoretical Justification for the Use of Location Quotients," *Regional Science and Urban Economics*, Vol 5, 1975, pp 343-355.

Robinson, D.P., Hamilton, J.W., Webster, R.D., and Olson, M.J., *Economic Impact Forecast System (EIFS) II: User's Manual, Updated Edition*, Technical Report N-69/ADA144950, USACERL, 1984.

Robinson, D.P. and Webster, R.D., *Enhancements to the Economic Impact Forecast System (EIFS)*, Technical Report N-175/ADA142652, USACERL, April, 1984.

Rogers, Claudia and Webster, Ron, "Qualitative Answers to Quantitative Questions," I*mpact Assessment*, IAIA, Vol.12, No.1, 1999.

Thompson, W., *A Preface to Urban Economics*, Johns Hopkins Press, 1965.

Tiebout, C., *The Community Economic Base*, New York Committee for Economic Development, 1962.

USACERL, " Methods for Evaluating the Significance of Impacts: The RTV and FSI Profiles," USACERL EIFS Tutorial; July 1987.

U.S. Army, DA, DA Pamphlet 200-2, "Economic Impact Forecast System-User Instructions," 1980.

U.S. Army, "Base Realignment and Closure "How-To" Manual for Compliance with the National Environmental Policy Act", revised and published as official Department of Army Guidance, 1995.

U.S. Army, *Army Regulation 5-20*, "Commercial Activities"

Webster, R.D. and Shannon, E.; *The Rational Threshold Value Technique for the Evaluation of Regional Economic Impacts*; USACERL Technical Report TR N-49/ADA055561; 1978.

Webster, R.D., Hamilton, J.W., and Robinson, D.P., "The Two-Tier Concept for Economic Analysis: Introduction and User Instructions," USACERL Technical Report N-127/ADA118855.

These efforts reflect development of a tool for specific NEPA application, following the successful NEPA litigation referenced in the Introduction. As EIFS has been used for Army NEPA analyses, the results of

EIFS analyses have been reviewed by stakeholder (affected community) representatives, and, as a result of BRAC application, twice reviewed by the Government Accounting Office (GAO). During such reviews, the analyses and resultant decisions were upheld, and EIFS was lauded as a uniform (nonarbitrary and noncapricious) approach to such requirements. Drawing from a national, uniform database, and using a common, systematic approach, EIFS allows for the improved comparison of project alternatives (the heart of NEPA analysis), and provides comparable analyses across the U.S.

NEPA Process Improvement:

Since NEPA was implemented, it has been commonly criticized as expensive and time-consuming. While these criticisms have been often justified, the President's CEQ has actively promoted NEPA process improvements; first in the publication of the CEQ NEPA regulations (CEQ, *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*, Reprint, 40 CFR Parts 1500-1508, Executive Office of the President, Council on Environmental Quality, 1992.), and, more recently, through a NEPA anniversary introspective (CEQ, *The National Environmental Policy Act: A Study of its Effectiveness After Twenty-five Years*, Executive Office of the President, Council on Environmental Quality, January, 1997.) and the formal CEQ NEPA Task Force (CEQ, *The NEPA Task Force Report to the Council on Environmental Quality: Modernizing NEPA Implementation*; September, 2003.). All three CEQ initiatives call for more "focus" on NEPA documents, eliminating the analyses of minor or unimportant issues, and focusing, instead, on those issues that should be part of an informed agency decision. The use of EIFS, and the "two-tier" approach is consistent with these CEQ recommendations.

Determining Significance:

While EIFS was being developed, communities began to question the rationale for determining the significance of socioeconomic impacts. USACERL was directed to develop a defensible procedure for such a determination, resulting in the RTV technique (Webster, R.D.; and Shannon, E.; *The Rational Threshold Value Technique for the Evaluation of Regional Economic Impacts*; USACERL Technical Report TR N-49/ADA055561; 1978). This technique relies on the yearly Bureau of Economic Analysis (BEA) time series data on employment, income, and population to evaluate historical trends with in a subject community (region); and uses those trends to measure the "resilience" of the local community to change, or its ability to accommodate such change. This approach has worked well when communicating

with affected communities. The combined use of RTV with the EIFS model meet the two pronged approach for significance determinations: intensity and context (CEQ, 1992).

The initial EIFS implementation (USACERL, 1975) included the analysis of numerous variables: business volume, personal income, employment, government revenues and expenditures, income and employment distribution, local housing impacts, regional economic stability, school system impacts, government bond obligations, population, welfare and dependency, social control, and aesthetic considerations. The selection of these variables was based on the predictive capability of forecasting techniques and data availability. Over some 30 years of practice, pragmatism and sufficiency led to the use of sales volume, employment, personal income, and population as indicators of impacts (as a "first tier" approximation of effects). These effects can also be readily evaluated (and significance determined) using the BEA time series data. Population, important in its own right, is also a valuable indicator of other factors (e.g., impact on local government revenues and expenditures, housing, local school systems, and the change in welfare and dependency), as impacts on such variables are driven, to a large extent, by a population change.

Using BEA time series data is used to analyze the four variables for the ROI, the RTV model produces thresholds for assessing the magnitude of impacts. The RTV technique is simple, starting with a straight line between the first year of record and the last year of record for that variable, establishing the average rate of change over time. Then, each yearly deviation from that growth rate is calculated and converted to a percentage. The largest historical changes (both increase and decrease) are used to define significance thresholds.

7658 The following figure illustrates the RTV concept:

7659 **Figure 13. Economic Impact Forecast System**

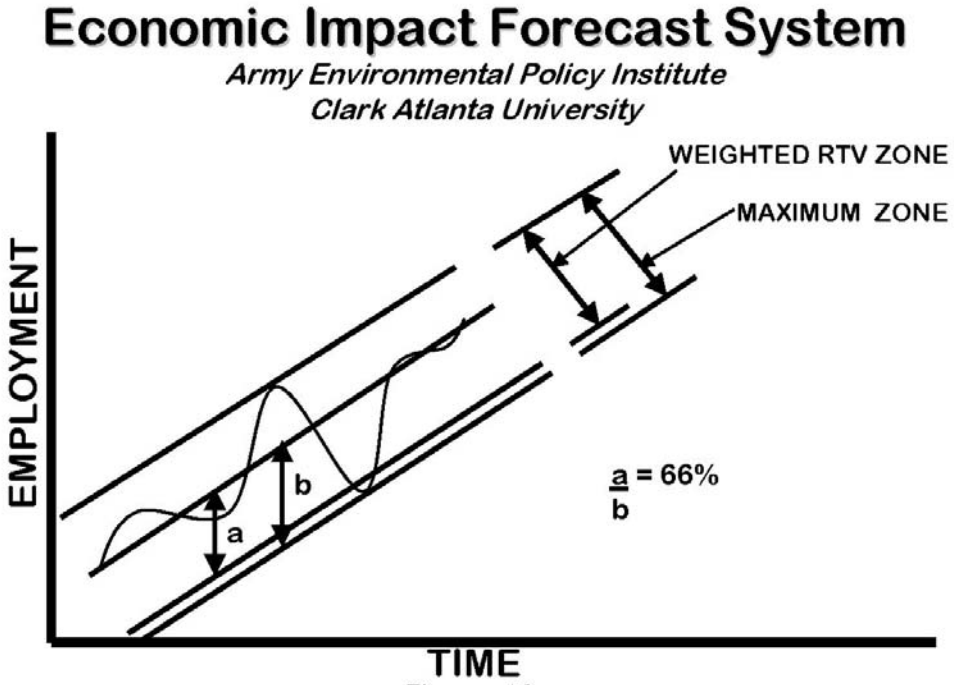

Figure 10
Visual Depiction of the RTV Technique

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7661 A "factor of safety" is applied to negative thresholds, as shown in the figure, to produce a conservative
7662 analysis; while 100 percent of the maximum positive thresholds are used; as indicated below:

7663		Increase	Decrease
7664	Total sales volume	100 percent	75 percent
7665	Total employment	100 percent	66 percent
7666	Personal Income	100 percent	66 percent
7667	Total population	100 percent	50 percent

The maximum positive historical fluctuation is used because of the positive connotations generally associated with economic growth. While economic growth can produce unacceptable impacts and the "smart growth" concept is increasingly favored, the effects of reductions and closures are usually much more controversial. These adjustments, while arbitrary, are sensible. The negative sales volume threshold is adjusted by 75 percent, as sales volume impacts can be absorbed by such factors as the manipulation of inventory, new equipment, etc; and the impacts on individual workers or proprietors is indirect, if at all. Changes in employment and income, however, are impacts that immediately affect individuals; thus they are adjusted by 66 percent. Population is extremely important as an indicator of other social issues and is thus adjusted by 50 percent.

To adjust dollar amounts for inflation (to create "constant dollars" prior to calculations), the Consumer Price Index (CPI) is used for appropriate years, and all dollar values are adjusted to 1987 equivalents.

The main strength of the RTV approach stems from its reliance on data for each individual ROI. This approach addressed previous criticism of more basic approaches that applied arbitrary criteria to all communities. This approach establishes unique criteria, representative of local community patterns, and, while a community may not completely agree, a common frame of reference is established. Critics of the RTV technique have questioned the arbitrary selection of the maximum allowable deviations to indicate impact significance, but the process has proven workable over the years.

C.3. EIFS REPORT

Project Name: JBLM CAB Stationing

Study Area: 53053 Pierce, WA
53067 Thurston, WA

FORECAST INPUT	
Change In Local Expenditures	$0
Change In Civilian Employment	0
Average Income of Affected Civilian	$0
Percent Expected to Relocate	0
Change In Military Employment	2700
Average Income of Affected Military	$37,000
Percent of Military Living On-post	50

FORECAST OUTPUT		
Multiplier	2.43	
Sales Volume - Direct	$31,843,120	
Sales Volume - Induced	$45,535,670	
Sales Volume - Total	$77,378,790	0.3%
Income - Direct	$99,900,000	
Income - Induced	$8,773,712	
Income - Total	$108,673,700	0.52%
Employment - Direct	2904	
Employment - Induced	292	
Employment - Total	3196	0.76%
Local Population	6723	
Local Off-base Population	3362	0.78%

RTV SUMMARY				
	Sales Volume	**Income**	**Employment**	**Population**
Positive RTV	5.01 %	4.96 %	2.79 %	1.97 %
Negative RTV	-4.67 %	-4.06 %	-7.1 %	-2.54 %

RTV DETAILED					
SALES VOLUME					
Year	**Value**	**Adj_Value**	**Change**	**Deviation**	**%Deviation**
1969	3663956	19272409	0	-1193327	0
1970	3939364	19618033	345624	-847703	-4.32
1971	4165340	19868672	250639	-942688	-4.74
1972	4291438	19826444	-42228	-1235555	-6.23
1973	4819374	20964277	1137833	-55494	-0.26
1974	5539580	21659758	695481	-497846	-2.3
1975	6281812	22551705	891947	-301380	-1.34
1976	7107766	24166404	1614699	421372	1.74
1977	7855838	25060123	893719	-299608	-1.2
1978	9101606	26940754	1880631	687304	2.55
1979	10344594	27516620	575866	-617461	-2.24
1980	11891616	27826381	309761	-883566	-3.18
1981	13418212	28580792	754410	-438917	-1.54
1982	14437904	28875808	295016	-898311	-3.11
1983	15309530	29700488	824680	-368647	-1.24
1984	16636302	30943522	1243034	49707	0.16
1985	17859598	32147276	1203755	10428	0.03
1986	18961960	33373050	1225773	32446	0.1
1987	20085014	34144524	771474	-421853	-1.24
1988	21629048	35255348	1110824	-82503	-0.23
1989	23734096	37025190	1769842	576515	1.56
1990	27003196	40234762	3209572	2016245	5.01
1991	28534742	40519334	284572	-908755	-2.24
1992	30924834	42676271	2156937	963610	2.26
1993	32503888	43555210	878939	-314388	-0.72
1994	33971710	44163223	608013	-585314	-1.33
1995	35895070	45586739	1423516	230189	0.5
1996	38181346	46963056	1376317	182990	0.39
1997	41710204	50052245	3089189	1895862	3.79
1998	44639550	53121064	3068820	1875493	3.53
1999	46894924	54398112	1277047	83720	0.15
2000	50904218	57012724	2614612	1421285	2.49
2001	54246640	59128838	2116113	922786	1.56
2002	56233638	60169993	1041155	-152172	-0.25
2003	58132228	61038839	868847	-324480	-0.53

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INCOME					
Year	**Value**	**Adj_Value**	**Change**	**Deviation**	**%Deviation**
1969	1848106	9721038	0	-596213	0
1970	1983704	9878846	157808	-438405	-4.44
1971	2095463	9995359	116513	-479700	-4.8
1972	2161606	9986620	-8739	-604952	-6.06
1973	2439573	10612143	625523	29310	0.28
1974	2797070	10936544	324401	-271812	-2.49
1975	3167073	11369792	433248	-162965	-1.43
1976	3580564	12173918	804126	207913	1.71
1977	3956082	12619902	445984	-150229	-1.19
1978	4583753	13567909	948007	351794	2.59
1979	5209534	13857360	289452	-306761	-2.21
1980	5976305	13984554	127193	-469020	-3.35
1981	6742200	14360886	376332	-219881	-1.53
1982	7252786	14505572	144686	-451527	-3.11
1983	7686427	14911668	406096	-190117	-1.27
1984	8350786	15532462	620794	24581	0.16
1985	8963188	16133738	601276	5063	0.03
1986	9517554	16750895	617157	20944	0.13
1987	10074840	17127228	376333	-219880	-1.28
1988	10848494	17683045	555817	-40396	-0.23
1989	11911863	18582506	899461	303248	1.63
1990	13543521	20179846	1597340	1001127	4.96
1991	14309461	20319435	139588	-456625	-2.25
1992	15510801	21404905	1085471	489258	2.29
1993	16307276	21851750	446844	-149369	-0.68
1994	17041089	22153416	301666	-294547	-1.33
1995	18002766	22863513	710097	113884	0.5
1996	19151333	23556140	692627	96414	0.41
1997	20917815	25101378	1545238	949025	3.78
1998	22388361	26642150	1540772	944559	3.55
1999	23522972	27286648	644498	48285	0.18
2000	25509714	28570880	1284232	688019	2.41
2001	27190294	29637420	1066541	470328	1.59
2002	28177359	30149774	512354	-83859	-0.28
2003	29131884	30588478	438704	-157509	-0.51

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Employment				
Population				
Year	**Value**	**Change**	**Deviation**	**%Deviation**
1969	480736	0	-13734	0
1970	490236	9500	-4234	-0.86
1971	497542	7306	-6428	-1.29
1972	486504	-11038	-24772	-5.09
1973	480906	-5598	-19332	-4.02
1974	504564	23658	9924	1.97
1975	525732	21168	7434	1.41
1976	536948	11216	-2518	-0.47
1977	553549	16601	2867	0.52
1978	574491	20942	7208	1.25
1979	592365	17874	4140	0.7
1980	614079	21714	7980	1.3
1981	629458	15379	1645	0.26
1982	642085	12627	-1107	-0.17
1983	645741	3656	-10078	-1.56
1984	655589	9848	-3886	-0.59
1985	666902	11313	-2421	-0.36
1986	676604	9702	-4032	-0.6
1987	690832	14228	494	0.07
1988	711355	20523	6789	0.95
1989	725934	14579	845	0.12
1990	753533	27599	13865	1.84
1991	774147	20614	6880	0.89
1992	795467	21320	7586	0.95
1993	813388	17921	4187	0.51
1994	825394	12006	-1728	-0.21
1995	840833	15439	1705	0.2
1996	852493	11660	-2074	-0.24
1997	864644	12151	-1583	-0.18
1998	881050	16406	2672	0.3
1999	897535	16485	2751	0.31
2000	912334	14799	1065	0.12
2001	930995	18661	4927	0.53
2002	948451	17456	3722	0.39
2003	961440	12989	-745	-0.08

7696

C.4. EIFS REPORT

Project Name: Fort Carson CAB Stationing

Study Area: 08041 El Paso, CO
08043 Fremont, CO
08101 Pueblo, CO

FORECAST INPUT	
Change In Local Expenditures	$0
Change In Civilian Employment	0
Average Income of Affected Civilian	$0
Percent Expected to Relocate	0
Change In Military Employment	2700
Average Income of Affected Military	$37,100
Percent of Military Living On-post	50

FORECAST OUTPUT		
Multiplier	2.77	
Sales Volume - Direct	$31,929,190	
Sales Volume - Induced	$56,514,660	
Sales Volume - Total	$88,443,850	0.34%
Income - Direct	$100,170,000	
Income - Induced	$11,782,220	
Income - Total	$111,952,200	0.74%
Employment - Direct	2912	
Employment - Induced	375	
Employment - Total	3287	0.84%
Local Population	6723	
Local Off-base Population	3362	1.01%

RTV SUMMARY				
	Sales Volume	**Income**	**Employment**	**Population**
Positive RTV	5.64 %	5.63 %	4.04 %	3.17 %
Negative RTV	-4 %	-3.62 %	-3.95 %	-1.59 %

7706

RTV DETAILED					
SALES VOLUME					
Year	**Value**	**Adj_Value**	**Change**	**Deviation**	**%Deviation**
1969	2363070	12429748	0	-934960	0
1970	2685242	13372505	942757	7797	0.06
1971	2976060	14195806	823301	-111659	-0.79
1972	3426442	15830162	1634356	699396	4.42
1973	3943390	17153746	1323584	388624	2.27
1974	4397648	17194804	41057	-893903	-5.2
1975	4794118	17210884	16080	-918880	-5.34
1976	5238588	17811199	600316	-334644	-1.88
1977	5708070	18208743	397544	-537416	-2.95
1978	6509472	19268037	1059294	124334	0.65
1979	7474228	19881446	613409	-321551	-1.62
1980	8482164	19848264	-33183	-968143	-4.88
1981	9846214	20972436	1124172	189212	0.9
1982	10702396	21404792	432356	-502604	-2.35
1983	11520376	22349529	944737	9777	0.04
1984	13092704	24352429	2002900	1067940	4.39
1985	14256596	25661873	1309443	374483	1.46
1986	15126812	26623189	961316	26356	0.1
1987	15915066	27055612	432423	-502537	-1.86
1988	16746320	27296502	240889	-694071	-2.54
1989	17769370	27720217	423716	-511244	-1.84
1990	18333156	27316402	-403815	-1338775	-4.9
1991	19419060	27575065	258663	-676297	-2.45
1992	20993114	28970497	1395432	460472	1.59
1993	22216856	29770587	800090	-134870	-0.45
1994	23959042	31146755	1376168	441208	1.42
1995	26135008	33191460	2044706	1109746	3.34
1996	28182416	34664372	1472912	537952	1.55
1997	30137754	36165305	1500933	565973	1.56
1998	33039476	39316976	3151672	2216712	5.64
1999	35557594	41246809	1929833	994873	2.41
2000	39031928	43715759	2468950	1533990	3.51
2001	40904790	44586221	870462	-64498	-0.14
2002	41977940	44916396	330175	-604785	-1.35

RTV DETAILED					
SALES VOLUME					
Year	**Value**	**Adj_Value**	**Change**	**Deviation**	**%Deviation**
2003	43003188	45153347	236952	-698008	-1.55

7707

INCOME					
Year	**Value**	**Adj_Value**	**Change**	**Deviation**	**%Deviation**
1969	1188908	6253656	0	-465948	0
1970	1348723	6716641	462984	-2964	-0.04
1971	1493302	7123051	406410	-59538	-0.84
1972	1720810	7950142	827092	361144	4.54
1973	1983142	8626668	676525	210577	2.44
1974	2206155	8626066	-602	-466550	-5.41
1975	2407721	8643718	17652	-448296	-5.19
1976	2631543	8947246	303528	-162420	-1.82
1977	2863802	9135528	188282	-277666	-3.04
1978	3262735	9657696	522167	56219	0.58
1979	3742079	9953930	296235	-169713	-1.7
1980	4248027	9940383	-13547	-479495	-4.82
1981	4930629	10502240	561857	95909	0.91
1982	5357920	10715840	213600	-252348	-2.35
1983	5768372	11190642	474802	8854	0.08
1984	6553819	12190103	999462	533514	4.38
1985	7132834	12839101	648998	183050	1.43
1986	7568997	13321435	482334	16386	0.12
1987	7968124	13545811	224376	-241572	-1.78
1988	8382614	13663661	117850	-348098	-2.55
1989	8892960	13873018	209357	-256591	-1.85
1990	9176789	13673416	-199602	-665550	-4.87
1991	9714439	13794503	121088	-344860	-2.5
1992	10504802	14496627	702123	236175	1.63
1993	11116836	14896560	399933	-66015	-0.44
1994	11977634	15570924	674364	208416	1.34
1995	13061771	16588449	1017525	551577	3.33
1996	14085368	17325003	736553	270605	1.56
1997	15064877	18077852	752850	286902	1.59
1998	16513456	19651013	1573160	1107212	5.63
1999	17772765	20616407	965395	499447	2.42
2000	19502458	21842753	1226346	760398	3.48
2001	20443716	22283650	440897	-25051	-0.11
2002	20969505	22437370	153720	-312228	-1.39
2003	21487457	22561830	124460	-341488	-1.51

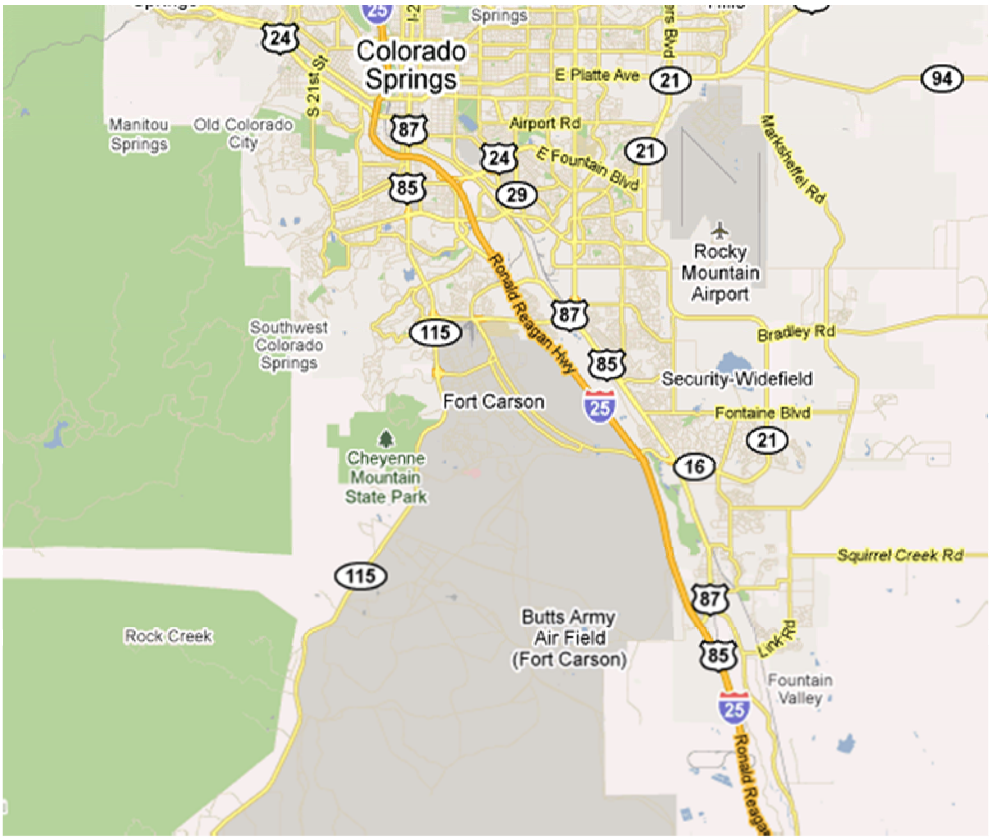
EMPLOYMENT				
Year	**Value**	**Change**	**Deviation**	**%Deviation**
1969	164237	0	-7582	0
1970	168720	4483	-3099	-1.84
1971	170442	1722	-5860	-3.44
1972	183927	13485	5903	3.21
1973	199140	15213	7631	3.83
1974	201795	2655	-4927	-2.44
1975	197713	-4082	-11664	-5.9
1976	202334	4621	-2961	-1.46
1977	206628	4294	-3288	-1.59
1978	214876	8248	666	0.31
1979	226848	11972	4390	1.94
1980	231333	4485	-3097	-1.34
1981	238611	7278	-304	-0.13
1982	242897	4286	-3296	-1.36
1983	248214	5317	-2265	-0.91
1984	266565	18351	10769	4.04
1985	279060	12495	4913	1.76
1986	285229	6169	-1413	-0.5
1987	288096	2867	-4715	-1.64
1988	297442	9346	1764	0.59
1989	301542	4100	-3482	-1.15
1990	300957	-585	-8167	-2.71
1991	306396	5439	-2143	-0.7
1992	315867	9471	1889	0.6
1993	328471	12604	5022	1.53
1994	348621	20150	12568	3.61
1995	361817	13196	5614	1.55
1996	377479	15662	8080	2.14
1997	392208	14729	7147	1.82
1998	406666	14458	6876	1.69
1999	417138	10472	2890	0.69
2000	428918	11780	4198	0.98
2001	431583	2665	-4917	-1.14
2002	429395	-2188	-9770	-2.28
2003	429608	213	-7369	-1.72

POPULATION				
Year	**Value**	**Change**	**Deviation**	**%Deviation**
1969	367959	0	-10757	0
1970	378845	10886	129	0.03
1971	393892	15047	4290	1.09
1972	414727	20835	10078	2.43
1973	439424	24697	13940	3.17
1974	444616	5192	-5565	-1.25
1975	447054	2438	-8319	-1.86
1976	443715	-3339	-14096	-3.18
1977	452406	8691	-2066	-0.46
1978	456115	3709	-7048	-1.55
1979	463710	7595	-3162	-0.68
1980	466859	3149	-7608	-1.63
1981	476858	9999	-758	-0.16
1982	487475	10617	-140	-0.03
1983	500324	12849	2092	0.42
1984	509889	9565	-1192	-0.23
1985	525817	15928	5171	0.98
1986	538814	12997	2240	0.42
1987	551940	13126	2369	0.43
1988	552476	536	-10221	-1.85
1989	553642	1166	-9591	-1.73
1990	552879	-763	-11520	-2.08
1991	560222	7343	-3414	-0.61
1992	579579	19357	8600	1.48
1993	599848	20269	9512	1.59
1994	624880	25032	14275	2.28
1995	641861	16981	6224	0.97
1996	653738	11877	1120	0.17
1997	665551	11813	1056	0.16
1998	680778	15227	4470	0.66
1999	694883	14105	3348	0.48
2000	707505	12622	1865	0.26
2001	725482	17977	7220	1
2002	736745	11263	506	0.07
2003	744453	7708	-3049	-0.41

7713

Appendix D. Fort Carson Transportation Analysis for CAB PEIS

This analysis focuses on the potential of adding a CAB at Fort Carson. Fort Carson is in central Colorado near Colorado Springs and approximately 75 miles (121 km) from Denver (Figure 14). The ROI of the affected environment for traffic and transportation aspects of the proposed action include Fort Carson and the western portion of El Paso County to include the communities of Colorado Springs, Stratmoor, Snowy, Cimarron Hills, Fountain, Widefield, and Security. Major roads that border Fort Carson are I-25 to the east, SH 115 to the west, and Academy Boulevard to the north. Other major routes in the area include US 24, SH 85, SH 16, and Powers Boulevard.



Reference: www.maps.google.com

Figure 14. Fort Carson, CO and surrounding road network

The population of El Paso County in 2000 was 16 times greater than it was in 1900. The majority of growth in El Paso County has been since 1950. Between 1900 and 1950 the County experienced an

average annual growth rate of 1.7 percent. Between 1950 and 2000 the annual average growth rate was four percent as the population grew from 73,400 to 526,900. These rates exceed both the growth rates for the U.S. as a whole, as well as the State of Colorado. Since 1950, El Paso County saw a nearly 600 percent increase in population, while Colorado increased by approximately 225 percent and the U.S. by 86 percent (El Paso County, 2004).

D.1. Traffic and Roadways

A comprehensive daily traffic count was conducted by El Paso County for the Major Corridors Plan (El Paso County, 2004). Other traffic counts from the PPACG and CDOT were used to complement the El Paso County data.

This traffic count data is presented graphically in Figure 15. The relative volumes are presented by the different band widths; the wider the band the greater the vehicle count. In general, El Paso County's transportation corridors operate at acceptable congestion levels except for:

- Woodmen Road
- US 24
- Baptist Road east of I-25
- SH 105 east of I-25

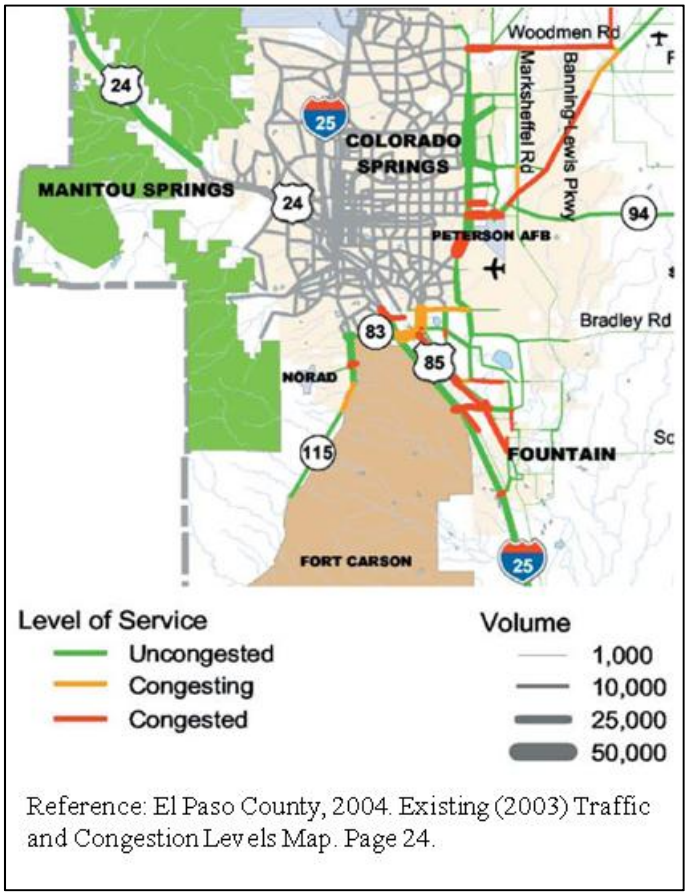


Figure 15. Existing traffic and congestion levels, El Paso County, CO

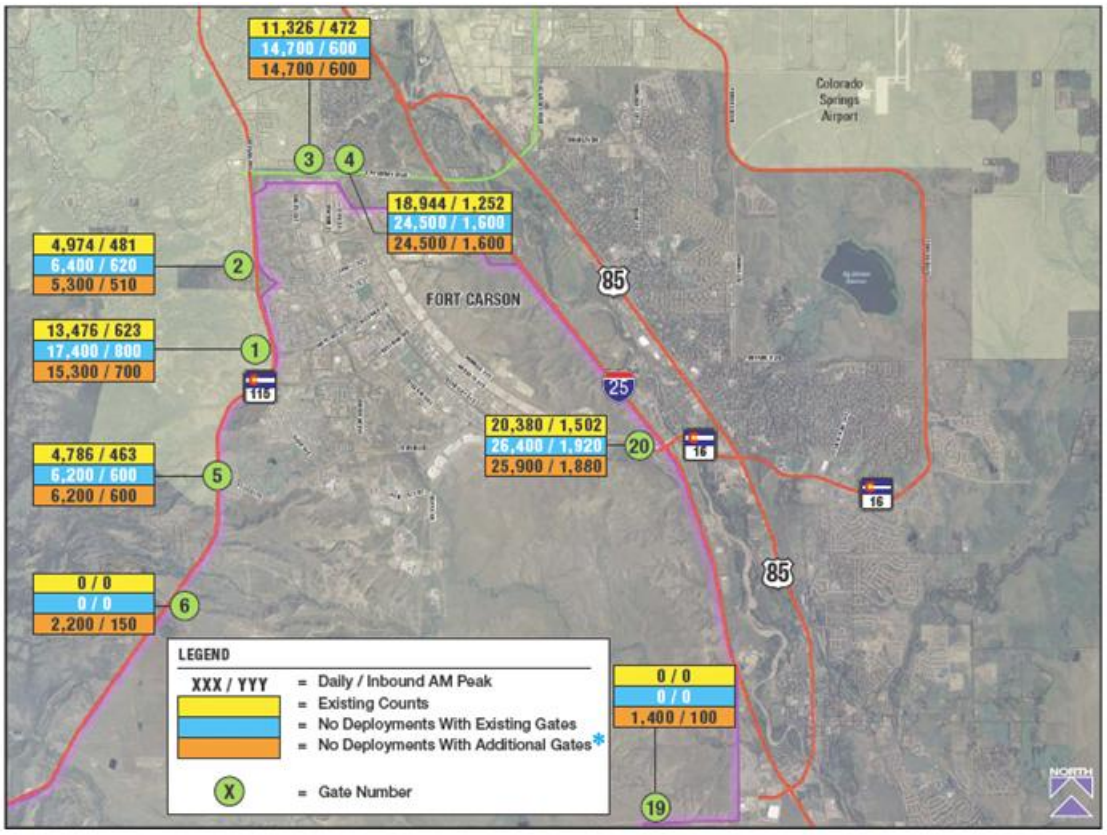
The PPACG conducted a study to evaluate the regional impacts of growth of Fort Carson's population (PPACG, 2010a). The existing conditions scenario of the study (2010) evaluates traffic based on conditions in late 2009 to early 2010. At this time there were approximately 24,000 Soldiers assigned to Fort Carson and of these about

19,000 will be referred to as Soldiers on-post. The high travel demand scenario has a five year planning horizon (2015) and is intended to represents a maximum transportation demand condition in which there are no Soldier deployments. It should be stated that no timetable has been established for the return of all Fort Carson Soldiers but for the purposes of the transportation analysis, it was necessary to establish a potential future condition as a basis for determining future transportation system needs. In this high travel demand scenario the number of Soldiers assigned to Fort Carson is estimated at about 26,000 (PPACG, 2010a, p. 3).

The high demand scenario of 26,000 Soldiers is very close to the total number Soldiers assigned to Fort Carson when the existing 2010 Soldier population of approximately 24,000 were added to the approximately 2,700 Soldiers from the proposed CAB.

The high-demand scenario assumes 26,000 Soldiers assigned to Fort Carson with none of the installation's assigned units deployed. With this scenario, the total of inbound and outbound vehicle trips for the installation is estimated at over 95,000 vehicle trips per day. This estimate is about 30 percent higher than the counts from October 2009 (PPACG, 2010a, p4).

Figure 16 shows the distribution of daily and inbound AM peak-hour existing and high travel demand trips to each gate. This distribution of existing counts and high travel demand estimates with the existing gates is based on current patterns shown in the count data. The distribution with Gates 6 and 19 in operation were based on pattern estimates from the Fort Carson Comprehensive Transportation Plan (Gannet-Flemming, 2008). Opening Gate 19 could lead to increased development south of Fort Carson.



Reference, PPACG, 2010a, Figure 2, page 7.

Figure 16. Fort Carson Gate Traffic Volumes

The following is a summary of the gates used to enter/leave Fort Carson:

- Gate 1 (Nelson Boulevard) is often called Fort Carson's Main Gate off of SH 115. It currently is a secure gate and is used as the west access to the cantonment area. This is by far the most heavily traveled gate along SH 115 today and is the only gate on SH 115 where visitors can access the installation.

- Gate 2 is located about 0.5 mile (0.8 km) north of Gate 1 along SH 115. It is limited to government ID holders.

- Gate 3 is the installation's primary commercial traffic gate. Traffic passes a school at Chiles Avenue and Burris Street. Crossing guards are used during school hours and speed zones are enforced to ensure safety of school children in the area.

- Gate 4 is located on the northern boundary of the cantonment area. It can be accessed by Academy Boulevard and Westmeadow Drive.

- Gate 5 (Titus Boulevard) is located about 1.5 miles (2.4 km) south of Gate 1 along SH 115. It currently is a secure gate and is used as Fort Carson's southernmost, west access to their cantonment area. It serves Fort Carson's Evans Army Community Hospital, Cheyenne Shadows Golf Course, troop work areas, and post housing.

- Gate 6 (Wilderness Road) is located about 3 miles (4.8 km) south of Gate 1 along SH 115. No secured gate exists there today. It is currently used for delivery of ammunition and ordinance to the installation, and recently became the default gate for preapproved heavy truck construction traffic, used for the new infrastructure improvements on Fort Carson.

- Gate 19 is currently closed. It is the closest gate to BAAF. The area just outside the gate is within the city of Fountain and zoned for industrial use.

- Gate 20 is accessed from SH 16 and I-25.

Gate 20 experiences the highest traffic volumes. Gates 4 and 20 combined account for about 55 percent of Fort Carson's traffic. Gate 1 experiences the most traffic for gates on SH 115. Under the high-demand scenario (Soldier population of 26,000), gate counts are estimated to be 30 percent higher than 2010 data. Figure 3 shows that with the existing gate structure, Gates 4 and 20 are each projected to process about 25,000 vehicles per day; Gate 1 is projected to process about 17,000 vehicles per day; and Gate 3 is projected to process just fewer than 15,000 vehicles per day. Figure 16 also shows the distribution of traffic volume through each gate if Gates 6 and 19 are opened. The distribution of trips to these gates follows the patterns developed in the *Fort Carson Comprehensive Transportation Plan* (Gannett-Flemming, 2008). However, that plan did not account for the potential assignment of the CAB at BAAF. BAAF is located near Gate 19 (behind the right half of the legend in Figure 15).

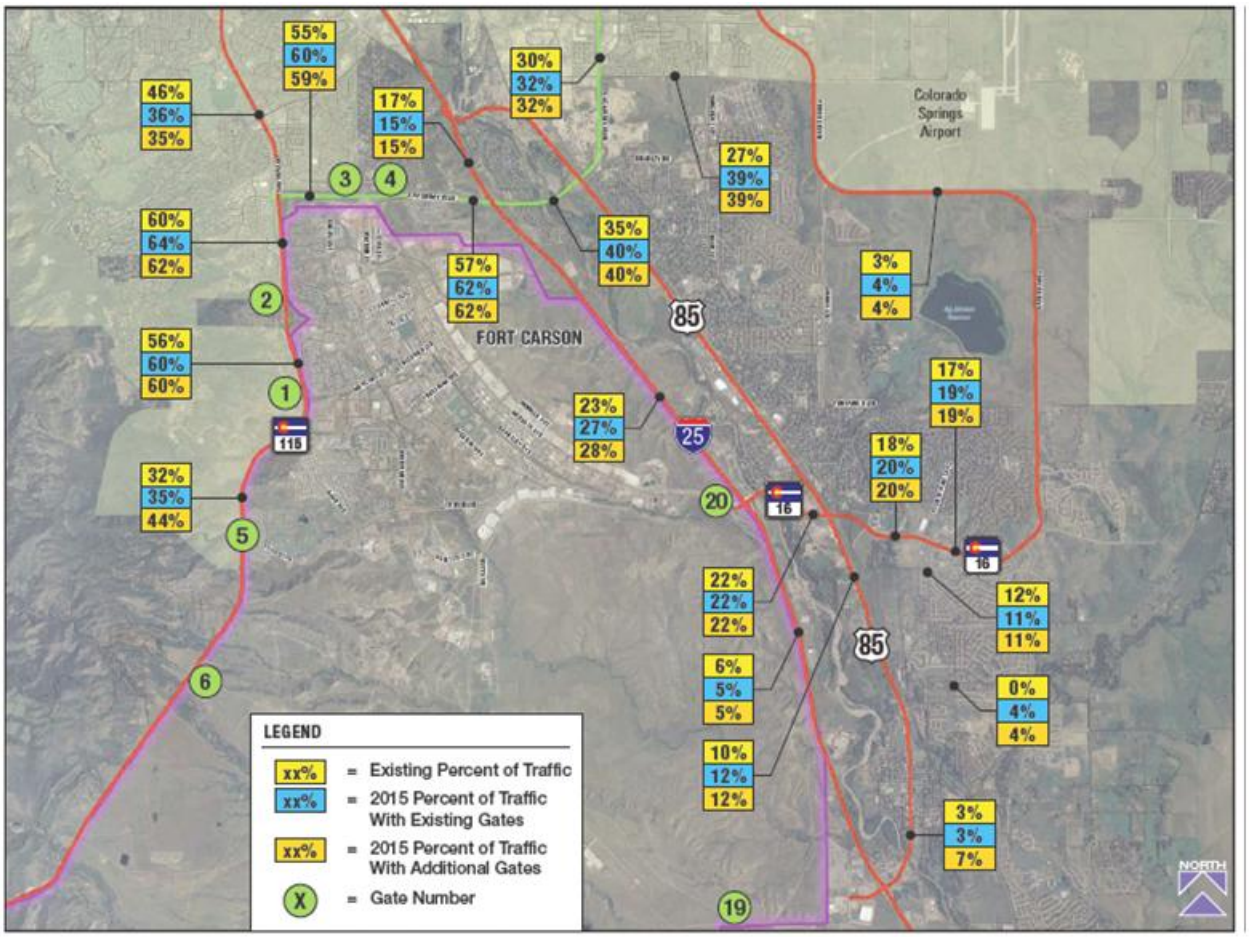
Table 21 shows percentage increases over existing daily traffic volumes along area roadways for the two high travel demand scenarios, which represent a condition with no Soldier deployments. As shown, the change in volume with no deployments is generally the highest on South Academy Boulevard and SH 115. The addition of Gates 6 and 19 causes a higher percentage change in volume primarily on segments just north of the new Gate 6, but has minimal impact on potential increases along South Academy Boulevard and SH 16.

Table 21. High travel demand (2015) traffic volume increases

Location	High Travel Demand with Existing Gates	High Travel Demand With Gates 6 and 19
South Academy Blvd	17% - 25%	17% - 25%
SH 16	6% - 7%	6% - 7%
SH 115	12% - 22%	12% - 31
I-25	7% - 16%	8% - 22%

Reference: PPACG, 2010a, Table 2. p. 13.

The percentage of traffic on area roadways that is generated by the installation is shown in Figure 17. On arterial roadways adjacent to the installation, approximately 60 percent of the roadway traffic is generated by Fort Carson.



Reference, PPACG, 2010a, Figure 7, pg. 15.

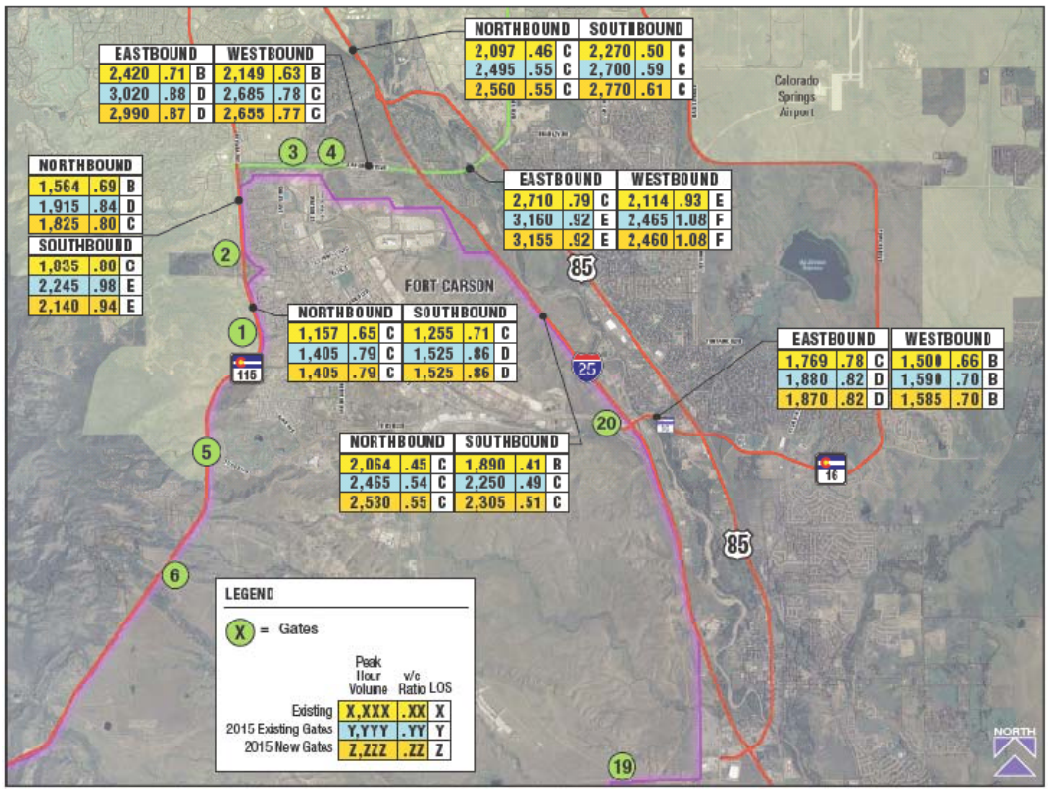
Figure 17. Percent of Roadway Traffic Related to Fort Carson

Traffic operations in the study area were evaluated according to techniques documented in the *Highway Capacity Manual* (Transportation Research Board, 2000). These techniques use hourly traffic volumes, intersection control and lanes to give a LOS, which provides a qualitative measure of traffic operational conditions based on vehicle delay. LOS is described by a letter descriptive designation ranging from A to F, with LOS A representing free-flow travel and LOS F representing highly congested conditions. LOS on roadways is generated by calculating the volume/capacity (V/C) ratios for the scenarios. Roadway levels of service were determined from V/C ratios using the data in Table 22 Figure 18 shows the LOS for primary roadways in the immediate area around Fort Carson.

7831 **Table 22. Levels of Service by V/C Ratio**

LOS	Volume to Capacity Ratios for Roadway Facility Types	
	Freeway (capacity = 2,280 veh/hr/lane)	**Urban Street Principal Arterials (capacity = 1,140 veh/hr/lane)**
A	<0.27	-
B	0.27 – 0.46	< 0.75
C	0.46 – 0.64	0.75 – 0.82
D	0.64 – 0.84	0.82 – 0.89
E	0.84 – 1.00	0.89 – 1.00
F	> 1.00	> 1.00

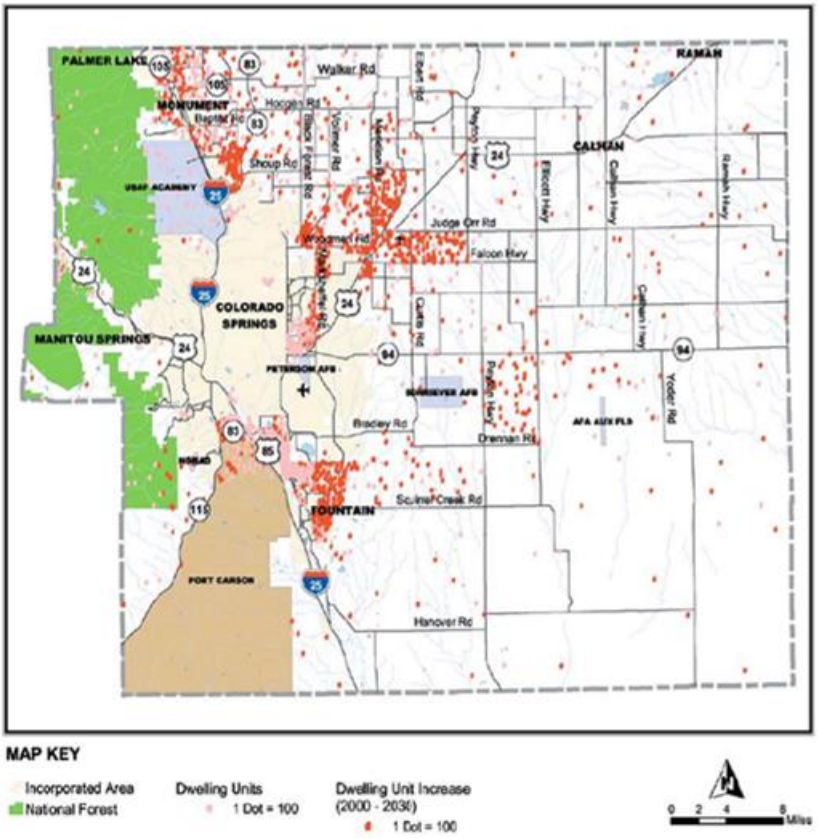
7832 Reference: TRB, 2000.



7833 Reference, PPACG, 2010a, Figure 12, page 19.

7834 **Figure 18. Arterial Peak-Hour Volumes and LOS**

7835 Two road segments in the area had an LOS lower than D. Those are Academy Boulevard east of I-25
7836 (both directions) and southbound SH 115 between Academy Boulevard and Fort Carson Gate 1.



Reference: El Paso County, 2004, maps, page 26.

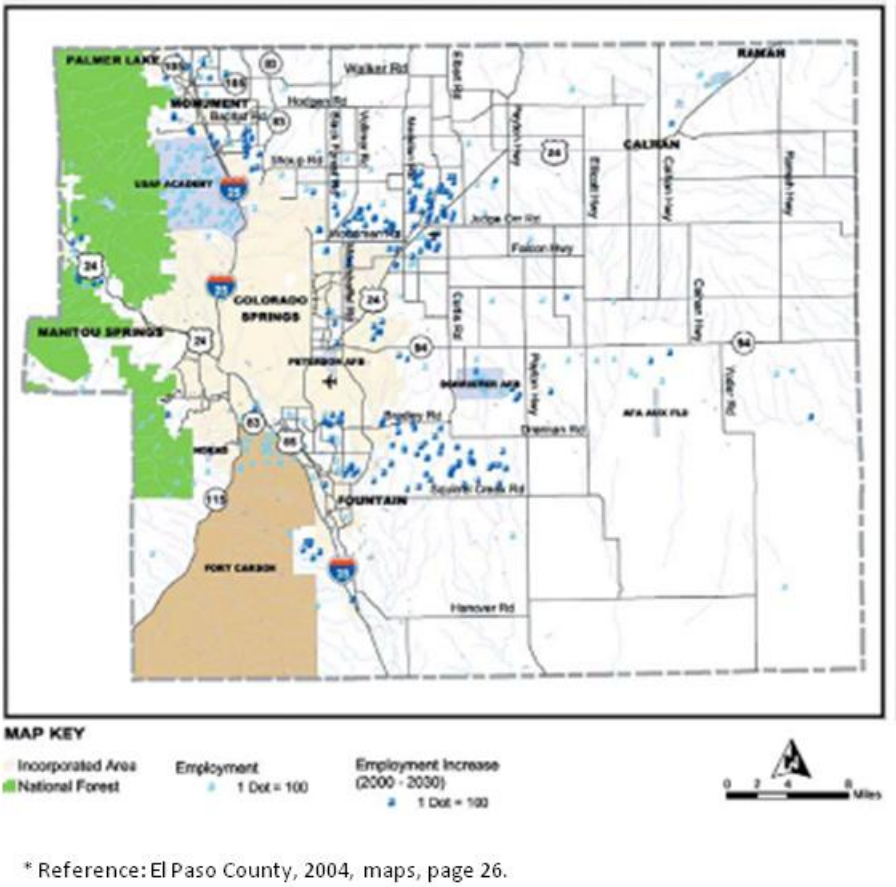
Figure 19. 2000 and 2030 Dwelling Units, El Paso County, CO

Calculations showing 2015 new gates presume that gates 6 and 19 will also be open. Opening gates 6 and 19 have virtually no effect on reducing LOS for any of the study's roadways.

The volume of traffic around Fort Carson will increase by at least 20 percent between 2005 and 2015 with the majority of these increases directly attributable to Fort Carson. The base year (2005) of the model indicates that Fort Carson contributes approximately 50,000 daily trips to the regional roadway network. By the year 2015, that is expected to increase to approximately 63,250 trips. Traffic volumes on Fort Carson will increase significantly resulting from the added Soldiers and Family members. Existing traffic data (Fort Carson, 2008) indicates that congestion exists on select installation roadways and at selected entry gates during peak periods.

El Paso County is expected to grow considerably over the next several decades. Population and employment are both expected to increase by more than 50 percent between 2000 and 2030. The county's population is expected to grow from 517,000 in 2000 to approximately 800,000 by 2030. The unincorporated county is expected to increase its share of the county's population from 126,000 (24 percent of the county population) in 2000 to nearly 240,000 (30 percent of the county's population) in 2030 (El Paso County, 2004). The red dots in Figure19 shows the approximate distribution of future

dwelling units. Dwelling units are a useful proxy for population and show the relative distribution of the population in the area. Dwelling units show where the trip originates.



* Reference: El Paso County, 2004, maps, page 26.

Figure 20. 2000 and 2030 Employment, El Paso County, CO*

Employment identifies the destination end of the trip. This destination might, a trip for work, shopping or education. The blue dots on the employment map (Figure 20) are generalized and do not represent specific locations or actual numbers of new houses or commercial development. What they do show is the relative locations and amount of growth as it is distributed around El Paso County (El Paso County, 2004).

The growth projected for El Paso County has a major impact on the transportation corridors throughout the County. Increases in both population and employment will increase the number of new trips and the length of these trips. The analysis shows that there are currently congestion problems at certain post access points, particularly during peak demand periods, and traffic volumes on-post will increase significantly with the increase in troops. Proposed new facilities (i.e., activation of Gates 6 and 19) may change future traffic patterns; however, additional steps are needed to mitigate traffic issues related to Fort Carson growth. Figure 19 shows the distribution of off-post housing of Fort Carson Soldiers by zip code. The area defined by zip codes 80906, 80910, 80916, and 80911 includes almost half (48 percent) of the Soldiers who live off-post and account for almost half (49 percent) of the daily trips those Soldiers

and their Families make. Figure 20 shows the expected locations for new employment opportunities in El Paso County.

Existing Conditions Findings

The following discuss the findings of the gate capacity analysis and the relationship between gate capacity and field observations of gate operations (PPACG, 2010a):

- Peak-hour volume at Gate 20 is nearly equal to the low-end gate capacity. Installation personnel have indicated that during peak times Military Police are used in order to utilize tandem processing at each lane, designed to provide the gate with sufficient capacity to accommodate the peak flow; however, field observations show queues extending through the SH 16 interchange and along the southbound off-ramp.

- Peak-hour volumes at Gate 1 exceed the high-end gate capacity.

- Gate 3 peak-hour demand is less than the capacity. However, queues from the gate were observed between 6 AM and 6:30 AM to extend onto the westbound Westmeadow off-ramp. It appeared that they did not extend onto South Academy Boulevard.

- Gate 4 peak-hour demand is less than the low-end capacity. Post personnel have indicated that during peak times Military Police are used in order to establish tandem processing at each lane, which is designed to provide the gate sufficient capacity to accommodate the peak flow. However, it was observed between 5:30 AM and 6:15 AM that queues from the gate can extend onto the westbound B Street off-ramp and occasionally into Academy Boulevard.

- The queuing observed at Gates 4 and 20 despite vehicle demand below the capacity is best explained by the traffic flow patterns in the early morning hours. Turning movement count data at the adjacent interchanges show a 15-minute count from 5:30 AM to 5:45 AM that is double any other 15-minute period during the morning commute. This "pulse" of traffic temporarily overwhelms gate capacity and a queue forms. After 5:45 AM, vehicle flow rates drop to just under the gate capacity but these vehicles must stack behind the queue formed by the earlier pulse and thus the queue continues to grow. This queue only begins to decrease when the vehicle flow

rate drops below capacity, which according to counts begins around 6:00 AM. As observed in the field the queue quickly dissipates and is gone by 6:15 AM.

- Peak-hour volumes at Gates 2 and 5 are less than the low-end capacity and Fort Carson personnel have not indicated that there are significant queuing issues at these gates.

- The sum of gate capacity installation wide is sufficient to accommodate existing peak-hour demand, if arriving vehicles were to distribute more evenly among the gates.

Conclusions

The following are conclusions on projected traffic conditions based on an analysis of existing conditions and projected population growth for the El Paso County area (PPACG, 2010a)

- Travel to and from Fort Carson has increased over the last four years. Gate counts from October 2009 show about 74,000-vehicle trips to/from Fort Carson each day. This is 90 percent higher than gate counts in 2005.

- The main driver of the gate counts is the number of Soldiers physically present. Within the next three years, if all Soldiers assigned to Fort Carson were not deployed and remained on-post then traffic volumes to/from Fort Carson could increase by another 30 percent to almost 96,000 vehicles per day.

- Existing AM inbound peak-hour volumes exceed theoretical gate capacity at Gate 20. High travel demand projected volumes will exceed gate capacities at Gate 1 and Gate 20 and approach capacity at Gate 4. However, the gate capacity in totality is adequate to accommodate both existing and high travel demand projected peak-hour inbound volumes.

- Field observations show gate queues during peak inbound times extending off-post into adjacent intersections and roadways.

- Recent improvements to the SH 16 and I-25 interchange have significantly upgraded capacity and storage on the approach to Gate 20. These improvements have reduced queuing onto adjacent

roadways. Ongoing improvements to SH 16 between I-25 and US 85 will provide additional capacity and storage for the Gate 20 approach.

- Ongoing improvements to South Academy Boulevard and programmed improvements to SH 115 will adequately address capacity and safety issues on these roadways.

- Recent capacity improvements to the adjacent roadway system will accommodate existing traffic volumes and high travel demand projected traffic volumes. A few locations around the installation may experience LOS E conditions but congestion will be localized to those areas.

This scenario assumes all Soldiers stationed at Fort Carson are on-post and the potential for the opening of Gate 6 and 19. The following discusses the projected peak-hour volumes for the high travel demand scenario of 26,000 Soldiers assigned to Fort Carson as compared to anticipated future gate capacity.

- The projected peak-hour volume at Gate 20 will exceed the high-end capacity.

- The projected peak-hour volume at Gate 4 will exceed the low-end capacity but be just under the high-end capacity.

- Gate 1 capacity increases due to converting a visitor inspection lane to an Automated Installation Entry (AIE) system. However, the projected peak-hour volume, without Gate 6, will be 105 percent of the gate capacity. Opening Gate 6 reduces the projected demand by 12 percent to 700 vehicles per hour, which is less than the anticipated capacity.

- The low-end capacities at Gates 2 and 5 are anticipated to be higher than the projected pea- hour volumes at these gates.

- At Gates 3, 4, and 20 capacities are anticipated to either remain the same or decrease from existing capacities due to the installations of AIE systems. Therefore, observed queuing issues at Gates 3, 4 and 20 will likely continue and be exacerbated in the high-travel demand scenario, which assumes all Soldiers are on-post.

- Gate 19 will need to attract about 220 vehicles from Gate 20 in the AM peak-hour to reduce Gate 20 demand to a level equal to its high-end capacity. Although Gate 19 does not draw large volumes

from Gate 20 it does provide several benefits to the post. Gate 19 provides direct access for units to be stationed at the new Wilderness Road development area and BAAF. This will remove traffic from the cantonment area and alleviate internal installation congestion near the Butts Road / Titus Boulevard. intersection. Furthermore, Gate 19 could have additional utility since it provides installation access for existing and future housing in the southern portion of the city of Fountain and in northern Pueblo County.

- The sum of future gate capacity installation wide is sufficient to accommodate the projected high travel demand peak-hour volume, if arriving vehicles were to distribute more evenly among the gates.

D.2. Planned Roadway Improvements

The PPACG identified a number of roadway improvements that will alleviate some of the problems associated with congestion, as identified in Table 23. Additionally, the PPACG recommended that the several jurisdictions (city of Colorado Springs, city of Fountain, El Paso County, and Fort Carson) continue to cooperate and expand their nonmotorized transportation system.

7986 **Table 23. Recommended Roadway Improvements near Fort Carson**

Planned Roadway Improvements Near Fort Carson	Lead Agency	Estimated Cost	Status
Continue improvements to South Academy Boulevard	El Paso County/ City of Colorado Springs	$80 Million	Phase 4 of county portion in progress
Continue improvements to SH 16/I-25	CDOT/PPACG	$70 Million	Undetermined
Continue planning and funding improvements to SH 125	CDOT/PPACG		Planning study for SH 115 will completed as part of Phase II Ft. Carson Impact Study. PPACG included funding in 2010 TIP.
Monitor S. Academy Blvd and intersections near Ft. Carson as installation population increases	PPACG/CDOT/El Paso County, City of Colorado Springs		
Continue to pursue funding for projects along I-25 corridor from South Academy north to the Douglas County line	CDOT/PPACG		

7987 Reference: PPACG, 2010a, Appendix F

7988 The CDOT also has a number of roadway improvements identified to alleviate congestion and improve
7989 roadway safety. Those transportation improvement projects most relevant and affecting Fort Carson are
7990 identified in Table 24.

7991

7992 **Table 24. CDOT Transportation Improvement Plan projects near Fort Carson**

Location	Project Description	Years and Funding
SH 115, from milepost 27 to 46.	Safety Improvements. This work includes safety –improvements at intersections and curves along SH 115 from approximately South Rock Creek to the Main Gate at Ft. Carson in El Paso County. The work may include highway realignment and widening for improved sight distance, added climbing lanes, intersection upgrades for Ft. Carson and nearby neighborhoods, improved shoulders and drainage, upgraded guardrail, enhanced delineation, new signing, striping, and resurfacing.27 to milepost 46	2011: $1,000000 2012: $200,000 2013: $2,000,000
I-25. Bridge over Rock Creek.	Perform preliminary engineering of northbound bridge over Rock Creek.	2010: $700,000 2013: 3,500,000

7993 Reference: PPACG, 2010a.

7994 Figure 21 shows the 2035 fiscally constrained roadway projects near Fort Carson. The figure provides
7995 information on the sponsoring agency, funding source, status and a description of each project. Most of
7996 these projects have been constructed, are being constructed, or are in the design phase. As indicated
7997 earlier in the traffic operational analysis, the planned capacity improvements should generally
7998 accommodate projected traffic volumes for the high travel demand scenario considered herein.

7999

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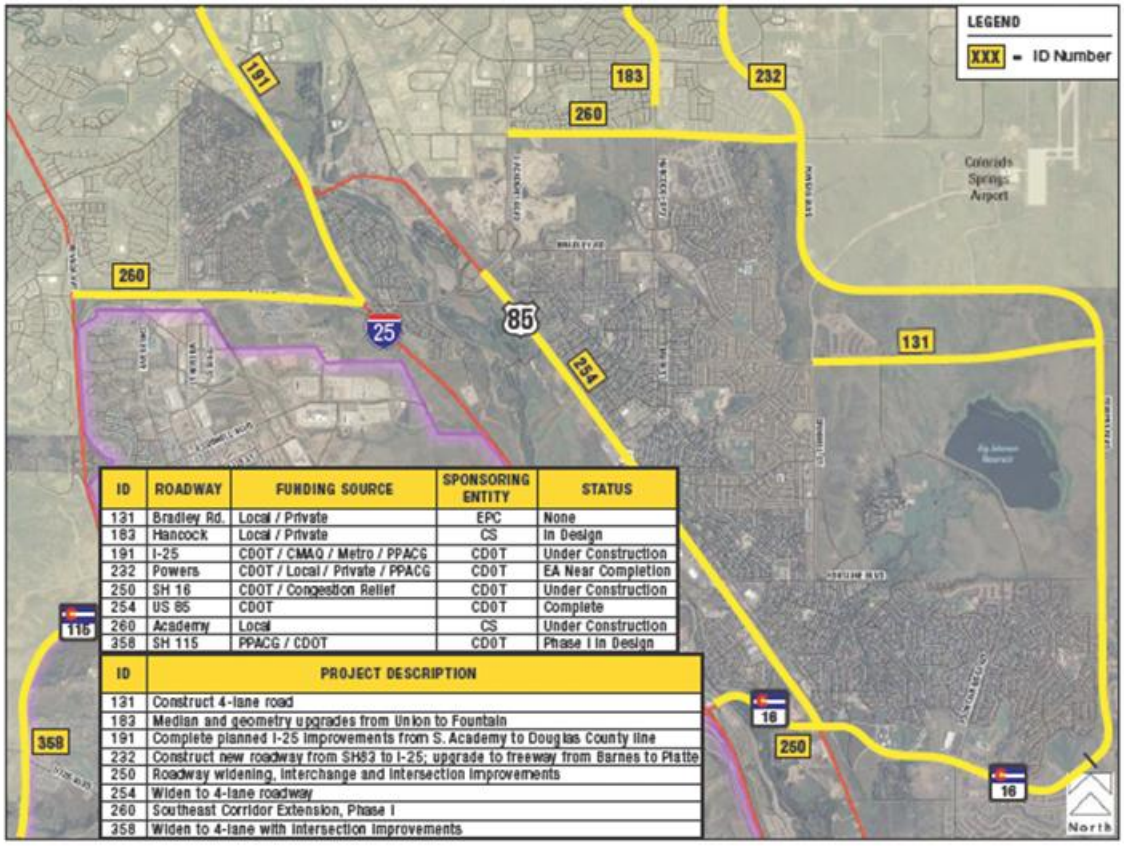

ID	ROADWAY	FUNDING SOURCE	SPONSORING ENTITY	STATUS
131	Bradley Rd.	Local / Private	EPC	None
183	Hancock	Local / Private	CS	In Design
191	I-25	CDOT / CMAQ / Metro / PPACG	CDOT	Under Construction
232	Powers	CDOT / Local / Private / PPACG	CDOT	EA Near Completion
250	SH 16	CDOT / Congestion Relief	CDOT	Under Construction
254	US 85	CDOT	CDOT	Complete
260	Academy	Local	CS	Under Construction
358	SH 115	PPACG / CDOT	CDOT	Phase I in Design

ID	PROJECT DESCRIPTION
131	Construct 4-lane road
183	Median and geometry upgrades from Union to Fountain
191	Complete planned I-25 improvements from S. Academy to Douglas County line
232	Construct new roadway from SH83 to I-25; upgrade to freeway from Barnes to Platte
250	Roadway widening, interchange and intersection improvements
254	Widen to 4-lane roadway
260	Southeast Corridor Extension, Phase I
358	Widen to 4-lane with intersection improvements

8001
8002 Reference, PPACG, 2010a, Figure 15, p. 27

8003 **Figure 21. 2035 Long Range Transportation Plan, Fiscally Constrained Projects.**

8004 **D.3. Nonmotorized Transportation**

8005 Nonmotorized transportation as it relates to Fort Carson is somewhat geographically limited to nearby
8006 regions around the installation. Due to limited access on the south, southeast, and west sides of the
8007 installation, opportunities for nonmotorized access to Fort Carson will generally come from Colorado
8008 Springs and El Paso County to the north or El Paso County and the Fountain / Security / Widefield areas
8009 to the east.

8010 Regionally, and compared to other metropolitan regions, the Colorado Springs area has a very respectable
8011 nonmotorized transportation system. The installation itself has infrastructure that actively supports
8012 cycling as a recognized mode of transportation and has taken steps to coordinate its bicycle infrastructure
8013 with that of adjoining jurisdictions of Colorado Springs, Fountain and El Paso County. The PPACG

adopted, as a component of the larger 2035 Regional Transportation Plan (PPACG, 2008d), a Regional Nonmotorized Transportation Plan in 2008. Data gathered from a survey in 2007 indicated that 1.1 percent of commuters entering Fort Carson gates were on a bicycle (PPACG, 2010a). The State of Colorado, PPACG, El Paso County and the cities of Colorado Springs and Fountain, as well as Fort Carson itself all have bicycle routes and the these jurisdictions have taken steps to coordinate and integrate their planning efforts. The cities (Colorado Springs and Fountain) and the county have identified capital improvement plans to improve their system, but the "missing links" is to improve connectivity between each jurisdiction's bicycle network (PPACG, 2010a). Continued cooperation and development of bicycle infrastructure could lead to increased levels of cycling to Fort Carson.

D.4. Public Transportation

Public transportation services in the Pikes Peak region are currently provided by the Colorado Springs' Mountain Metropolitan Transit. The city's severe budget deficits have caused it to discontinue funding of prior transit operations. Current operations funding is being provided through the Pikes Peak Rural Transportation Authority. This shift has resulted in the discontinuation of several routes and a decrease in the span of service - weekday evening trips were cut, as was weekend service. The short-term prospect of Mountain Metropolitan Transit playing a role in providing transportation alternatives to and from Fort Carson, or in reducing single occupant vehicles passing through the gates, is limited.

Before the Mountain Metropolitan Transit service reductions, Routes 30 and 33 provided direct service to and within the cantonment area. Routes 30 and 33 provided direct service to the installation's cantonment area from the Pikes Peak Community College transfer hub, immediately north of Fort Carson. Route 30 operated from early morning to early evening on Monday through Saturday; while Route 33 only operated during peak-hours Monday through Friday. These services were discontinued in 2009, leaving Fort Carson with no on-post transit service.

If transit service to Fort Carson is again implemented as a strategy to reduce single-occupancy vehicle use, that service will have to take into account the needs of the Soldiers and their Families, as well as workers and visitors (PPACG, 2010a).

D.5. Fort Carson Internal Transportation Network

The roadway system at Fort Carson forms somewhat of a grid pattern with roadways in the main cantonment area running in a general east-west or north-south direction. The primary routes in this area include O'Connell Boulevard, Chiles Avenue, Specker Avenue, Prussman Boulevard, and the one-way pair of Barkeley and MacGrath avenues. Outside of this area Butts Road provides access to the southwestern more remote areas of the post and to Wilderness Road. The roadways on Fort Carson can be classified into one of the three types according to the function they serve in moving people and freight:

- Arterial Highways – Serve the movement of people and freight regionally between population and activity centers with a minimal level of access to adjacent properties.

- Collector Roadways – Serve the movement of people and freight from population and activity centers and funnel them onto arterial highways with a moderate level of access to adjacent properties.

- Local Roadways – Provide access to adjacent properties and move people onto collector and arterial roadways.

Arterial highways are divided into principal arterial highways and minor arterial highways. Principal arterial highways serve national and regional movements.

Minor arterial highways serve movements between population and activity centers within a region. Arterial roadways generally have four, five or six lane cross-sections within developed areas. Outside of developed areas, minor arterial highways may have a cross-section with two or more lanes. Traffic demand determines the number of lanes required on a roadway. Arterial highways located in less developed areas should be designed to permit safe travel at speeds greater than 45 miles per hour. At Fort Carson, Butts Road and the one-way pair of Magrath and Barkeley avenues will be classified as arterials.

Collector roadways may be grouped into major collector roadways and minor collector roadways. Major collector roadways connect larger population and activity centers with arterial highways. Minor collector roadways connect smaller areas or portions of larger areas with major collector roadways or arterial highways. Collector roadways located within Fort Carson include:

- O'Connell Boulevard
- Ellis Street
- Nelson Boulevard
- Prussman Boulevard
- Titus Boulevard
- Butts Road
- Specker Avenue
- Chiles Avenue
- Harr Avenue
- Sheridan Avenue
- Minick Avenue

Local roadways are located in all portions of Fort Carson and serve as the direct connection to parking lots and adjacent properties. Examples include Khe Sanh Street and Woodfill Road.

D.6. ENVIRONMENTAL CONSEQUENCES

Alternative 2 and, Assuming CAB Stationing is at Fort Carson, Alternative 1

Traffic and Roadways

Direct effects at Fort Carson. To estimate the total trips generated from a CAB, this analysis suggests that the land use is comparable to ITE's Land Use category 710, General Office Building (ITE, 2003, p. 1149). A general office building houses multiple tenants, it is a location where affairs of businesses are conducted or commercial or industrial organizations or professional persons or firms conduct business activities. An office building or buildings may contain a mixture of tenants including professional services such as insurance companies, and tenant services, such as a bank, restaurant or cafeteria and service retail facilities (ITE, 2003, pg 1149). Among the various land use categories identified by the ITE for trip generation, the General Office building most accurately reflects the demographics and ancillary activities (e.g., tenant services) that are part of a brigade complex.

A CAB has approximately 2,700 Soldiers but, for the purposes of this analysis, a figure of 2,800 Soldiers will be used. Army data shows that approximately 63.4 percent of Soldiers are married (HQDA, 2009). Of the 2,700 Soldiers, approximately 1,775 will be married and live either in family housing on the installation or live off the installation (2,800 x 0.634 = 1,775). The balance of approximately 1,025

Soldiers will be unmarried. Approximately 15 percent (154) of the unmarried population will be officers or senior noncommissioned officers who are authorized to live in quarters outside the brigade complex. Of the approximately 2,800 CAB Soldiers, approximately 1,929 will live outside the brigade complex and commute to work on a daily basis (1,775 + 154=1,929). This population will either live in family housing on the installation or off the installation in rented or purchased housing. Of the 1,025 unmarried Soldiers, 871 Soldiers are lower-grade enlisted who will live in barracks within or near the brigade complex. It is presumed these Soldiers will live within walking distance and will not add to the morning or afternoon peak traffic volume. It is assumed that each of the 871 unmarried soldier living within the brigade complex will make two daily trips.

For calculating trip generation for morning and peak-hours this analysis will use the population of 1,860 who live outside the brigade complex. There will likely be additional trips made by visitors and vendors during the day, and those will are included in the daily total trips. The ITE uses equation [1] to calculate daily trips on a weekday, equation [2] for weekday AM peak-hour, and equation [3] for weekday PM peak-hour (ITE, 2003, pages 1151-1153).

	Equation	**Example**
[1]	Ln(T) = 0.84 Ln(X) + 2.23	
[2]	Ln(T) = 0.86 Ln(X) + 0.24	Morning peak-hour, weekdays: 851 trips
[3]	T = 0.37(X) + 60.08	Afternoon peak-hour, weekdays: 778 trips

Using equations [2], and [3], the presence of a CAB will generate approximate morning peak and afternoon peak trips as indicated.

The formula for weekday trips (equation [1]) does not include the unmarried Soldiers living in the brigade complex. Assuming two trips per Soldier per day, the total weekday trips from the complex will be determined by adding the results of equation [1] with 1,742 (2 trips per Soldier x 871 unmarried Soldiers = 1,742 trips). The total weekday trips from a brigade complex will be approximately 8,452 trips. The calculation to determine weekday trips is:

Trips: Weekday Trips (T) = [Ln(T) = 0.87Ln(X) +2.23] + (2 x 871) = 8,452.

Statistically, every soldier will have 1.51 family members (HQDA, 2009). This means a CAB with 2,800 Soldiers will generate a total increase to the local population of approximately 7,028. The current estimate of annual vehicle miles traveled per capita is 10,067 miles. This means the Soldiers and Family members of a 2,800-soldier CAB will generate approximately 70,750,880 vehicle miles per year.

Indirect effects at Fort Carson. The presence of approximately 2,800 additional Soldiers and 4,228 Family members will add traffic volume to the roadways on Fort Carson. It is not possible to predict with any degree of accuracy the change in LOS on installation roadways or intersections. The additional 2,800 Soldiers will likely generate increased trip generation at common on-post destinations, such as the Commissary, Post Exchange, and other on-post retail and recreation facilities. Similarly, the increase of Soldiers assigned to Fort Carson, and their Family members will also generate, though unquantifiable, increased traffic volume on public roadways near and leading to the installation.

Conclusion The stationing of a CAB to Fort Carson will contribute to increased levels of traffic volume on the roadways in El Paso County. Some portion of the 2,800 Soldiers will reside in the local community and contribute to the morning and evening peak traffic volumes on the roadways near and leading to Fort Carson. Those residing on the installation will also travel off the installation for a host of reasons, such as shopping, entertainment and many others. Collectively, the 2,800 Soldiers and their Family members will contribute to traffic volume in El Paso County and surrounding areas.

As determined above, the presence of an additional 2,800 Soldiers will generate approximately 70,750,880 vehicle miles traveled on the installation and surrounding area. This increase in vehicles miles traveled will likely cause an increase in vehicle crashes and injuries and fatalities from those crashes. Data from the Bureau of Transportation Statistics (2009) determined there will be 199 vehicle crashes annually for every 100 million vehicle miles traveled, and from those crashes, there will be 82 injuries 1.4 fatalities. Statistically, based on the known population increase and projected vehicle miles traveled, there will be 141 vehicle crashes, resulting in 58 injuries and one fatality.

D.7. Cumulative Effects

Cumulative effects are the result of the incremental impact of the proposed action when added to other past, present, and reasonably foreseeable future actions. For a traffic analysis, reasonably foreseeable

8145 future events will include future commercial, retail or residential development both on the installation and
8146 in the adjoining local community that have potential for increasing traffic volume.

8147 El Paso County is expected to see considerable population growth in the future. The population in El Paso
8148 County is expected to grow from approximately 517,000 in 2000 to approximately 800,000 in 2030; a 54
8149 percent increase (El Paso County, 2004).

8150 The region, encompassing El Paso County, the cities of Colorado Springs and Fountain will undoubtedly
8151 see an increase in population in the foreseeable future. This will bring additional housing and businesses
8152 to the region, and combined with the projected population growth at Fort Carson, have an effect on the
8153 region's transportation system. However, the PPACG, the authorized Metropolitan Planning Organization
8154 for the region, has recognized not only the inevitable growth in the region, but also that of Fort Carson.
8155 PPACG has evaluated the potential effects and identified potential problem area and had identified a
8156 number of capital improvement projects to address the expected increase in traffic volume. PPACG, in
8157 cooperation with other local jurisdictions and Fort Carson, is working to further expand non-motorized
8158 transportation in the region.

8159 **D.8. SUMMARY OF ANALYSIS RESULTS**

8160 Evaluation of the regional transportation system confirmed that the El Paso County region will see
8161 continued population growth. The regional study of the potential effects of growth at Fort Carson also
8162 studied the potential impacts on the region's transportation system, to include automobile, nonmotorized
8163 transportation and public transit.

8164 The projected growth to 26,000 Soldiers on Fort Carson will impact traffic congestion in the region. The
8165 region has identified the potential effects and is prepared to meet those effects to ensure the continued
8166 quality of the transportation system to meet local and regional demands and ensure the quality and safety
8167 of the transportation system. The region has identified capital improvement projects to address population
8168 growth and projected transportation demands, to include roadways and nonmotorized infrastructure that
8169 can potentially decrease auto demand in the future. Public transit had been used at Fort Carson, but was
8170 ceased due to lack of demand.

The Fort Carson Comprehensive Transportation Study (Gannet-Flemming, 2008) identified a number of recommendations to improve vehicle safety and traffic flow through infrastructure changes. Implementing these changes to intersection and roadway infrastructure will improve traffic flow and vehicle safety.

Adding a CAB to BAAF and Fort Carson will have direct, indirect and cumulative effects on the local and regional transportation system, but those effects will not be significant.

(For references, see Section 9 of the CAB PEIS.)

(For acronyms, see Section 7 of the CAB PEIS.)

(For further explanations related to Transportation, see Appendix A of the CAB PEIS.)

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Appendix E. JBLM Transportation Analysis for CAB PEIS

This analysis focuses exclusively on the potential of adding a CAB at JBLM. This analysis extracted data from existing traffic and transportation related document cited here, as well as the transportation impact analysis in the JBLM *Grow the Army* FEIS (Fort Lewis, 2010a). That analysis reviewed the potential effects of several alternatives reflecting potential increases in Solder stationing at Fort Lewis. This analysis extracts data from that document to evaluate the potential effects of only stationing the CAB at JBLM.

JBLM is located in western in Pierce and Thurston counties, and is within the area defined by the Puget Sound Regional Council (PPRC). The PPRC (www.psrc.org) is the recognized Metropolitan Planning Organization (MPO) for the greater Seattle-Tacoma area, which also includes JBLM. Federal law requires establishment of MPOs in urbanized regions with a population of greater than 50,000 to conduct integrated coordinated regional transportation planning.

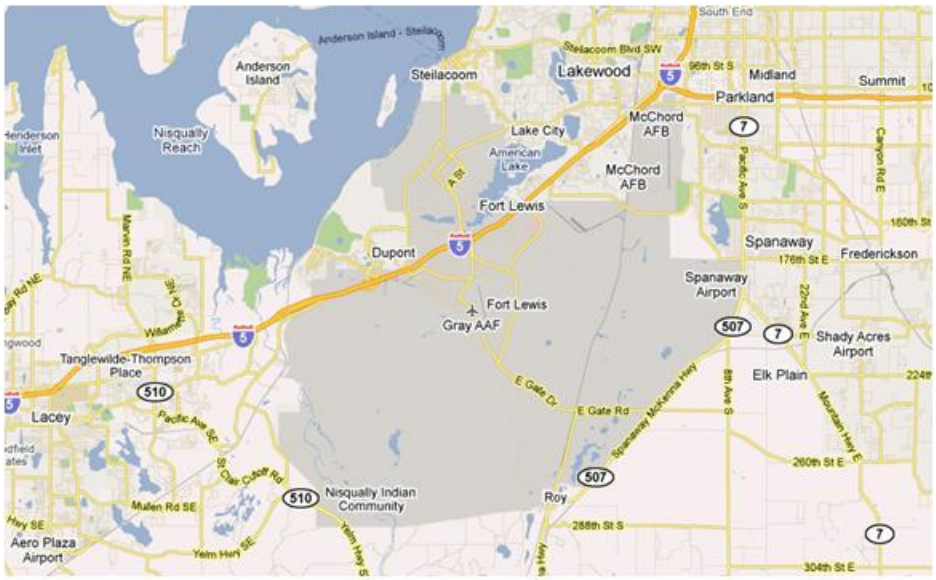
E.1. Traffic and Roadways

Interstate (I-) 5 separates the installation's cantonment area, creating a Main Post and North Post from the former Fort Lewis. I-5 is classified as a T1 freight route, meaning that it carries more than 10 million tons of freight per year. Trucks make up 10 to 13 percent of the total daily volume of traffic on I-5 within portion adjacent to JBLM, which equates to almost 15,000 trucks per day (WSDOT, 2010). This portion of I-5 separates the Fort Lewis portion of JBLM between the Main Post and North Post (see Figure 22).

A study prepared by the WSDOT and Transgroup evaluated I-5 for an 11-mile segment between Mounts Road to State Route (SR) 512 (see Figure 22). The following is a summary of that report.

I-5 is designated as a National Highway System (NHS) route and supports the U.S. strategic defense policy by providing access to JBLM and Camp Murray (home of the Washington National Guard, Washington Military Department, and the Washington State Emergency Management Center). I-5 also provides access to intermodal transportation facilities and accommodates interstate and interregional travel and is designated by the State Legislature as a Highway of Statewide Significance (HSS). The minimum criteria for HSS designation, as prescribed in state of Washington law is: "This statewide system shall include at a minimum I-s and other statewide principal arterials that are needed to connect

major communities across the State and support the State's economy." Complicating the importance of this link is the lack of alternative north-south routes to facilitate regional and local travel. The topography of the area, combined with the presence of JBLM and Camp Murray make local travel difficult; with I-5 often serving as the only local connection (see Figure 22).



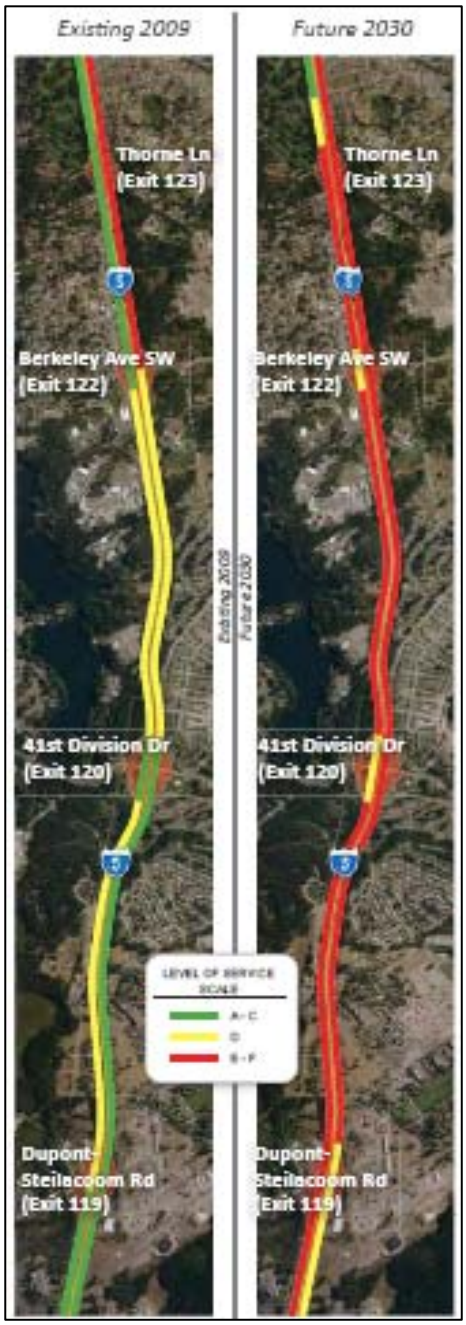
Reference: www.maps.google.com

Figure 22. JBLM and surrounding road network

Since 2003, Army restationing decisions have added more than 36,000 Soldiers, Family members and civilian employees to the population associated with JBLM. A majority of these new personnel reside in the local communities and daily commutes to/from the installation, along with local travel by this expanded population, have added pressure to an already congested I-5 corridor and the interchanges that service JBLM and nearby communities. Increased travel demand through this section on of I-5, from significant growth in Thurston and Pierce counties, has put severe strain on I-5 in this study corridor. Compounding the already congested corridor is the fact that the military-related growth exceeded the population projections developed by local jurisdictions (WSDOT, 2010).

Figure 23 shows the current LOS (left side) and the projected LOS (right side) for the year 2030 for the portion of I-5 adjacent to JBLM. The WSDOT study made the following observations about the segment of I-5 that passes next to JBLM:

- I-5 is an important regional freight corridor where freight represents up to 15 percent of traffic in this section and is backbone of connectivity to the Port of Tacoma and Port of Seattle with global and local economic implications associated with increased freight delay.
- This section of I-5 serves as a key commuter corridor linking two of the fastest growing counties in the state of Washington and providing access to key employment centers.
- Traffic congestion on this section of I-5 occurs many hours of the day and is not just a weekday AM and PM peak-hour phenomenon, and regional travel demands are increasing over the next 20 years.
- JBLM's primary mission is threatened by increasing congestion and safety issues on I-5.
- JBLM has seen significant growth in troop levels and activity and base activity is anticipated to grow further as JBLM also serves Veterans and other military personnel living throughout the Thurston and Pierce Coun
- There is very little transit and high occupancy vehicle use JBLM.



Reference: Washington DOT, 2010, p. 4

Figure 23. Current and expected Level of Service on I-5

- Close intersection spacing and at-grade rail line crossings at the I-5 ramp interchanges at Bridgeport Way, Thorne Lane, Berkeley Street, 41st Division Drive, and DuPont-Steilacoom Road.

- Additional safety and operational delays from the Point Defiance Bypass project that will reroute passenger rail service to the rail line that parallels I-5.

- Significant mainline congestion during PM peak-hour periods at the Thorne Lane interchange due to the choke point on I-5 from four lanes to three lanes.

- Poor circulation and frequent congestion in the Tillicum neighborhood due to the close proximity to the Berkeley Street interchange.

- Three of the four interchange structures serving as primary access to JBLM are considered Structurally Deficient or Functionally Obsolete.

- PM peak-hour I-5 mainline and ramp congestion at the SR 512 interchange, northbound Gravelly Lake Drive off-ramp, and between the Berkeley Street northbound on-ramp and Thorne Lane off-ramp.

- AM peak-hour congestion at the southbound I-5 off-ramp at Berkeley Street resulting from the general capacity of the interchange and access control at JBLM.

- Poor out-bound JBLM operations at Berkeley Street (to northbound I-5), DuPont gate/DuPont-Steilacoom Road (to southbound I-5), and Center Drive (to DuPont and southbound I-5).

In addition to regional background demands on I-5, traffic to and from JBLM is a significant contribution to traffic volumes along the I-5 corridor where JBLM adjoins I-5. Variations of these impacts can sometimes be felt on a day-to-day basis and are dependent upon military operations. These operations can change depending on troop deployments, varying security levels, or holiday leave. In addition to the short-term changes, longer-term impacts also occur. Over the past several years the overall number of troops based at JBLM has increased and is anticipated to continue to increase during the next several years. Because of variable short-term military operations, a look at broad and long-term military travel

patterns and trends is necessary to better understand how to best address any identified impacts (WSDOT, 2010).

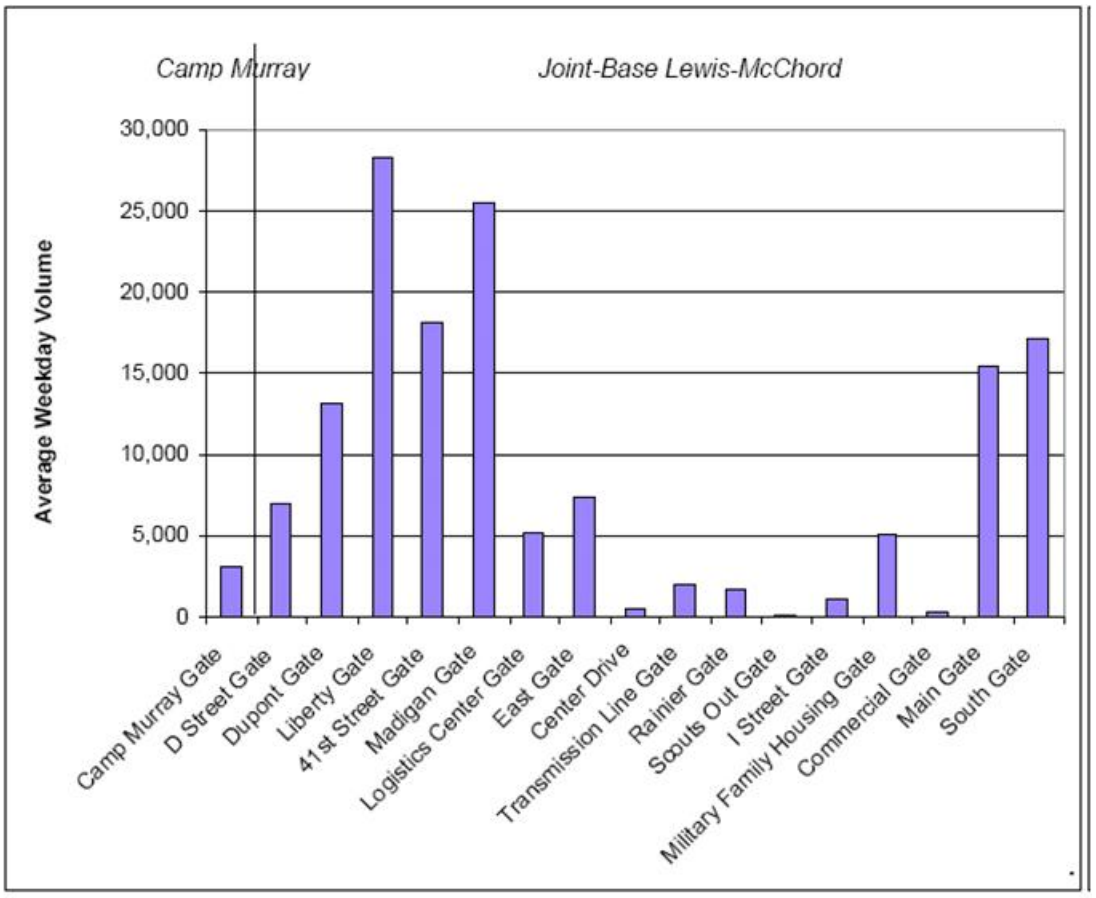
The travel patterns and distribution of traffic from the military bases throughout the regional roadway network are important considerations when evaluating likely impacts to the I-5 corridor. Impacts from military travel demand are more noticeable at interchange ramps located near access gates (Access Control Points). For purposes of this discussion, traffic patterns associated with the former McChord AFB and the former Fort Lewis (now combined under JBLM) are described separately. Based on provided data (WSDOT, 2010, p. 39-40):

- Fifty percent of Fort Lewis area and 60 percent of McChord AFB area personnel and their Families reside and access JBLM from the north (i.e. Lakewood, Tacoma, Kitsap and King Counties).
- Thirty percent of Fort Lewis area and 15 percent of McChord AFB area personnel reside and access the installation from the south (i.e. Lacey, Olympia, Thurston County).
- Ten percent of Fort Lewis area and five percent of McChord AFB area personnel reside and access the installations from the east (i.e. Yelm, Spanaway, Pierce County).
- Ten percent of Fort Lewis area and 15 percent of McChord AFB area personnel reside and access the installations from the west (i.e. DuPont and Steilacoom).

The significant distribution of traffic to the north and south of JBLM (80 percent of Fort Lewis area, 75 percent of McChord AFB area) results in the majority of military traffic utilizing the I-5 corridor to access the installations via the gates along I-5.

E.2. Gate Access to JBLM.

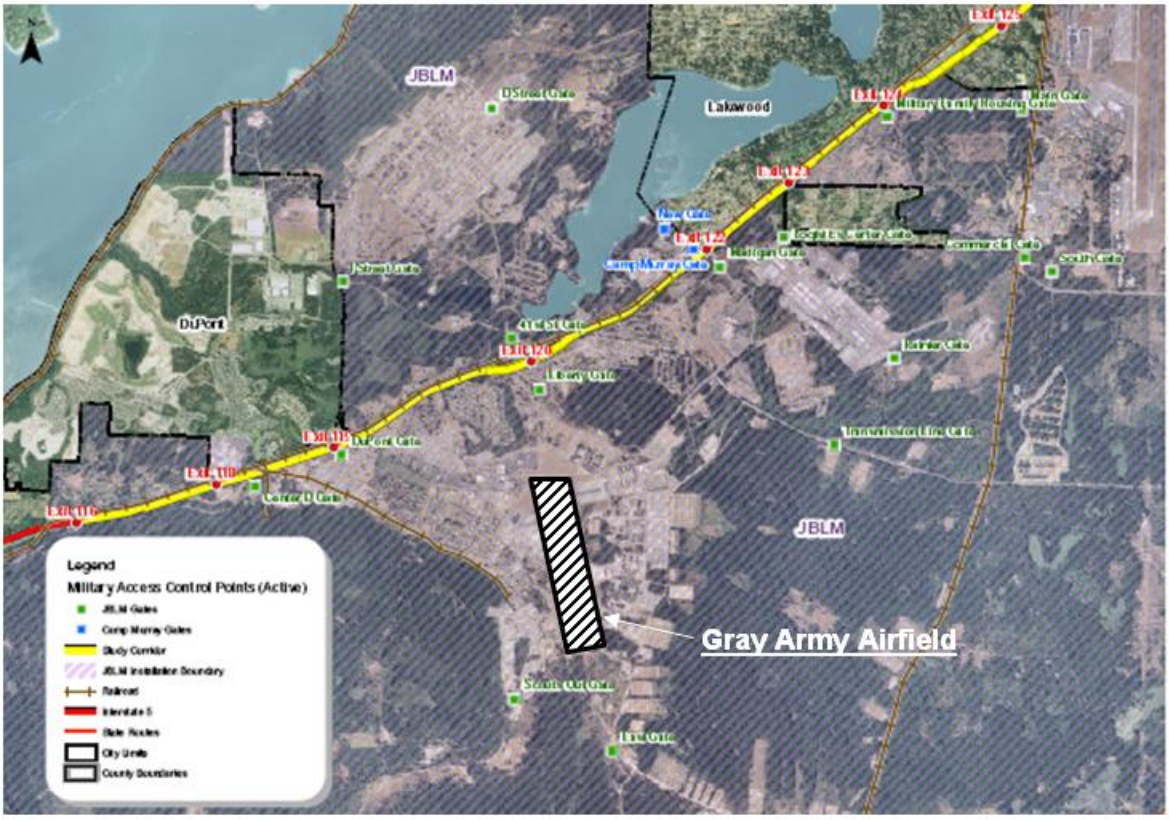
There are multiple access points for the military installations along the I-5 corridor. Figure 24 shows the average weekday traffic volume through the gates.



Reference: WSDOT, 2010, Figure 11, p. 40

Figure 24. Traffic Volume through JBLM gates – 2009

As Figure 24 shows, the majority of traffic from JBLM accesses via DuPont, Liberty, 41st Division, Madigan, Main, and South gates. As Figure25 shows, all five of the high volume JBLM gates are located in close proximity to the I-5 corridor (DuPont, Liberty, 41st Street, Madigan, and Main). In particular the DuPont, Liberty, and Madigan gates are located immediately adjacent to, or are accessed directly, via adjacent I-5 interchanges. Because of the high volumes and close proximity to I-5, operations at these three gates immediately adjacent to I-5 are likely to have the greatest impact to mainline and ramp operations.



Reference, Washington State DOT, Figure 12, p. 41

Figure 25. Location of Access Points, JBLM

The CAB will be located adjacent to GAAF in the south-central portion of the installation (Figure 25). The facilities to support the CAB, such as administrative buildings, and housing for unmarried Soldiers will be located on the east side of the airfield. Presuming the additional Soldiers commuting to the airfield distribute their trips consistent with existing distribution of gate volume (Figure 25), a large majority of new trips from CAB Soldiers will use access control points along I-5.

Based on data in the JBLM *Grow the Army* FEIS (Fort Lewis, 2010a), it can be expected that stationing a CAB will generate 770 additional inbound and 620 additional outbound trips through the installation's access control points. This represents an estimated 12 percent increase over the traffic volume that moves through the installation's access control points if all other stationing actions outlined in the JBLM *Grow the Army* FEIS occurred (Fort Lewis, 2010, Sections 4.10.5 and 4.10.6). It is likely that a majority of

these additional trips will enter and leave JBLM through the access control points along I-5, adding to the existing congestion during peak-hours (WSDOT, 2010).

E.3. JBLM Transportation Improvements.

Several transportation facilities are planned for construction on the Fort Lewis portion of JBLM, as identified below (JBLM, 2010a, p. 4-105).

- Upgrading the Madigan Gate with road revisions;
- Adding a DuPont Gate connection to Pendleton Avenue and upgrading Pendleton Avenue to four lanes from DuPont Gate to 8th Street;
- Upgrading 41st Division Drive to a parkway boulevard from A Street to I Street.

Additionally, JBLM recently developed an installation-wide master plan for the former Fort Lewis area. The Transportation Plan, as described in the Master Plan Digest, discusses the possible closure of the Main Gate and distributed traffic to improved gates at DuPont and Madigan. If the Main Gate closes, then the installation could have movement between the Main Post and North Post underneath I-5. Since most traffic arrives on I-5 from points north of the Madigan Gate or from south of the DuPont Gate, the new system can offer improved efficiencies and improved safety along the I-5 corridor (The Urban Collaborative, 2009, p. 32).

E.4. ENVIRONMENTAL CONSEQUENCES

Alternative 2 and, Assuming CAB Stationing is at JBLM, Alternative 1

Traffic and Roadways

Direct effects at JBLM. To estimate the total trips generated from a CAB, this analysis suggests that the land use is comparable to ITE's Land Use category 710, General Office Building (ITE, 2003, p. 1149). A general office building houses multiple tenants, it is a location where affairs of businesses, commercial or industrial organizations, or professional persons or firms are conducted. An office building or buildings may contain a mixture of tenants including professional services; insurance companies, and tenant services, such as a bank, restaurant, or cafeteria and service retail facilities (ITE, 2003, pg 1149). Among

8343 the various land use categories identified by the ITE for trip generation, the General Office building most
8344 accurately reflects the demographics and ancillary activities (e.g., tenant services) that are part of a
8345 brigade complex.

8346 A CAB has approximately 2,700 Soldiers but, for the purposes of this analysis, a figure of 2,800 Soldiers
8347 will be used. Army data shows that approximately 63.4 percent of Soldiers are married (HQDA, 2009).
8348 Of 2,800 Soldiers, approximately 1,775 will be married and live either in family housing on the
8349 installation or live off the installation (2,800 x 0.634 = 1,775). The balance of approximately 1,025
8350 Soldiers will be unmarried. Approximately 15 percent (154) the unmarried population will be officers or
8351 senior noncommissioned officers who are authorized to live in quarters outside the brigade complex. Of a
8352 2,800 CAB, approximately 1,929 will live outside the brigade complex and commute to work on a daily
8353 basis (1,775 + 154 = 1,929). This population will either live in family housing on the installation or off
8354 the installation. Of the estimated 1,025 unmarried Soldiers, approximately 871 Soldiers are lower-grade
8355 enlisted who will live in barracks within or near the brigade complex. It is presumed these Soldiers will
8356 live within walking distance and will not add to the morning or afternoon peak traffic volume. It is
8357 assumed that each of the 871 unmarried Soldiers living within the brigade complex will make two daily
8358 weekday trips.

8359 For calculating trip generation for morning and peak-hours this analysis will use the population of 1,929
8360 who live outside the brigade complex. There will likely be additional trips made by visitors and vendors
8361 during the day, and those will are included in the daily total trips. The ITE uses equation [1] to calculate
8362 daily trips on a weekday, equation [2] for weekday AM peak-hour, and equation [3] for weekday PM
8363 peak-hour (ITE, 2003, pages 1151-1153).

	Equation	**Example**
[1]	Ln(T) = 0.84 Ln(X) + 2.2	
[2]	Ln(T) = 0.86 Ln(X) + 0.24	Morning peak-hour, weekdays: 851 trips
[3]	T = 0.37(X) + 60.08	Afternoon peak-hour, weekdays: 778 trips

8364 Using equations [2], and [3], the presence of a CAB will generate approximate morning peak and
8365 afternoon peak trips as indicated.

8366 The formula for weekday trips (equation [1]) does not include the unmarried Soldiers living in the brigade
8367 complex. Assuming two trips per Soldier per day, the total weekday trips from the complex will be
8368 determined by adding the results of equation [1] with 1,742 (2 trips per Soldier x 871 unmarried Soldiers

= 1,742 trips). The total weekday trips from a brigade complex will be approximately 8,452 trips. The calculations to determine weekday trips is provided below:

Trips: Weekday Trips (T) = [Ln(T) = 0.87Ln(X) +2.23] + (2 x 871) = 8,452

Statistically, every Soldier has 1.51 Family members (HQDA, 2009). This means a CAB with 2,800 Soldiers will generate a total increase to the local population of approximately 7,028. The current estimate of annual vehicle miles traveled per capita is 10,067 miles. This means the Soldiers and Family members of a 2,800-soldier CAB will generate approximately 70,750,880 vehicle miles per year.

The JBLM *Grow the Army* FEIS (JBLM, 2010a) evaluated the potential effects of incremental additions of stationing Soldiers at the installation. The purpose of this document is to evaluate the potential effects of stationing only the CAB at the installation. Toward that end, this document presumes that the other stationing alternatives in the JBLM *Grow the Army* FEIS occurred, and evaluates only the effects of an additional 2,800 Soldiers of the CAB. Table 25 is a combination of data that evaluated the incremental increases in Soldiers assigned to JBLM. The LOS data for Alternative 3 is the expected delay at key intersections if all unit stationing occurred at the installation – except the CAB. The data under Alternative 4 indicates the LOS at the same key intersections if the unit stationing included the CAB. Table 25 therefore represents the relative effect on installation traffic congestion if the CAB was stationed at JBLM.

Table 25. Projected Level of Service at Selected Intersections

	Intersection	Traffic Control*	2015AM Peak-Hour		2015 PM Peak-Hour	
			Alternative 3 LOS (delay)	Alternative 4 LOS (Delay)	Alternative 3 LOS (delay)	Alternative 4 LOS (Delay)
1	41st Division Drive/Nevada Ave/Tacoma Ave	Signal	B (18)	C (22)	D (52)	**F (>80)**
2	41st Division Drive/Pendleton Ave	Signal	C (32)	D (35)	D (36)	D (51)
3	I-5 NB Ramps/Barksdale Ave/Clark Road	Signal	C (24)	C (31)	D (49)	E (78)
4	I-5 SB Ramps/Barksdale Ave/Clark Road	Signal	B (14)	B (15)	D (53)	**F (>80)**
5	DuPont-Steilacoom Rd/Barksdale Ave/Wilmington Drive	Signal	C (30)	C (31)	C (29)	C (29)
6	DuPont-Steilacoom Rd/East Dr.	SSSC	C (22) NB-F (>50)	C (23) NB-F (>50)	**F (>50) NB-F (>50)**	**F (>50) NB-F (>50)**
7	North Gate Road/East Drive	AWSC	B (13)	B (13)	E (44)	**F (>50)**
8	41st Division Drive/A Street	Signal	C (34)	D (40)	D (36)	D (46)

Reference: Fort Lewis, 2010, Table 4-30, p. 4-116 and Table 4-31, p. 4-120.

* signal=signalized; SSSC= side-street stop-controlled; AWSC = all-way stop-controlled

The data shows a reduction in LOS for intersections 1, 3, 4, and 7. For two intersections (2, 8) there is no change of LOS, but the delay (measured in seconds) increases. There is no change in either LOS or delay at intersection 5. There is no change in LOS at intersection 6 with the LOS at its lowest level, F, where delay measures longer than 50 seconds for both alternatives.

Indirect effects at JBLM. As determined above, the presence of an additional 2,800 Soldiers will generate approximately 70,750,880 vehicle miles traveled on the installation and surrounding area. This increase in vehicles miles traveled will likely cause an increase in vehicle crashes, and injuries and fatalities from those crashes. Data from the Bureau of Transportation Statistics (2009) determined there will be 199

vehicle crashes annually for every 100 million vehicle miles traveled, and from those crashes, there will be 82 injuries and 1.4 fatalities. Statistically, based on the known population increase and projected VMT, there will be 141 vehicle crashes, resulting in 58 injuries and one fatality.

SUMMARY OF ANALYSIS RESULTS.

The stationing of a CAB at JBLM will cause traffic volume on the installation to increase, and the LOS will decrease at four of eight key intersections studied. LOS at four of the eight intersections will be at LOS-F. Increased traffic volume from stationing the CAB at JBLM will also contribute to increased traffic congestion on I-5 near and leading to JBLM. These potential effects on traffic on roads on, and leading to JBLM are significant and warrant further investigation and identification of long-term mitigation actions.

(For references, see Section 9 of the CAB PEIS.)

(For acronyms, see Section 7 of the CAB PEIS.)

(For further explanations related to Transportation, see Appendix A of the CAB PEIS.)

Appendix F. Public Scoping Comments

This appendix provides the public comments received by the Army during the public scoping period for this PEIS.

Item	Agency (Commenter Name)	Type	Comment
1.	Individual (Sam Johnson)	Aviation (general)	Via e-mail on 9/22/2010: I have heard that the army is not holding a public hearing about the planned expansion of operations at and near Fort Carson. I am hoping this is an error. Surely, when people's life styles are in the direct path of planned military training activity, they would have a chance to voice opinions in a public venue. I will look forward to a public hearing. Thank you for your time.
2.	Individual (Sam Johnson)	Aviation (general)	Via e-mail on 9/23/2010: Thank you for your response. I knew about those meetings and attended a couple of them. What I am referring to now are the proposed flight training activities that will use large numbers of helicopters and C130s over large parts of southwestern Colorado and parts of Arizona and Utah. Some people under those air spaces will be heavily affected (planes at 200 ft.??), and I have heard that the Army is not going to grant them any public hearings. I don't believe that. I think that the Army always holds public hearings if the impacts of training are significant. Am I wrong? Where and when will such hearings take place?
3.	Individual (Bill Sulzman)	Aviation (general)	Via e-mail on 9/27/2010: I have another question from the document referred to in my earlier request. Here we have a description of an area of off reservation low-level training with no detail of the area other than this mysterious set of bridges and intersections. Also as with the mountain training there are no specifics as to how often this training occurs. Hard to comment on this without more detail. 2-14. Off-military reservation low-level training route. a. Low-level training route (Hawk) is established for the purpose of training low-level navigation for day, night, and NVG operations. Use of the route is reserved through BAAF Base Operations to deconflict traffic. b. See Chapter 4 for operating procedures. Route Hawk is defined by the following check points: (1) SP Hawk, River Bridge vicinity EC 15365388. (2) H-1, Highway Bridge vicinity EC 14544527. (3) H-2, Railroad Bridge vicinity EC 09734105. (4) H-3, Highway Bridge vicinity EC 16833383.

			(5) H-4, Highway Bridge vicinity EC 14672121. (6) H-5, 1-25 Bridge vicinity EC 23040836. (7) H-6, Highway T-Intersection vicinity EB 44167713. (8) H-7, Railroad Bridge vicinity EB 75765310. (9) H-8, Railroad Bridge vicinity EB 83205877. (10) H-9, Highway T-Intersection vicinity EB 84299465. (11) H-10, Road Triangle vicinity EC 71343870. (12) H-11, Building on Railroad vicinity EC 62745833. (13) (13) RP, Railroad Bridge vicinity EC 31626513. 2-15. UAS Restricted Operating Zone (ROZ). a. All UAS's currently operate in R-2601 and require a ROZ to be established through Range Control prior to their flight. Publication of a local NOTAM will be accomplished by BAAF Operations and Range Control will execute the activation of the ROZ. FC REG 95-1 * 1 FEBRUARY 2010
4.	Individual (Bill Sulzman)	Aviation (general)	Via e-mail on 9/27/2010: In doing research for my comment letter on the CAB at Fort Carson I came across a copy of this Fort Carson document setting out some of the details of already existing Fort Carson helicopter training. I would like a copy of the USFS agreement in question complete with a map of the 3 training areas and 16 landing zones in the mountains. DEPARTMENT OF THE ARMY HEADQUARTERS, FORT CARSON Fort Carson, Colorado 80913-4145 01 February 2010 *FC Reg 95*1 Aviation Local Flying Rules and Procedures Three mountain training areas with Sixteen LZ's are established for the purpose of conducting mountain/high altitude helicopter training and qualification. The Fort Carson Mountain-High Altitude Program of Instruction establishes procedures for training, qualification and utilization of the areas. (1) The use of training areas and specific landing areas is coordinated annually by the G3 Aviation/MSE G3 AIR through the USFS Regional Office, Wild Life Service, and the City of Colorado Springs. These training areas are not owned by Fort Carson, but are authorized for use through a USFS approved agreement with Fort Carson.

5.	National Park Service – Intermountain Regional Office Denver, CO (Julie Sharp)	Land Use (national parks)	Via e-mail on 10/07/2010: The National Park Service has reviewed this project, and determined that no parks will be affected: therefore, we have no comments. Thank you!
6.	Individual Comment (Doug Holdread)	Socioeconomics (Wind energy development)	Via e-mail on 10/08/2010: The analysis of the proposed addition of a CAB at Fort Carson should include an assessment of the proposals impact upon current and future wind generation within the areas where training will occur. Southeast Colorado has great potential for the generation of much-needed wind-generated electricity and has been designation by the State of Colorado as one of eight Renewable Resource Generation Development Areas. Wind energy development is important to the economic viability of our region. Southeastern Colorado is currently experiencing the adverse affect of 235, 000 acres having been federalized and removed from our tax-roles with the creation of the PCMS. We have suffered additional economic harm because wind energy development projects have be cancelled and postponed due to the threat that the Army plans to significantly expand the current site. In addition, wind power development is already seriously curtailed by existing MOA and Military Training Routes. Since the issue of wind generation and the potential impact upon its current development posed by the proposed CAB was not adequately addressed in either the PEIS or the Grow the Army EIS, a site specific EIS should undertaken which examines and explain how CAB training would interface with wind energy development. The magnitude of environmental impact of the proposed CAB is such that a full, site-specific EIS should be undertaken. Please advise me as to the NEPA process going forward. If Fort Carson is chosen as the location of a CAB will is a site specific EIS be done? Or would the ROD for the Grow the Army EIS simply be revised?
7.	WSDOT – Urban Planning Office (Stacy Trussler)	Transportation	Via letter dated: 10/07/2010 To Whom It May Concern, Thank you for the invitation to identify environmental issues and concerns to be analyzed in the PEIS. The WSDOT has recently supplied comments to the Army on a Draft Environmental Impact Statement (DEIS) and FEIS covering the expansion of JBLM in Pierce County, Washington. Since one of the possible sites to be considered for the CAB is JBLM, WSDOT would like to ensure the transportation issues reviewed for your PEIS are consistent with the transportation issues that WSDOT recommended be analyzed in the Army's "Grow the Base" DEIS and FEIS.

			The following are specific areas that should be analyzed in the CAB PEIS: Traffic Analysis – All affected access points to JBLM should be analyzed. The traffic impact analysis should include both AM and PM peak periods for 1-5 mainline operations and interchanges from SR 512 (Exit 127) to Mounts Road (Exit 116). This analysis should include the ramp operations, the intersections at the ramp termini, and rail crossings for the base (current) year and horizon year with and without the planned CAB addition and relocation. Analysis of the SR 507 and SR 7 intersections that serve traffic accessing gates on the east side of the base should also be included. Appropriate mitigations should be specified if significant impacts are determined. Traffic Modeling: The analysis should have a 20 year horizon (2030). All traffic volumes and growth used in any analysis should include troops, family members, and CAB support resulting from the possible expansion. Lakewood/JBLM/I-5 Study: We have recently completed a study of this area with funding provided by the Office of Economic Adjustment (OEA) at the DoD. The "Traffic Operations Model and Alternative Analysis – I-5 from SR 512 to Mounts Road" study assessed 20 year transportation improvement needs in the I-5 corridor taking into consideration the planned base expansion as well as anticipated general population and employment growth in the study area. We would like to see that the traffic model used in that study be used to generate traffic forecasts in this PEIS. The final report can be downloaded at http://www.wsdot.wa.gov/Projects/I5/FtLewisMcChordTransportation/. Please consider this study's findings as you conduct the CAB PEIS. JBLM Growth Coordination Plan: The preliminary findings from this study should also be considered in the CAB's PEIS. This study was recently completed by JBLM and the city of Lakewood with funding from OEA. An Executive Summary, the Draft Plan, and supporting Appendices are now available on the public website for your review. The website is http://www.jblm-growth.com/. Thanks you for your consideration. If you have any questions please give me a call. Please send all related materials to: Tom Washington Urban Planning Office, WSDOT 401 Second Ave. So., Suite 300

			Seattle, WA 98104-2887 Phone 206-464-1280 e-mail washint@wsdot.wa.gov
8.	Individual Comment (Terry Schooler)	Aviation (general)	Via e-mail on: 09/16/2010 Public Affairs Officer, I strongly support the proposed location of the full CAB to Ft. Carson Colorado. This placement of CAB to area will benefit both the Army and our community. I am a 55 year resident of Colorado Springs. Over the years I have observed the many occasions that Army helicopters have served the area in many emergency operations including air rescue in our high mountains. Of course this saves lives and saves heartache for our residents. It also provides valuable training to Army pilots. Because of the high elevation, 6000 plus feet, of our area and the close proximity even higher altitude mountains this provides for ongoing experience for the Army pilots for their missions in other parts of the world such as Afghanistan. Ft. Carson has the land and the terrain to house this brigade. Make it happen Colorado.
9.	Individual Comment (Kathy Johnson)	Soils/Biological (general)	Via letter dated: 09/27/2010 This is concerning the CAB at PCMS and Fort Carson. I can't see where the CAB would cause any kind of problems. As far as the soil and damage to it, after living here for quite some time, I have been impressed with the ability of the grasses to rebound from damage with no assistance from humans. Left to itself it will re-seed and spread to cover any damaged areas, and I know the care PCMS will take to be sure to care for any problems that develop and take action to remedy any soil problems as they have done and continue to do at PCMS. Due to the scarce population see that dust would create a problem for anyone in the area. Most of the land in the area of PCMS is not populated with cattle or horses on a regular basis - I know stories were told of thousands of cattle, but this was greatly exaggerated - I don't believe you could find more than a few thousand and that would be looking a long way from PCMS. As far as the livestock and wildlife reacting to low flying aircraft, I have seen no reaction by any animals when previous plane and helicopters flew over, not even from a very low flying private plane. So no I don't expect to any livestock or wildfires. As for us, we would love to see a new brigade at PCMS and Fort Carson. We so enjoy it when the planes and helicopters fly over and when troops come to train at PCMS. Most people around here support anything the military does or wants to do. But, I don't imagine they

			take the time to tell you that. Some people here are opposed to anything and everything the Army does-most of them don't even live here and should have no say so. But remember most people support our troops and the Army at PCMS and Fort Carson. Don't listen to the minorities as the crow flies, so I know what's real and what's not. Hope all goes well.
10.	Individual Comment (Macy McKelvey)	Socioeconomics and Land Use	Via letter dated: 09/16/2010 Dear Mr. Secretary, It has announced that Fort Carson, located here in Colorado Springs, has been selected as one of the two finalists to house a 2,700 Army soldier aviation brigade. I believe that the further expansion of Fort Carson with this brigade is both inefficient and a waste of tax payers money. The citizens of Colorado have spoken very clearly that they are adamantly opposed to the expansion of the Pinon Canyon site. Additionally, the logistics of locating an aviation unit at Fort Carson does not make economic sense. As demonstrated with the Fort Carson call ups, it requires a major effort that materially increases the costs involved to relocate the personnel and equipment from here to a major port. A better solution is to locate this facility at locations that have ready access to both shipping and major air transportation closer to the theaters of conflict. Additionally, the location of a major aviation training program at Fort Carson would pose a serious impact on the environment in this area. Flying military helicopters over the numerous wilderness areas, State parks, and other national forest areas near Fort Carson on a frequent basis should not take place.
11.	City of Lakewood (Dan Penrose)	Cumulative Impacts, Transportation, Air Quality, Aviation, Socioeconomics,	Via letter dated: 10/08/2010 Dear Ms. Kropp: This letter is in response to the PEIS scoping notice for the CAB stationing action. We offer the following specific scoping comments in response to the PEIS: <u>Cumulative Impacts</u> The PEIS should analyze cumulative impacts following the process recommended by the Council on Environmental Quality (Considering Cumulative Effects Under the NEPA). The cumulative impacts of the CAB stationing PEIS include growth contemplated in Alternative 3 under the FEIS for Army Growth at Fort Lewis and the YTC, WA. <u>Transportation and Traffic</u> The main access control points at JBLM are: • Steilacoom DuPont Road exit (#119) provides access to the Main Post via the DuPont Gate and Clark Road.

			• The Fort Lewis/North Fort Lewis exit (#120) provides access to the Main Post via the Liberty (Main) Gate and the North fort via the 41st Street Gate. • The Madigan Hospital/Camp Murray exit (#122) provides access to Madigan Hospital and Camp Murray (the adjacent National Guard center located on the north side of I-5). • The Thorne Lane/Tillicum/Lakewood exit (#123) provides access to the Logistics Center gate, via Murray Road. A detailed analysis of the local traffic impacts and detailed description of the regional traffic impacts is critical to understanding the environmental impacts resulting from the stationing action. The traffic analysis should include the traffic impact at each of the stationing action. The traffic analysis should include the traffic impacts at each of the above referenced interchanges along Interstate 5, as well as the impacts on SR 507 at East Gate Road and Steilacoom/DuPont Road at East Drive (D Street). The analysis should determine the number and distribution of additional vehicle trips that would occur as a result of the stationing of the CAB. Further, the impacts on adjacent roadways should be measured by the effect of the proposal on traffic operations at the above referenced interchanges and roads during the AM (0700 to 0900) and PLM (1600 to 1800) peak periods. Finally, the PEIS should describe all other impacts to transportation facilities resulting from the increased traffic on roadways, including Level-Of-Service impacts to the mainline of Interstate 5, SR 507 and arterials within 1 mile of JBLM. <u>Air Quality</u> The environmental review should evaluate the air quality impacts that would occur outside of the installation boundary. <u>Associated Air Operations</u> The FEIS for Army Growth at Fort Lewis and the YTC, WA discusses a potential 344 percent peak increase in the number of GAFF takeoffs and landings associated with stationing actions under the vai9ous alternatives. Please analyze the impacts of the increased helicopter noise, vibration, and inconvenience on the residents outside the installation resulting from the PEIS action. <u>Environmental Justice</u> Please evaluate whether there exits “disproportionately high and adverse human health or environmental effects on minority populations, low income populations, or Indian tribes.” Give the proximity of several low-income neighborhoods and the Nisqually Indian Reservation adjacent to Ft. Lewis and the potential for unmitigated traffic, access, overflight, artillery, and other training

			noise and vibration/reverberation, this analysis needs to be included in the stationing PEIS. <u>Schools</u> In order to properly plan for school staffing and facility needs, it is important that the PEIS forecast the total number of new personnel, the number and age of school-aged children, and the number of students projected to utilize schools on JBLM. This completes the City's scoping comments. Thank you for considering these comments as part of your Project. Please place me on the mailing list for any subsequent notices related to this Project.
12.	Comanche Nation THPO (Jimmy Arterberry)	Cultural Resources	Via letter dated: 09/30/2010 Dear Sir: In response to the above referenced Notice, the proposal has potential to adversely affect and irreparably harm a host of known cultural resources at PCMS, which includes a variety of prehistoric and historic archaeological materials that are currently afforded protection under the NHPA and other applicable laws. The proposed action of consolidating/reorganizing existing aviation units, and the establishment of one or more CABs at Fort Carson for utilization of PCMS for increased training purposes, only furthers the potential. In light of the recent damage to historic properties (that were eligible for inclusion to the NRHP at PCMS during a training exercise (July 16 to August 13, 2010), it is respectfully requested that an alternative area be sought to fulfill the needs of current and future national security requirements, and for the organization of existing aviation assets for more efficient training. If I may be of assistance on this matter, please contact me at (580) 595-9960 or 9618.
13.	Individual Comment (John Barth, Not 1 More Acre!)		Via letter dated: 10/10/2010 To Whom it May Concern: On behalf of Not 1 More Acre!, P.O. Box 773, Trinidad, Colorado 81082, I am submitting this NEPA scoping comment letter regarding the Depart of Army's proposal to add a CAB at Fort Carson, Colorado. The NOI appears to propose adding either one existing CAB and/or one new CAB at Fort Carson. Although the NOI is vague on the number of soldiers and family members that would be relocated to Fort Carson, a related Notice of Availability ("NOA") issued on September 10, 2010 contains more

			specificity (see, 75 Fed. Reg. 55313, *Final Environmental Impact Statement for Grown the Army Actions at Fort Lewis and the Yakima Training Center*). According to this Notice of Availability ("NOA"), a medium CAB consists of "approximately 2,800 soldiers." *See* NOA. This fact is confirmed in the Army's May 7, 2008 NOI for the Grow the Army Actions at Fort Carson. *See.* 73 Fed. Reg. 25686. The NOI also acknowledges that the new CABs would conduct training at a separate military installation, PCMS, Colorado. The CAB to be located at Fort Carson is believed to be Heavy CAB. Based on information and belief, CABs are to utilize approximately 120 helicopters—including, 48 AH-64 Apache helicopters, UH-60 Black Hawk helicopters, 12 CH-47 Chinook helicopters and 12 HH-60M Black Hawk helicopters. It is also believed that each CAB utilizes approximately 300 ground vehicles. As required by NEPA, the Army must analyze the direct, indirect, and cumulative environmental impacts of stationing an additional CAB at Fort Carson. The Army must specifically analyze potential impacts to air quality, soils, vegetation, airspace, archaeological resources, cultural resources, threatened and endangered species, other fish and wildlife species, water quality and quantity, noise, traffic, on-base construction and renovation, off-base growth and development, schools, police, and social services, and socioeconomic impacts to both Fort Carson and the Army base losing the CAB. The Army must also evaluate the impacts to PCMS resulting from the new CAB conducting training at that separate military installation of the Department of Army. For the reasons stated below, Not 1 More Acre! Opposed relocating or adding any new or existing CAB or Army personnel to be stations, trained or housed at PCMS, Colorado. <u>Illegal Segmentation</u> Not 1 More Acre! has previously informed the Army that it is illegally segmenting major Federal actions at PCMS and vicinity. More specifically, Not 1 More Acre! submitted a scoping comment letter to the Army on May 20, 2008 regarding the Grow the Army EIS raising illegal segmentation issues and failure to analyze cumulative impacts of it actions. *See.* Attachment 1 hereto. On October 8, 2007, Not 1 More Acre! also submitted a comment letter on a Draft EIS for the Army Growth and Force Structure Realignment raising the illegal segmentation issues and the Army's failure to consider cumulative impacts. *See.* Attachment 2 hereto. p. 3. All issues raised in the October 8, 2007 and May 20, 2008

			comment letters are incorporated herein by reference. The DoD recently announced that it is also taking comments on proposed LATN to conduct low altitude navigation using C-130 air planes and CV-22 Ospreys in the airshed over PCMS, and vicinity. *See.* Attachment 3 hereto. We continue to ask that all Federal actions proposed by the military for PCMS and vicinity be incorporated into a single EIS so that the combined and cumulative impacts of these actions can be fully assessed in a single document, rather than segmented among numerous separate EISs and EAs. <u>Archaeological/cultural resources</u> The Army must fully catalog all archaeological/cultural resources at PCMS. The Army must also identify mitigation resources for preventing any damage to these resources from its proposed action. The archaeological and cultural resources at PCMS may require imposition of training restrictions and increased operational delays, as well as associated costs. Tribal consultation is also required for implementation of the proposed action and any additional training, housing or stationing activity at PCMS. In addition, we also incorporate by reference all archaeological, cultural and paleontological issues raised in our October 8, 2007 comment letter. *See.* Attachment 2 hereto, pp. 7-10. <u>Noise</u> Further analysis would be required to determine the extent of new noise impacts at and PCMS resulting from the proposed action. This noise would be generated from construction activity at PCMS , noise from addition troops and personnel, and noise from at least 120 additional helicopters and 300 additional ground vehicles, training, live fire, and other additional activities. This additional noise at PCMS should be evaluated. Finally, the DOD recently announced it was accepting scoping comments on a proposal to conduct additional LATN flights in the PCMS air space. The cumulative impacts of these proposed DOD actions must be assessed on the EIS. In addition, we also incorporate by reference all noise issues raised in our October 8, 2007 comment letter. *See.* Attachment 2 hereto, pp. 10-11.

			Threatened and Endangered Species Additional soldiers and development at Fort Carson might impact threatened and endangered species at PCMS. Mexican spotted owl (federally listed as threatened) habitat, burrowing owl, mountain plover, ferruginous hawk and swift fox are present PCMS. A full inventory of threatened and endangered species must be performed prior to implementation of the proposed action. Moreover, the Army must prevent any "taking" of a threatened or endangered species at PCMS by developing mitigation that precludes any killing of such species or adverse impacts to their habitat. In addition, we also incorporate by reference all threatened and endangered species issues raised in our October 8, 2007 comment letter. *See.* Attachment 2 hereto, pp. 11-12. Bald and Golden Eagle Protection Act Bald and golden eagle nests and habitat exist at Pinon Canyon Manuver Site. The Army must comply with 16 U.S.C. 668-668c. Wildlife and fish Migratory birds and other wildlife exist on PCMS. The Army must inventory all wildlife species and prepare mitigation measures to protect wildlife and the habitat they depend upon. In addition, we also incorporate by reference all wildlife and migratory bird issues raised in our October 8, 2007 comment letter. *See.* Attachment 2 hereto, pp. 12-13. Water quality and quantity Also, the Nationwide Rivers Inventory has identified 117 miles of the Purgatorie River, part of which runs through PCMS, as having outstanding scenic, geological, fish, wildlife and cultural values and as eligible for special protection. The PEIS must catalog these special features of the Purgatorie River and develop mitigation measures to prevent any adverse impacts that would prevent designation as a wild and scenic river. Portions of Fort Carson are in the Fountain Creek watershed. Fountain Creek is currently impaired for e coil, Se, and other pollutants. Accordingly, the Army may not take any action that will further exacerbate these water quality impairment. The Army must research all water quality impairments in the Fort Carson and PCMS

			watersheds and determine whether the proposed action may exacerbate these impairments or otherwise adversely impact water quality. It has been reported that significant mitigation measures will be needed to reduce impacts to water quality and achieve US EPA water quality standards resulting from the proposed action. It has been reported that these water quality environmental costs may exceed $1 million. In addition, we also incorporate by reference all water quantity and quality issues raised in our October 8, 2007 comment letter. *See.* Attachment 2 hereto, pp. 14-15. <u>Air Quality</u> The Army must evaluate air pollution impacts resulting from the proposed action. These include air pollution resulting from growth and development, increased traffic, the addition of 120 more helicopters, the addition of 300 more ground vehicles, and dust emissions from increased training at both Fort Carson and PCMS. In addition, the cumulative impacts of DOD's proposed LATN must also be analyzed. In addition, we also incorporate by reference all air quality issues raised in our October 8, 2007 comment letter. *See.* Attachment 2 hereto, pp. 6-7. <u>Soils</u> Additional training at PCMS will result in additional disturbance of soils. Loss of topsoil, erosion, sedimentation, and other soil issues must be analyzed in the PEIS. In addition, we also incorporate by reference all soil issues raised in our October 8, 2007 comment letter. *See.* Attachment 2 hereto, p. 11. <u>Vegetation</u> Impacts to vegetation will occur as a result of the proposed activity. The PEIS must evaluate the adverse impacts to vegetation resulting from construction activity at Pinon Canyon Manuever Site and increased training, housing and other activities at PCMS. The Army must catalogue all threatened and endangered plant species at PCMS. Moreover, the Army must prevent any "taking" of a

			threatened or endangered species at PCMS by developing mitigation that precludes any killing of such a species or adverse impacts to their habitat. Helicopters can also have impacts on short grass prairie. It takes less than 1/8" of dust to kill shortgrass. PCMS abuts the Comanche National Grasslands, which is a recovery unit from the Dust Bowl era. Also, surrounding ranchlands are potentially economically impacted by dust created by destruction of soils on the PCMS. These adverse impacts must be analyzed in the PEIS. In addition, we also incorporate by reference all vegetation issues raised in our October 8, 2007 comment letter. *See.* Attachment 2 hereto, pp. 13-14 and all issues related to Comanche National Grasslands on pp. 16-17. <u>Airspace</u> The Army must analyze the impacts to airspace resulting from its proposed action. The cumulative impact of the proposed action must also be analyzed in conjunction with the Army's LATN proposal. <u>Traffic</u> The increase in traffic must be analyzed in the Pinon Canyon area resulting from the sudden addition of up to 2,800 new soldiers. Traffic infrastructure near PCMS must be studies and any deficiencies remedies prior to relocation of a CAB at Fort Carson. <u>Socioeconomic</u> The CAB is temporarily being housed at Fort Hood. Realignment of the CAB from Fort Hood would result in a loss of personnel due to the relocation of approximately 4,100 soldiers based on 2005 data. The local Fort Hood community has embraced the CAB and did not consider this unit as temporarily stationed at Fort Hood. Soldiers have already purchased homes and intergrated into the community at Fort Hood. The Fort Hood community fears housing prices will drop and soldiers forced to sell their homes will experience significant financial losses. Also, the Fort Hood community responded to the so-called temporary increase in soldiers with increased housing, police, fire and municipal services. They argued that realigning Fort food, leaving only five BCTs permanently stationed there, would forego important existing training facilities and create 15 percent excess capacity. Fort Hood has requested retention of 6 BCTs at Fort Hood, believing the base has the capacity to train and support up to 50,000

			soldiers and their families. Finally, we also incorporate by reference all socioeconomic issues raised in our October 8, 2007 comment letter. *See.* Attachment 2 hereto, p. 17. <u>Hazardous materials</u> The risks posed by the additional use of hazardous materials at PCMS must be analyzed in the PEIS. This includes the additional fuel needed for 120 helicopters and ground vehicles, hazardous material used to maintain these vehicles, and addition weaponry, ordinances, and other hazardous materials in training exercises at Fort Carson and PCMS. Finally, we also incorporate by reference all hazardous materials issues raised in our October 8, 2007 comment letter. *See.* Attachment 2 hereto, p. 15. <u>Baseline conditions</u> Baseline conditions at PCMS must be fully evaluate in order to assess potential future damage that may result from implementation of the Army's proposal. Finally, we also incorporate by reference all baseine issues raised in our October 8, 2007 comment letter. *See.* Attachment 2 hereto, pp. 5-6. <u>GHG Emissions and Climate</u> The Army's proposed action will result in an increase of emission of GHG. The source of electrical power to serve an addition 2,800 soldiers and the corresponding GHG emissions must be analyzed. In addition, the emission of GHG from 120 additional helicopters and 300 additional ground vehicles must be analyzed. The emissions from new construction at PCMS must be analyzed. Thank you for the opportunity to submit scoping comments on the proposed Fort Carson CAB realignment. If you have any questions, don't hesitate to contact me.
14.	U.S. EPA, Region 8 (Larry Svoboda)	Purpose & Need, Air Quality, Water Quantity/Q	Via letter dated: 10/12/2010 Dear Ms. Kropp: This letter is written in response to the U.S. DA request for scoping

		uality, Wildlife, Wetlands, Noise, Socioeconomic, Cultural Resources, Cumulative Impacts	comments for the Preparation of a PEIS for the Growth, Realignment, and Stationing of Army Aviation Assets in a NOI published in the FR on September 10, 2010. The U.S. EPA Regions 8 and 10 (EPA) will review this project IAW EPA's responsibilities under the NEPA and EPA's authority under Section 309 of the Clean Air Act. Regions 8 and 10 have jointly developed this letter. The Army is preparing a PEIS IAW NEPA. The scoping notice identified three alternatives: 1) Realignment and consolidation of the existing aviation elements of up to a full CAB at Fort Carson, CO or JBLM, WA; 2) Implementation of alternative 1 and establishment of one new CAB and station at Fort Carson or JBLM; and 3) a no-action alternative which would retain Army aviation force structure at its current levels, locations, and configuration. The FR notice indicates that a CAB is comprised of approximately 120 helicopters, 600 wheeled vehicles, and 2,700 Soldiers. Establishment of a CAB at either base will require construction of additional facilities. If a CAB, or a portion of one, is established at Fort Carson, the aviation units will train at the PCMS. If a CAB, or a portion of one, is established at JBLM, the aviation units will train at the YTC. In its scoping notice, the Army identified focus areas for analysis. EPA agrees that analysis should include those areas identified and offers the following comments for consideration in development of the Draft PEIS. Purpose and Scope Typically, programmatic EISs are prepared for a broad Federal action such as the adoption of a regulation, policy, plan, or program. The rationale for pursuing a programmatic EIS for the current project is not clear. The alternatives presented in the scoping notice appear to be fairly project-specific and entail increased utilization of specific resources and construction in specific locations. Regardless, the requirements for a programmatic or project-specific EIS are the same. EPA encourages discussion of why a programmatic EIS is being developed and how this project fits into or overlaps with any larger program, series of projects, or previously developed EISs such as the 2007 Grow the Army Final EIS/ROD and the July 2010 Final EIS for Army Growth at Fort Lewis and the YTC. This discussion would also be relevant to cumulative impacts analysis. Alternatives Analysis EPA encourages detailed description of each alternative including what construction activities will take place at each affected location, an estimate of the increase in activity at the PCMS and YTC, the levels of growth expected in each affected area, and the impacts expected at each affected location. EPA also encourages consideration of long-term cumulative impacts associated with

			growth at either base in evaluation of alternatives. Baseline Condition The Draft EIS should identify a baseline condition which will be used to develop and assess the effectiveness of mitigation measures. If impacts from reasonably foreseeable future actions (RFFAs) are expected, the current condition may not e the baseline condition best suited to capture the incremental effect of the project. A no-action alternative may be more appropriate. If a baseline other than current conditions will be used, the Draft EIS should clearly explain and support its basis. Regardless of what condition the baseline represents, we encourage the use of quantified resource-specific characterizations when possible. Air Quality The project has the potential to impact air quality through emissions from the CABs operations, increased vehicle traffic, and growth. According to the Final EIS for Army Growth at Fort Lewis, emissions associated with CAB wheeled vehicle training and helicopter training would increase carbon monoxide emissions by 170.93 tpy. Fort Carson is located south of Colorado Springs, CO in a maintenance area for carbon monoxide. The Draft PEIS should assess any impacts to air quality and include a general conformity analysis with Colorado's SIP. The Fort Lewis Final EIS also indicates that a Medium CAB would log 29,000 hours of total annual flight time and 55,100 total takeoffs and landings. Potential impacts associated with the increase in helicopter traffic at PCMS and YTC should be considered within the Draft PEIS. Dust may be a key consideration at PCMS. The Draft PEIS should also include mitigation measures to address the identified air impacts. Water Quality The proposed project should be evaluated for its potential to alter stream discharge and degrade riparian and water quality. The introduction of sediments to stream systems can alter thermal processes, consequently degrading water quality, and impacting fish and their habitat. Section 303(d) of the CWA requires the States of Washington and Colorado to identify those waterbodies that are not meeting or not likely to meet State water quality standards. Project planning should evaluate which waterbodies that are listed on the State's current 303(d) list that could potentially be affected by the project and whether a water quality restoration plan (Total Maximum Daily Load) has been developed for the waterbodies and the pollutants of concern. If a Total Maximum Daily Load (TMDL) has

			not been established for those waterbodies on the 303(d) list, then in the interim until one is established, the project should demonstrate that there will be no net degradation of water quality to these listed waters. In Colorado, the section of the Purgatoire River from I-25 to its confluence with the Arkansas River is identified on the 303(d) list of impaired waters for Se. This same segment is also identified on Colorado's Monitoring and Evaluation List for sediment. Se is naturally occurring within sediments of this region of Colorado. Activities which disturb the soil in the PCMS have the potential to contribute both Se and sediment to the Purgatoire River. EPA recommends that the Draft PEIS specifically address potential impacts to the Purgatoire River, as well as mitigation for those impacts. Additionally, construction may lead to water quality impacts. The fort Lewis Final EIS estimates that cantonment facilities associated with standard medium CAB would require an areal extent of 4,695,713 SF. We recommend that the Draft PEIS specifically describe how storm water controls will be implemented to protect water quality during construction and how the project will comply with applicable MS4 permits. Water Quantity The projected increase in the number of soldiers and family members would result in an increase in the demand for potable water. As reported in the Fort Lewis Final EIS (page 4-11), the average per capita water use is approximately 81 gallons per person per day (g/p/d), and the maximum water use is approximately 120 g/p/d. Assuming a total of 7,060 soldiers and family members, this translates to an average daily water use increase of about 571,860 gallons. The Draft PEIS should analyze the capacity of the water systems at JBLM and Fort Carson to meet needs associated with the proposed CAB placement, as well as any impacts to groundwater levels. The Draft PEIS should furthermore analyze the capacity of the existing waste water treatment facilities to meet limits for effluent discharges given the additional waste load. Impacts and Mitigation for Aquatic and Terrestrial Resources The Draft PEIS should describe the current quality and potential capacity of habitat, its use by fish, marine mammal, and terrestrial wildlife on and near the proposed project areas, and identify known corridors, migration routes, and areas of seasonal congregation. Habitat descriptions should include habitat type, aquatic and terrestrial species, functional values, and integrity.

			These resources may experience varying degrees of impacts and alteration of their habitat and hydrologic functions, and project encroachment may degrade habitat for fish, other aquatic biota, and other wildlife (e.g., birds). The Draft PEIS should evaluate effects on these species and populations from habitat removal and alteration, habitat fragmentation caused by infrastructure, land use, and management activities, and human activity. Effects on plant species and populations should be included. Impacts to resources should be evaluated in terms of the acreage to be impacted and by the functions they perform. For any impacts that cannot be avoided through siting and design, the EIS document should, at a minimum, describe the types, location, and estimated effectiveness of best management practices applied to minimize and mitigate impacts to aquatic resources. Wetlands Based upon review of the National Wetlands Inventory, areas within and adjacent to Fort Carson and JBLM contain wetlands. Discharge of dredged or fill material into waters of the U.S., including wetlands, are regulated under Section 404 of the CWA. This permit program is administered jointly by the USACE and EPA. Please consult with the Corps to determine the applicability of CWA Section 404 permit requirements to this project. Additionally, EO 11990 directs Federal Agencies to "take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities." The Draft EIS should describe how the project will address the wetland protection goals in EO 11990, if applicable. EPA suggests a mitigation commitment that indirect draining of, or direct disturbance of, wetland areas will be avoided if at all possible. Chemicals and Petroleum Products Each alternative should include an inventory of chemicals and petroleum products that will be used in support of the aircraft, support vehicles, facilities and infrastructure. There should be a description of engineering controls and mitigation measures planned to minimize environmental and human health impacts, consistent with existing SPCCP at each Army Installation. Because the Fort Lewis Army facility contains National Priorities List (NPL) sites regulated under the CERCLA, there are RODs and Federal Facility Agreements (FFAs) in place directing actions involving the discovery and remediation of Hazardous Substances. During construction activities, existing Institutional Controls must be

			enforced to assure timely identification, control and removal of any hazardous substance that may be discovered. Also, planned construction activities must not undermine current protective remediation measures undertaken as a requirement of an existing ROD. Noise Impacts The Draft PEIS should describe the impacts of noise to human and wildlife health and behavior, as well as measures that will be employed to mitigate those impacts, such as physical controls, operations plans, and flight corridors. Noise analysis methodologies should be explained and the single-event and cumulative noise metrics utilized in the analysis should be defined. Invasive Species Invasive species can aggressively spread into areas altered by road construction and other activities. Nationally, as well as in Washington and Colorado, the establishment of invasive nuisance species has rapidly become an issue of environmental and economic significance. EPA strongly supports the development of integrated strategies that will control and manage weeds during and after project activities. The Draft PEIS should provide a discussion to comply with EO 13112 on invasive species. Coordination with Tribal Governments The Draft PEIS should describe the process and outcomes of government-to-government consultation between the DoD and each of the tribal governments that would be affected by the project, issues that were raised, if any, and how those issues were addressed. EO 13175, Consultation and Coordination with Indian Tribal Governments (November 6, 2000), was issued in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of Federal policies that have tribal implications, and to strengthen the U.S. government-to-government relationships with Indian tribes. Environmental Justice Since the proposed action is in an area that has potential Environmental Justice (EJ) populations, the Draft PEIS should determine whether any EJ communities are present within the area and, if so, analyze the impacts this action will have on these communities. According to the Council on Environmental Quality NEPA/Environmental Justice Guidance, Federal agencies are to make the achievement of environmental

			justice part of their mission by identifying and addressing as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations, and allowing all portions of the population a meaningful opportunity to participate in the development of, compliance with, enforcement of Federal laws, regulations, and policies affecting human health or the environment regardless of race, color, national origin or income. In the memorandum to heads of departments and agencies that accompanied EO 12898, the President specifically recognized the importance of procedures under NEPA for identifying and addressing environmental justice concerns. The memorandum states "each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA." Cumulative Impacts In order to assess cumulative impacts, the Draft PEIS should characterize the current and post-project conditions, including RFFAs, and identify a baseline. EPA recommends the Draft PEIS analyze effects on air impacts, water quality, wetlands with quantitative measures when possible and qualitative measures otherwise. Adaptive Management and Mitigation The Draft PEIS should identify the features of an effective adaptive management plan, including: • A decision tree with clear objectives to guide future decisions; • Specific decision thresholds with identified indicators for each bimpacted resource; • Targets that specify a desired future condition • Trends specifying a desired change relative to the baseline condition; • A monitoring plan with protocols to assess whether thresholds are being met; and • Firm commitment to use monitoring results to modify management actions if necessary. The Draft PEIS should describe how and with what resources the Army will conduct monitoring necessary under an adaptive management plan to ensure the project is meeting objectives and mitigating impacts as predicted.

			EPA appreciates the opportunity to provide detailed scoping comments at this early state of the EIS process. Our review and participation in this project will be coordinated by Maggie Pierce, Region 8, and Teresa Kubo, Region 10. If we may provide further explanation of our comments during this phase of your planning process, please contact Ms. Pierce at 303-312-6550, Ms. Kubo at 503-326-2859, or me at 303-312-6004.

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Appendix G. Response to Comments on the Draft Programmic Environmental Impact Statement

ITEM 1.	AGENCY (COMMENTER NAME): Individual (M. Carmichall)	LOCATION: Fort Carson, Colorado	TYPE: Noise and Aviation

Comments	Response
Via e-mail on 11/11/2010: I tried to access the appropriate e-mail address given for comments on the proposed Aviation Brigade at Fort Carson, but for some reason, I was unable to open that address. So, we would like to add our 2 cents worth on this proposed addition, and the impact it will have on us personally. We live in the foothills above Fort Carson. We moved here from another State and were not familiar with the area. Shortly after moving in, we were rudely awakened around 1:00 a.m. with what was not only a huge explosion that we heard, but that we felt, because it violently shook our house to it's very foundation. We thought it was a gas explosion, but you guessed it...it was training at Ft. Carson! Since that time there are some days and nights where bombing training will go on for hours. On those days when we have helicopters fly over, they are so loud and low-flying that they cause our house to shake. They often pass directly over a large skylight that we have over our bathroom. Since we can see them, surely they can see us as well. Talk about invasion of privacy! I guess we can forget about ever being able to sell our house! With all the Military bases we already have in Colorado Springs, is it really necessary or fair to add yet another Brigade that will not only cause additional noise pollution, but negatively affect the ranchers in this area, their livestock, and wildlife as well? In all of the United States is there not one other area of open space that would less severely impact the population at large? We also have severe, unexpected winds and downdrafts (one that recently caused a television helicopter to crash) that causes us great fear since the helicopters already at Ft. Carson fly right over our house; not to mention the extreme lightning and hail. We are so close to the Post, we can hear the loudspeaker warning of incoming storms. I don't believe that the Army really cares about our plight; and I don't believe that there was not a single Post other than Ft. Carson where this Brigade could be added, that would have less negative impact than there will be here in Colorado Springs. Please forward this to the appropriate Agency. I'm certain the decision has already been made. I think it was already a done deal long before the Army asked for comments from the public.	Thank you for your comments. As stated in Section 1.3 of the PEIS, the Army's need for the proposed action is generated by the imbalance between current mission requirements and available aviation forces. In essence, our aviation unit Soldiers are deployed too often, reducing their time at home station. Reduced time at home station directly impacts the quality of life for these Soldiers and their Families, and affects the quality and quantity of the critical training these Soldiers need to prepare for combat. The screening criteria in Section 3.2 focused the Army's analysis of alternatives to those installations where aviation growth and realignment will be viable and support the Army's need. After applying the last screening criteria in Section 3.3, it was determined that only JBLM and Fort Carson were viable stationing locations capable of providing the necessary air-ground integration training. This type of training is a key aspect of the stationing decision and is one of the reasons why Fort Carson is evaluated in this PEIS We acknowledge your concern about safety, and assure you that the Army is fully committed to aviation safety. Aviation accident prevention is an integral part of the Fort Carson Safety Program and applies to all aviation units assigned to or operation on Fort Carson. It includes certain mandatory weather-related restrictions and requirements. With safety policies contained in Fort Carson Regulation 95-1, contractors engaged in maintenance, industrial, ground and flight operations on Fort Carson are also part of the team ensuring safety standards are implemented. The Safety Program applies to not only military personnel, contractors, and military equipment, but also applies to ensuring the public is kept safe. The Army continuously works to identify hazards, assess the hazards, develop controls and countermeasures, implement the controls and most importantly provide supervision on all aviation missions. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible.

ITEM 2.	AGENCY (COMMENTER NAME): Individual (Terry Shippy)	LOCATION: Fort Carson, Colorado	TYPE: Noise

Comments	Response
Via e-mail on 11/16/2010: This relates to the Ft Carson CAB. I live in Pueblo West which is directly south of Ft Carson. I am concerned about the noise impact of the helicopters flying over Pueblo West. I saw Fig #6 showing the route of the HAWK. Part of the route is over the western portion of Pueblo West south of US Highway 50 near where I live. There are many homes in this area. If these are low flying helicopters, I request the route to be modified further west.	Thank you for your comments. If Fort Carson is selected for a CAB stationing under this PEIS, new aviation assets would continue to follow existing routes and procedures currently used by existing aviation units, though the frequency of such flights would increase. We acknowledge your concerns about noise. As stated in the PEIS, Appendix B, page B-38, Fort Carson has a noise abatement policy for the existing Route Hawk that aircraft avoid all houses, buildings, people, livestock, and moving vehicles by a minimum slant range of ½ nautical miles (0.43 statute miles). If Fort Carson is selected for the CAB, additional information on increase usage of the existing route would be presented in site-specific follow-on NEPA documentation, as appropriate.

ITEM 3.	AGENCY (COMMENTER NAME): Individual (Bill Sulzman)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Wildlife)

Comments	Response
Via e-mail on 11/18/2010: It is very clear that if 120 more helicopters begin training at Fort Carson, areas such as this one will get lots more use. It is important that the EIS take note of the baseline of helicopter training already existing at Fort Carson when the impact of a new CAB is assessed. Subject: The Fort Carson BLM training area. A bit more information on the area where Fort Carson helicopters and Green Berets were training this summer. We know that there was at least one Landing Zone in this Wilderness area. There may be more. The total of LZ's in the mountains that we know about is now up to 17. In the 1976 Federal Land Policy and Management Act, the B <<statics.0.gif>> LM was directed to invent <wilderness.Par.32054.Image.150.114.1.gif>> ory areas for their wilderness characteristics. These areas are known as wilderness study areas (WSA). Until Congress makes a final decision either to designate these areas as wilderness or release them for other multiple-uses, the BLM manages WSAs to preserve their suitability for designation as wilderness. The Royal Gorge Field Office administers five WSAs and one Instant Study Area (ISA). <http://www.blm.gov/pgdata/libs/CFC/content/statics.0.gif> <http://www.blm.gov/pgdata/libs/CFC/content/statics.0.gif> View of Beaver Creek Wilderness Study Area. Click on photo for larger view. http://www.blm.gov/pgdata/etc/medialib/blm/co/field_offices/royal_gorge_field/wilderness.Par.81145.Image.-1.-1.1.gif> Beaver Creek WSA - This area is located 10 miles northeast of Cañon City, Colorado. It consists of more than 26,150 acres of public lands in steep, remote granite canyons that are valued for their wildlife and fish habitat. The primary trailhead is located within the Beaver Creek State Wildlife Area at the end of Fremont County Road 132. A portion of Beaver Creek WSA, 13,734 acres, is within an Area of Critical Environmental Concern (ACEC).	Thank you for your comments. We acknowledge your concerns about impacts to wilderness areas. We acknowledge the stationing of up to 120 helicopters would increase requirements for aviation training at Fort Carson and PCMS. Currently there are approximately 30 helicopters stationed at Fort Carson. However, the number of aircraft stationed at Fort Carson has fluctuated widely from the early 1990's to the present. Most recently the 3rd ACR with their Aviation Squadron was assigned to Fort Carson until around 2006. This unit included over 70 aircraft. Some of these units were re-stationed as part of the 2005 Base Realignment and Closure Act. Currently, the Army utilizes Pike and San Isabel National Forests for mountain/high altitude training of Army aviation units preparing for deployment to rugged, high elevation areas such as Afghanistan. Training for these tasks could not be effectively conducted on Fort Carson or in existing PCMS training areas. Aviation units from across the Army, not just at Fort Carson, conduct training on these National Forest System lands. In October, 2007, the Army published an Environmental Assessment for the Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training. Should a CAB be stationed to Fort Carson, there would be no change to the use analyzed in the 2007 Environmental Assessment. Additionally, mountain/high altitude training activities would continue to be conducted per the 1994 Interagency Agreement between the DoD and USFS, Rocky Mountain Region and the Helicopter Training Operating Plan between Fort Carson and Pike and San Isabel National Forests. Should mountain/high altitude training strategies change in the future, that change would be analyzed in a future, site-specific NEPA analysis. At that time, the Army would consider recommending changes to the use restrictions set forth in the special use permit. There is currently no agreement between Fort Carson and the Bureau of Land Management (BLM) for use of BLM lands for aviation training. A transient aviation unit (not stationed at Fort Carson) has recently developed an agreement with BLM for the short-term use of BLM lands in the vicinity of Canyon City. This type of short-term usage by visiting and transient units has occurred in the past and is expected to continue intermittently in the future. We do not expect any impacts to BLM lands as a result of this proposed action analyzed in this PEIS.

ITEM: 4.	AGENCY (COMMENTER NAME): Individual (Patricia Lindner)	LOCATION: Joint Base Lewis-McCord, Washington	TYPE: Biological Resources and Transportation

Comments	Response
Via e-mail on 11/19/2010: My husband is active Duty Army. We live here on Main-Post since August 2008. I saw a lot new building rise. That means forest got cleared. I hate to see trees fall. But I also understand the demand of new buildings. I cannot even imagine to have more traffic than we already have, and a higher noise level, during day or night. It takes a lot of patience for soldiers to access, conquer or leave this post (main or north). Then you are finally on the highway, stuck in traffic again. So to even imagine a rise of that, that's not possible. No more stop and go, only standing cars. Specially, during lunchtime, rush hour. Even to go to the px or commissary, banks everybody has to go to once in a while is a hassle. Let alone find parking for example for the library next to housing or whaler hall. Different times there were no PARKING available. This POST IS at its limit.	Thank you for your comments. Also, thank you for your service and the support you give to your husband as an Army spouse. We recognize that there will be impacts resulting from a stationing decision with regards to construction, noise, and the presence of more Soldiers. Discussion of these impacts and proposed mitigations can be found in this PEIS and in JBLM's Grow the Army EIS. We acknowledge and agree that CAB stationing in conjunction with other stationing actions would have a significant impact on traffic in the JBLM area, as identified in Section 4.10 of the JBLM *Grow the Army* FEIS and Section 6.12 of this PEIS. JBLM is working to address

Whoever has to make the decision has to live with the consequences not only us living here on post.	both on- and off-post traffic impacts. JBLM has been an active participant in trying to address issues related to rapid regional growth and to find solutions to help alleviate regional impacts, including those associated with transportation infrastructure and traffic congestion. JBLM planners have been involved with the completion of several planning efforts to address these issues and will continue to participate in monthly meetings with WSDOT planners to understand concerns and continue to develop solutions to alleviate regional traffic congestion. We understand how important these issues are to local residents and its Soldiers and Families, and JBLM will continue to work as a partner with WSDOT to alleviate traffic congestion to improve quality of life. Some of the recent traffic improvements include opening a new entry gate to JBLM at Mount's Road. JBLM is also working with the WSDOT to install traffic signals on SR507 & the intersection at East Gate Rd in addition to other improvements. The installation already implements some telecommuting and flexible work schedules to limit commuting trips and will continue to assess new ideas to reduce regional and local traffic issues. JBLM looks forward to continuing its cooperative relationship with the local community, WSDOT, and the Federal Highway Administration to actively seek improvements and solutions to the traffic challenges in and around JBLM. One example is the Joint Base Lewis-McCord Growth Coordination Plan, which was completed and published in December 2010 [www.jblm-growth.com]. Roughly 100 agency partners collaborated to produce this plan using a grant administered by the City of Lakewood and funded by the U.S. Department of Defense, Office of Economic Adjustment. The plan seeks solutions to the consequences of JBLM's growth, including traffic impacts, as well as opportunities to leverage the potential benefits.
ITEM: 5. **AGENCY (COMMENTER NAME):** Individual (Patricia Lindner) **LOCATION:** Joint Base Lewis-McCord, Washington **TYPE:** Aviation (Helicopters) and Noise	
Comments	Response
Via e-mail 11/19/2010: Again it is Friday, you can go everywhere on post, just takes some time. After 3 I am staying home, if not you run into traffic. From talking to other soldiers and family members, you get comments like "We don't need no more soldiers." My daughter wants to sleep in my bedroom, because she can hear the helicopters in the night, "It so loud I cannot sleep." I don't like the noise either, it is on all our nerves. My husband tells me they have to do their Hours in the air. But seriously in the middle of the night, all you want to do is sleep. I actually wish nobody this noise. But also the questions remains, where will all those soldiers stay and where will they work. I hope this decision will be a good one.	Thank you for your comments. Also, thank you for your service and the support you give to your husband as an Army spouse. Your support helps the Army ensure our Soldiers are trained and able to execute a full range of combat and stability operations. Please see the response to comment #4 with regards to traffic concerns. As indicated in the installation's *Grow the Army* Final Environmental Impact Statement, JBLM currently implements a variety of best management practices (BMPs) to mitigate the effects of the Army's activities on noise. These BMPs include implementing the requirements of Fort Lewis Regulation 360-5, *Noise and Vibration Complaint Procedure*, following the "Fly Friendly" program when flying over congested areas, and implementing noise level reduction features in the design and construction of noise-sensitive receptors. As housing is limited on-post, some CAB Soldiers would be expected to live off-post. The housing-sector private market is expected to be able to meet the demand for off-post housing. Soldiers living off-post would be expected to commute to their unit on-post for work.

ITEM: 6.	AGENCY (COMMENTER NAME): Individual (Bill Sulzman)	LOCATION: Fort Carson, Colorado	TYPE: Aviation

Comments	Response
Via e-mail on 11/24/2010: After several weeks of stalling, I have received word by telephone that my request for information concerning the number of Fort Carson helicopter flights which have flown into the Pike national forest in what is called the western helicopter training area, and into the eastern helicopter training area on the eastern plains has been denied. I am told that next week I will get written notice of the denial from "higher ups". This stonewalling prevents us from assessing how many more flights would likely fly into those areas if a full Combat Aviation Brigade with 120 helicopters were to be assigned to Fort Carson. The stalling tactics are classic. First they said they did not get my request. I resent the request. They then said it was identical to an earlier request. It was not. Then they said they didn't have the information. And now they say they have the information but I can't have it. As we know transparency is hard to come by when dealing with the Pentagon and its subdivisions.	Thank you for your comments. Per the November 29, 2010 letter you received from Fort Carson in response to your Freedom of Information Act requests, your request was not denied. Rather, the records of the information you sought were not found. As stated in the letter, "[t]his no records response does not constitute a denial". As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.

ITEM: 7.	AGENCY (COMMENTER NAME): Tacoma-Pierce County Chamber (Gary Brackett)	LOCATION: Joint Base Lewis-McCord, Washington	TYPE: Socioeconomics, Transportation

Comments	Response
Via e-mail on 11/24/2010: Please find attached our comments on the Draft Preliminary Environmental Impact Statement for the Growth, Realignment and Sustainment of Army Aviation. To assure our comments are received, a copy will be sent by post to the indicated address. As stated in the attached document, the Chamber supports the Preferred Alternative - Alternative 3. If I may assist you further with clarifications to our comments or additional information, please call on me. Letter dated 11/24/2010: Thank you for the opportunity to comment on the Draft PEIS on Proposed Aviation Growth, Realignment and Stationing. The Chamber has been involved in this process through its participation in the open public process. As a result, please note that the Chamber is supportive of the Preferred Alternative – Alternative 3. Washington State enjoys a positive economic contribution from all its military installations. This is a just released report for the state, but it gives you a good picture of JBLM: http://www.wedc.wa.gov/Publications.htm in addition to other defense industry economic contributions. The community (Region of Influence: Pierce and Thurston Counties) has enjoyed a positive economic and social relationship with Joint Base Lewis-McChord (JBLM). The return deployment over this summer of about 18,000 soldiers (joined by some returning families) has made a significant economic contribution to the local economy in these recessionary times. In spite of the national recovery underway, the local area still suffers from recessionary impacts. Those impacts are forecast in the Chamber's Pierce County Economic Index, to begin improving attributable to significant contribution from JBLM in this final quarter 2010. That forecast is not yet available until its public release December 16, 2010. As a growth installation, JBLM is collaborating in a two-county evaluative process to determine those socioeconomic impacts and appropriate coordinated community actions to assure cooperative efforts for mission support and a high level of quality of life for all citizens (civilians and military personnel and their families). The city of Lakewood is the lead for that two county study of the growth impacts from JBLM. The draft is here: http://www.jblm-growth.com/ which is scheduled for completion December 31, 2010. Already completed is another OEA funded study to assess and determine mitigating actions relating to Interstate 5. This cooperative effort by JBLM, the Washington State Department of Transportation and the City of Lakewood as grant administrator, is already completed and being incorporated into public policy, as evidenced	Thank you for your comments and for providing updated sources of information on economics, traffic planning and impacts.

here: http://on-ramp.blogspot.com/2010/09/wsdot-announces-plans-for-i-5.html. The Chamber has recently submitted comments as here: http://c-9blog.blogspot.com/2010/10/consider-defense-issues-in.html to the Washington State Transportation Commission as they are updating the State's transportation policies, recommending incorporation of national defense obligations in those policies. As mentioned earlier, the community is the beneficiary of community involvement by soldiers and their families. There is a wide range of contributions that are exemplified in the actions of soldiers recognized by the award of the John H. Anderson Military Citizen of the Year. That and other community interaction is documented with the Chamber's C-9 Blog at: www.c-9blog.blogspot.com. If I may provide you additional information or assistance in your evaluative process, please call on me.	

ITEM: 8.	**AGENCY (COMMENTER NAME):** The Chamber Colorado Springs (Brian Binn)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Infrastructure

Comments	Response
Via e-mail on 11/24/2010: Attached is a letter, w/attachments, in support of stationing the Army's next Combat Aviation Brigade at Fort Carson. I will also be mailing a copy. Thank you for the opportunity to comment on the draft PEIS. Attached letter dated 11/24/2010: Thank you for the opportunity to comment on the draft PEIS and to lend support for the decision to station the Army's next Combat Aviation Brigade (CAB) at Ft Carson, Colorado. The PEIS does an excellent job in evaluating the factors related to stationing the CAB at Fort Carson or Joint Base Lewis-McChord (JBLM). The majority of our elected officials at the Federal, State, County, and City level, as well as many organizations, such as the Greater Colorado Springs Chamber of Commerce and our Military Affairs Council strongly support the selection of Fort Carson. Ft Carson has the only division (4th ID) in the Army without a CAB collocated with the unit. Before the 4th ID left Ft Carson in 1995, there was a CAB at Fort Carson. The 3rd ACR has also called Fort Carson home. A CAB will provide the synergistic training for the Soldiers at Fort Carson to most effectively train the way they will fight to ensure mission success – all of our Soldiers deserve nothing less. As noted in the PEIS, there are added requirements and factors, easily remedied, for Fort Carson to effectively and efficiently bed down the new CAB. Based on the likely timelines after a final decision from the Army, there is ample time for the needed actions. Fort Carson already has the major infrastructure requirements with Butts AAF, and has identified the necessary MILCON for building the CAB at Fort Carson. Over the past several years, with the decisions of the last BRAC to bring the 4th ID back to Fort Carson, the installation has significantly improved its capability to provide the necessary quality of life and operational infrastructure to fully accommodate the additional growth of bringing the CAB to Fort Carson. Fort Carson training ranges, Pinon Canyon Maneuver Site (PCMS) and the National Guard High Altitude Aviation Training Center provide unparalleled access to an environment of demanding, realistic, and needed training for our Soldiers. Our community is known for its support of the military and the welcoming environment for the men and women of our military and their families. It is an ideal place for Soldiers and their families – quality of life, schools, educational opportunities, cost of living, and recreational opportunities are just a few of the other important reasons, for Soldiers and families, to bring the CAB to Fort Carson. Our community looks forward to the decision to station the Army's next Combat Aviation Brigade at Fort Carson. Please feel free to contact me if you have any questions. I can be reached at 719-575-4325, or at brian@cscc.org.	Thank you for your support and interest in this proposal. We appreciate your understanding of the history of aviation at Fort Carson and the importance of integrated training.

ITEM: 9	AGENCY (COMMENTER NAME): Law Office of John M. Barth (John M. Barth)	LOCATION: Fort Carson, Colorado	TYPE: Public Review Period

Comments	Response
Via e-mail on 12/02/2010: On behalf of Not 1 More Acre!, attached please find a letter requesting an extension of time to submit comments on the Draft Programmatic Environmental Impact Statement for the Growth, Realignment, and Stationing of Army Aviation Assets related to the Fort Carson Combat Aviation Brigade. Thank you in advance for honoring this request. Attached letter dated 12/02/2010: On behalf of Not 1 More Acre!, P.O. Box 773,Trinidad, Colorado 81082, I am submitting this request for an extension of time until February 17, 2011 to submit written comments on the Department of Army's Notice of Availability of a Draft Programmatic Environmental Impact Statement (PEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets ("NOA"). N1MA! is a non-profit organization dedicated to protecting and preserving the natural and cultural heritage, economy and quality of life in southern Colorado and northern New Mexico. More specifically, on November 5, 2010 the Army published an NOA for the proposed growth, realignment, and stationing of new and existing Army Combat Aviation Brigades (CABs) to Fort Carson, Colorado or Joint Base Lewis-McCord, Washington. The NOA states "[t]he public comment period will end 45 days after the publication of a notice of availability in the federal Register by the U.S. Environmental Protection Agency." 75 Fed. Reg. 68333-34. On that same date, the U.S. Environmental; Protection Agency published a notice of availability for a PEIS for the "Growth, Realignment, and Stationing of Army Aviation Assets, to Reduce Congestion and Improve Safety, Right-of-Way Acquisition, Fort Carson, CO" and identifying the Army Corps of Engineers ("USACE") as the lead agency. 75 Fed. Reg. 68356. Two weeks later, on November 19, 2010 the U.S. EPA published a "[r]evision to FR Notice Published 11/05/2010; Correction to Lead Agency from COE to USA and Correction to the Title." The U.S. EPA's November 19, 2010 FR Notice now identifies the lead agency as "USA" and identifies the subject matter of the notice as "Growth, Realignment, and Stationing of Army Aviation Assets, Evaluates Environmental Impacts of Stationing Army Combat Aviation Brigade at Fort Carson, CO and Joint Base Lewis-McCord, WA." 75 Fed. Reg. 70918. EPA's November 5, 2010 notice of availability did not provide notice of the CAB Draft PEIS because it identified the incorrect Draft PEIS ("to Reduce Congestion and Improve Safety, Right-of-Way Acquisition …") and the incorrect lead agency ("USACE"). Accordingly, EPA's November 5, 2010 notice did not provide the public notice of availability of the CAB Draft PEIS. The EPA did not correct its NOA until November 19, 2010. According to the legal Notice of Availability published in the Federal Register on November 5, 2010, the public comment period for the Draft Programmatic is forty-five days, the minimum time required under 32 C.F.R. § 651.14 (b)(3)(i). Although the Federal Register was corrected on November 19, 2010, the public comment period remains scheduled to close on December 20, 2010 only thirty-one days from correctly notifying the public of availability of this important document. The Department of Army's regulations implementing the National Environmental Policy Act of 1969 ("NEPA") are codified at Part 651 of Title 32 of the Code of Federal Regulations. The Army is also subject to implementing regulations issued by the Council on Environmental Quality ("CEQ") in Parts 1500 – 1509 of Title 50 of the Code of Federal Regulations. 32 C.F.R. § 651.1(c). Army policies regarding the timing of the preparation, circulation, submission and public availability of NEPA documentation are set forth at 32 C.F.R. § 651.14 (b) (3)(iv); 40 C.F.R. §1506.10(d). As the lead agency responsible for the "Growth, Realignment, and Stationing of Army Aviation Assets, Evaluates Environmental Impacts of Stationing Army Combat Aviation	Via e-mail and letter on 12/15/2010: On behalf of the Army, thank you for your interest in the Draft Programmatic Environmental Impact Statement (PEIS) for the Realignment, Growth, and Stationing of Army Aviation Assets which includes proposals for stationing a Combat Aviation Brigade (CAB) at Fort Carson, Colorado, and Joint Base Lewis-McChord, Washington. The Army has considered your request for an extension of the comment period from December 20, 2010 to February 17, 2011. We understand that the public may have been confused by the differences in the Notices of Availability published by the Department of Army and the Environmental Protection Agency on November 5, 2010. The Notice of Availability by the Department of the Army (Federal Register, Vol. 75, No. 214, pp. 68333-68334) was wholly accurate. However, errors appeared in the corresponding notice published by the Environmental Protection Agency (Federal Register, Vol. 75, No. 214, p. 68356). The Environmental Protection Agency notice provided a partly inaccurate title and erroneously listed the Army Corps of Engineers as the lead agency. A correction to the Environmental Protection Agency notice was subsequently issued November 19, 2010 (Federal Register, Vol. 75, No. 223, p. 70918). The Army has decided to extend the comment period from December 20, 2010 to January 7, 2011, after considering the above noted errors, the Army's strong desire for public participation, and the critical need to balance Army aviation force structure. This extension compensates for the 14 days that transpired between the Environmental Protection Agency's initial Notice of Availability on November 5, 2010 and subsequent correction on November 19, 2010. In consideration of the fact that the public comment occurs during the holiday season, the extension also includes an additional four days. We regret that we are unable to grant your request for an extension until February 17, 2011, due to operational considerations. Specifically, any delay in a decision and programming to realign, grow, and/or station Army aviation assets would directly result in adverse impacts to CAB training and overseas deployment of CABs. It could also cause already-stressed Soldiers in current units to deploy sooner than they would under the current deployment cycle.

Brigade at Fort Carson, CO and Joint Base Lewis-McCord, WA", 75 Fed. Reg. 70918, the Army has express authority to extend the time period for public comment.			
ITEM: 10.	**AGENCY (COMMENTER NAME):** Individual (Patricia Herron)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (Helicopters)
Comments			Response
Via e-mail dated 12/5/2010: I am aware of the impact an additional CAB would do to the environment around Fort Carson. I question whether we need 120 more helicopters for this training. It appears we already have enough. The amount of helicopter activity already is causing damage. Adding another 120 would be devastating.			Thank you for your comments. Please see the response to comment #1 regarding the Army's need for the proposed action and why Fort Carson was selected as a viable stationing alternative. The Army recognizes that there will be impacts resulting from a stationing decision. This process helps to ensure an informed decision is made and appropriate mitigations are able to be identified and implemented
ITEM: 11.	**AGENCY (COMMENTER NAME):** Individual (Sheldon King)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Land Use and Biological Resources
Comments			Response
Via e-mail on 12/12/2010: The attached letter contains my opinion of the CAB expansion request and the EIS process. Attached letter (no date): I am opposed to the expansion of Combat Aviation Brigade (CAB) activities into the mountains west of Colorado Springs for several conservative reasons. At a time when the United States government borrows 40 cents out of every dollar spent, we simply cannot afford to grant every wish to the US Army or any other segment of the population. As Americans, we need to conserve funds. There exist many designated MOAs in the state of Colorado; the military has enough space for training. Several military sites began as unnecessary land grabs and remain unnecessary. Pop your tent on the runway of the Air Force Bulls eye airfield Southeast of Ellicott, camp for the summer, no aircraft will bother you. Pathetic! Once our military obtains airspace, land, or infrastructure, it is very difficult for these areas to revert to the public domain. The high country has other conservation requirements for wildlife and recreation. Continued requests for expansion erode the quality of life for Coloradoans and for the fragile environments above timberline. We need to conserve areas set aside as wilderness areas, and keep them as pristine as possible. I don't want to live in a garrisoned state, make do with what you already have.			Thank you for your comments. You are right. Every dollar the Federal government spends affects the budget and we need to ensure expenditures are appropriate and used wisely. That is one of the reasons this PEIS is important. It identifies why it is important to analyze the proposed action (see Section 1.3). The screening criteria in Section 3.2 focused the Army's analysis of alternatives to those installations where aviation growth and realignment will be viable and support the Army's need. After applying the last screening criteria in Section 3.3, it was determined that only JBLM and Fort Carson were viable stationing locations capable of providing the necessary air-ground integration training. This type of training is a key aspect of the stationing decision and is one of the reasons why Fort Carson is evaluated in this PEIS. As stated in Section 3.4 of the PEIS, land acquisition is not being considered as part of this action. We also have statutory, regulatory, and practical requirements to sustain the environmental resources at Fort Carson. Our agreement with the Pike and San Isabel National Forests, where some mountain/high altitude training of helicopter pilots and instructors take place, also reflects stewardship responsibilities. We have taken those requirements very seriously in the past, we do so now, and we will continue to do so in the future. The Army endeavors to be good stewards of both taxpayer dollars and the environment.
ITEM: 12.	**AGENCY (COMMENTER NAME):** Individual (John Liechty)	**LOCATION:** Fort Carson, Colorado	**TYPE:** General
Comments			Response
Via e-mail on 12/12/2010: It seems to me that the United States is in decline, if not freefall. While I may be mistaken in this perception, I am hardly alone in it. To reestablish its footing, the country can either do more of what it's been doing, or try to change. The best choice seems obvious, but we Americans have grown notoriously averse to prudence. And so we go on spending more than we earn, consuming more than we produce, borrowing more than we save, and stirring up more problems with our "military solutions" than we resolve. Despite a lingering triumphalist chorus that retains the anachronistic audacity to boast of our absolute goodness and supremacy among the nations of the earth, the truth is before our noses.			Thank you for your comments. With regards to ensuring government expenditures are appropriate and used wisely, please see the response to comment #11. Troop withdrawals from Iraq and Afghanistan are outside the scope of this PEIS.

- we are broke and getting broker. One of the things breaking us is our consuming dedication to all things military. We have spent nearly a decade now fighting two of the most futile, wasteful wars in our history, perhaps in anyone's history. As the country falls apart at home we persist in finding enemies overseas, like an individual who seeks the source of his failures exclusively outside himself. What does America do anymore? What do we really produce, really contribute to the well-being of this planet? More and more people seem to be wondering, and notwithstanding the fact that some of the criticism of our country is unwarranted or exaggerated, who can blame them? The people of the world and the people of our nation have a right to wonder when it so often seems that chief on America's dwindling list of "accomplishments" is a perpetual entanglement in military conflict and misadventure. The economy, the culture, the cohesion, the system of education, the confidence, the generosity, the versatility, the resourcefulness, the creativity, the capacity to work and get things done... Not so long ago we were admired for such institutions and qualities. Perhaps one day we will be admired for such again. But for now, we appear to be a nation capable of "doing war" and very little else. It seems to me that a decision to add a Combat Aviation Brigade to Fort Carson would epitomize the lack of vision and initiative combined with the surplus of acquisitiveness and greed that is pulling our country down. Such a remark may seem mystifying or unpatriotic to many residents of Colorado Springs, a community that has all but sold its soul for military money, a community like many others in this nation where "supporting the troops" is largely a matter of flag-waving and bumper stickers and mindless cheerleading. Like the country, the state of Colorado needs many things to snap out of decline. One hundred and twenty more helicopters and 2700 more troops are hardly on the list of priorities. I would encourage the Army to save its (our) money in the interest of truly supporting our troops and of truly helping this country. Often a step in the right direction is a step back, a step over, or no step at all. This is not the moment for expansion. A more responsible initiative would be to get out of Iraq and Afghanistan, and show the world and ourselves that we are good at something besides wasting time, money, reputation, and lives.	

ITEM: 13.	**AGENCY (COMMENTER NAME):** Individual (Larry and Phyllis Stites)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (Noise)

Comments	Response
Via e-mail on 12/11/2010: We are writing in opposition to the Expansion of the CAB at Fort Carson, Colorado. We think that Colorado Springs/Fort Carson has enough military in this area so the CAB should be located elsewhere. The CAB will be composed of 120 helicopters of various sizes and about 2700 troops. As of now, it appears that much of the training done at Fort Carson will use 16 Landing Zones (LZ's) in the mountains to the west of Colorado Springs and also frequent flights to the east of the Post out on the plains. Currently, there have been numerous incidents involving Army helicopter annoying Campers, Hikers and Wildlife in the area has also been impacted. There are already a couple of dozen helicopters at Fort Carson which do training in the mountains. The new CAB would involve about a 500% increase in that activity. The noise pollution will be a terrible problem from the CAB with 120 helicopter of various sizes. We have been unable to find out the current information we need which is the number of flights a day, the number of helicopters per flight and the flying altitude. This seems to be classified information for some reason??? Currently, when 2 helicopters fly over the city the noise pollution is excessive. Much concern have been expressed about the Army and Air Force Training Flights over the city disturbing the peace of the local neighborhoods. Your current Environmental Study omits the effects of training in Bureau of Land Management and Forest Service lands West of Colorado Springs. The report also addresses that only the soils at Fort Carson and its Pinion Canyon Maneuver Site in Southern Colorado would be affected, but says nothing about the soils of the Bureau of Land Management and Forect Service lands West of Colorado Springs.	Thank you for your comments. As stated in Section 3.4 of the PEIS, land acquisition is not being considered as part of this action. Please see the response to comment #1 regarding the Army's need for the proposed action and why Fort Carson was selected as a viable stationing alternative. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. With regard to your comment about BLM lands, there is currently no agreement between Fort Carson and the BLM for use of BLM lands for aviation training. A transient aviation unit (not stationed at Fort Carson) has recently developed an agreement with BLM for the short-term use of BLM lands in the vicinity of Canyon City. This type of short-term usage by visiting and transient units has occurred in the past and is expected to continue intermittently in the future. We do not expect any impacts to BLM lands as a result of this proposed action analyzed in this PEIS. The U.S. Air Force has recently proposed the establishment of a Low Altitude Tactical Navigation (LATN) area in northern New Mexico and southern Colorado. The LATN would provide airspace to operate C-130 and CV-22 aircraft for training purposes.

This is where I am certain most of the flying will take place, in the 16 Mountainous Landing Zones and also the Landing Zones on the Eastern plains. The area also sometimes hosts CAB's from other Army Posts. That activity would likely continue adding to the glut of helicopters in our mountains. It is also true that Fort Carson will use the expansion to launch a new push for expansion in the Pinon Canyon area. This same area is included in the Air Force's plan for low altitude flights to train Special Forces troops, further compounding the impact. Again, we are in Opposition to the Expansion of the CAB at Fort Carson, Colorado. It will have a detrimental effect on this whole area. We are contemplating moving out of this area if this expansion is to take place.	Discussion of cumulative impacts has been added to Sections 5.6.3 and 5.12.3 of this PEIS. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible. We also have statutory, regulatory, and practical requirements to sustain the environmental resources at Fort Carson. Our agreement with the Pike and San Isabel National Forests, where some mountain/high altitude training of helicopter pilots and instructors take place, also reflects stewardship responsibilities. We have taken those requirements very seriously in the past, we do so now, and we will continue to do so in the future.

ITEM: 14.	**AGENCY (COMMENTER NAME):** Individual (Jo Ann Nieman)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation

Comments	Response
Via e-mail on 12/09/2010: This is to tell you that I find the idea of increasing the size of the military presence in Colorado Springs to be wrong minded but redundant. The above brigade is unnecessary and destructive. Unnecessary in that all branches of the military have helicopter brigades. The Army and the Marines have the most. I have seen no evidence that more of it is in any way necessary. It is up to the military to prove necessity. It's not up to me to prove that a thing is unnecessary. So let's see the proof! Environmentally, these brigades are destructive because of the noise and intrusion into the lives of animals and people they cause. Mr. Lamborn insists that no one has contacted his office about this, but he's at worst lying or at best misinformed. I have called his office, and I know several others who have as well. His office help is not interested in hearing our opinions and probably don't relay the message. Clearly, he is not my representative.	Thank you for your comments. Please see the response to comment #1 regarding the Army's need for the proposed action and why Fort Carson was selected as a viable stationing alternative. Additional information has been added to Section 5.6.2 in the PEIS to discuss noise impacts to wildlife. We have statutory, regulatory, and practical requirements to sustain the environmental resources at Fort Carson. Our agreement with the Pike and San Isabel National Forests, where some mountain/high altitude training of helicopter pilots and instructors take place, also reflects stewardship responsibilities. For example, as indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. We have taken those requirements very seriously in the past, we do so now, and we will continue to do so in the future.

ITEM: 15.	**AGENCY (COMMENTER NAME):** Individual (Mary Sprunger-Froese)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (Wildlife and Land Use)

Comments	Response
Via e-mail on 12/09/2010: Enough already! The proposed CAB addition at Ft. Carson is more of what we don't need - please stop this proposal. This CAB would increase helicopter training activity by nearly 500%. Already there are flyovers in 16 Landing Zones in the mountains west of Colo. Springs. These training exercises disturb campers and hikers, and affect all wildlife adversely. If this CAB proceeds, Ft. Carson will no doubt claim a need for more training area in Pinon Canyon. This would be disastrous to the ranchers who have spent generations caring for this precious land resource, building their homes and legacies with care for irreplaceable natural treasure. Please do all you can to stop this proposal. Colorado Springs needs economic diversity, not more deleterious effects to wildlife, recreation areas, and residential places.	Thank you for your comments. Please see the response to comment #1 regarding the Army's need for the proposed action and why Fort Carson was selected as a viable stationing alternative. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. Noise abatement policies for aviation personnel's adherence are contained in both Fort Carson Regulation 95-1 and the Helicopter Training Operating Plan between Fort Carson and Pike and San Isabel National Forests. As stated in Section 3.4 of the PEIS, land acquisition is not being considered as part of this action.

STOP the CAB, I want to get off!			
ITEM: 16.	**AGENCY (COMMENTER NAME):** Individual (Loring Wirbel)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (Noise, Wildlife and Aesthetics)

Comments	Response
Via e-mail on 12/09/2010: I would like to submit my observations on the impacts of the planned Combat Aviation Brigade at Fort Carson. Most of those commenting may be from the Security/Widefield or Broadmoor areas, but as a resident of North El Paso County, I think the impacts to this area will be more evident than is anticipated. Many of the 16 Landing Zones impinge on areas of Pike National Forest near the Rampart Reservoir area, and it seems obvious that flights to the LZ regions will be audible and visible in the Monument and AFA region. The impacts on wildlife in the Pike National Forest have not been adequately addressed in the EIS, in my opinion. It is true that Fort Carson already hosts helicopter flights in the region, but a CAB located here would increase such flights by more than a factor of five. I am concerned that the stationing of the CAB at Fort Carson will increase the frequency and integrated-forces training of both low-altitude flights related to Special Forces, and of the Pinon Canyon training area in the south area of the state. While the justifications of these two activities are separate from the CAB proper, I feel that the EIS should address in a more direct fashion the potential for a "multiplier effect" from the integration of CAB, Special Forces, and expanded Pinon Canyon training. Thank you for your consideration.	Thank you for your comments. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. We acknowledge that stationing of a CAB at Fort Carson would increase the amount of aviation training conducted at PCMS. Section 2.11 of PEIS provides a discussion of the increase flight operations anticipated to occur there. A majority of aviation operations at PCMS would be conducted to support ground maneuver units. Ground maneuver training would occur regardless of whether a CAB is stationed at Fort Carson. The implementation of past, present and future actions on PCMS, cumulatively, are addressed in the "Cumulative Effects" section of each Valued Environmental Component in the PEIS.

ITEM: 17.	**AGENCY (COMMENTER NAME):** Individual (Bill Sulzman)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (Helicopters), Wildlife, and Recreational Use

Comments	Response
Via e-mail on 12/10/2010: I have just printed out this document which Eric Swab was sent in his FOIA request concerning Fort Carson helicopter training in the national forest. I went to the library to make a copy. You can find the hard copy at Penrose. Eric scanned in the pages and I can send them one page at a time if need be. In going through it I realize that what I got earlier from the Pikes Peak Ranger district was a truncated version of this with a lot of the detail left out. Tom Warren of DECAM oversaw this project which was completed in October 2007. It is an EA not an EIS. Notice of its completion appeared in a couple of newspapers at the time. It is boiler plate NEPA a "finding of no significant impact". A FONSI in NEPA speak. It's 24 pages long and goes through the standard process. It creates some straw men and then knocks each of them down with general statements. There is some interesting detail in here and some hints at details that are not in the document: * It summarizes the number of flights as being about 3 or 4 per week during the fall and spring months. If we multiply that out it comes to roughly 78 - 104 flights in just the fall and spring months. It does not say how many helicopters take part in each flight. According to the estimate there is other training as well. Just not as heavy. This contradicts our experience of this past summer's heavy use of the national forest and BLM areas. The document mentions there are other users besides Fort Carson e.g. the National Guard, units from Buckley AFB and visiting Army units from elsewhere. Nowhere does it quantify those flights, one of the many missing and misleading details. Another detail which seems to be missing is a delineation between helicopter crew training and Green Beret's training exercises which actually put troops on the ground such as happened on BLM lands this summer. * It states that the number of helicopters stationed at FC in 2007 was about 70, a much higher number than	Thank you for your comments. We acknowledge that an Environmental Assessment was completed in 2007 that evaluated the environmental impacts of mountain/high altitude aviation training. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in that 2007 Environmental Assessment. As indicated in the response to comment #3, mountain/high altitude training is specialized training and primarily for Army aviation units preparing to deploy to rugged, high elevation areas. This specialized training could not be effectively conducted on Fort Carson or in existing PCMS training areas due to lack of elevation. The majority of helicopter training is not mountain/high-altitude training. There is no conflict or inconsistency between this PEIS and the 2007 Environmental Assessment. To clarify, it is not true that the majority of CAB training would occur at PCMS. Please note, as stated in Section 2.11 of the PEIS, it is estimated that up to one third of total estimated CAB flight time may occur at PCMS if a CAB were to be stationed at Fort Carson. We acknowledge your concern with noise impacts to recreational users. Noise abatement policies for aviation personnel's adherence are contained in both Fort Carson Regulation 95-1 and the Helicopter Training Operating Plan between Fort Carson and Pike and San Isabel National Forests.

previously thought. It is not clear if some of these belong to the National Guard which is likely. When I visited Butts Airfield a couple of years ago there did not seem to be near that many. Perhaps some are temporarily stationed in war zones. * Paragraph 3.2 makes this assertion: "There are no sites on either Fort Carson or Pinon Canyon Maneuver Site that meet requirements for this training in terms of elevation and associated topography". That would seem to contradict what is said in the current CAB expansion proposal which claims that the majority of CAB training would be at PCMS. * Paragraph 4.3.3 states "There have been no reported effects of noise on wildlife since this type of use began 28 years ago." Wildlife of course does not have the capability to do such reporting. The only way to get an accurate report would be to station trained professionals near the LZ's when they are in use. There is no indication that this has ever been done. There is no mention of any systematic oversight or inspection. According to the Forest Service they don't have time to do any comprehensive oversight. * The document says there could potentially be a conflict between Army use and civilian recreational use in the area. According to them no one as of 2007 had ever complained of such conflict. This summer we have heard anecdotal evidence of problems at sites in Jones Park LZ, Plum LZ and Almagre LZ and several reports of annoyance elsewhere in the forest. These are just a few of the comments that would come to mind in a more detailed analysis of this Environmental Assessment. It would be great if someone could get a link to this EA on the Fort Carson website. I did some poking around but couldn't come up with anything. I got a second denial letter concerning my own FOIA request.	

ITEM: 18.	**AGENCY (COMMENTER NAME):** Individual (Cecily Jones)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (Wildlife and Noise)

Comments	Response
Via e-mail on 12/13/2010: As a long time (37 years) former resident of Colorado and as a concerned citizen of this country, I am sending my opinion about the proposed addition of a large fleet of Army helicopters to the already adequate fleet at Fort Carson. I understand that 120 more helicopters would fatten the fleet and would be used for training in the area near Fort Carson. Such an overload would certainly have a negative impact on the wildlife in the mountains and plains nearby. Already I have heard that people enjoying that beautiful part of the state, people camping and hiking, to say nothing of the local residents and ranchers, have suffered inconvenience and noise pollution from the current copter training program. Indeed the mathematical calculation of the added CAB shows that it would be a 500% increase in helicopters there. Fort Carson's training program is already adequate. I ask that the Environmental Impact Statement reflect what would be the negative effects of the proposed addition.	Thank you for your comments. We acknowledge that there would be adverse environmental impacts associated with CAB stationing. Section 5.6 and 5.9 of the PEIS presents a discussion of noise and wildlife impacts respectively. We have added information to Section 4.5 to discuss mitigations in more detail.

ITEM: 19.	**AGENCY (COMMENTER NAME):** Congress of the United States (Mark Udall, Michael Bennet, and Doug Lamborn)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Public Review Period

Comments	Response
Via letter dated 12/13/2010: As members of the Colorado congressional delegation, we write on behalf of our constituents regarding a request for an extension of the public comment period for the Combat Aviation Brigade's Programmatic Environmental Impact Statement at Fort Carson.	Via letters on 12/20/2010: On behalf of the Army, thank you for your interest in the Draft Programmatic Environmental Impact Statement (PEIS) for the Realignment, Growth, and Stationing of Army Aviation Assets which includes proposals for stationing a Combat Aviation Brigade

We understand that the stationing of the 13th and 16th Combat Aviation Brigades is a time sensitive matter and significant delays in this process could have far-reaching effects both here in Colorado and for our warfighters in Afghanistan. However, we also acknowledge the importance of ensuring full public participation in the process. We ask that you consider a reasonable extension of the deadline, given the busy holiday season. Colorado is extremely proud of its role in supporting our Army, and we thank you for considering Fort Carson as a home for a Combat Aviation Brigade. Thank you for your service, and we look forward to your response.	(CAB) at Fort Carson, Colorado, and Joint Base Lewis-McChord, Washington. Based on your constituents' request, the Army's strong desire for meaningful and productive public participation, and the critical need to balance Army aviation force structure, the Army has decided to extend the comment period from December 20, 2010 to January 7, 2011. This extension compensates for the 14 days due to the confusion caused by the Environmental Protection Agency's initial Notice of Availability on November 5, 2010 and subsequent correction on November 19, 2010. In consideration of the fact that the public comment occurs during the holiday season, the extension also includes an additional four days. Thank you for your continued support of our Soldiers, Civilians, their Families and the Army. We look forward to maintaining a strong relationship with you, the citizens and community surrounding Fort Carson, and the State of Colorado

ITEM: 20.	**AGENCY (COMMENTER NAME):** Southern Colorado Environmental Council (Paula Ozzello)	**LOCATION:** Fort Carson, Colorado (Piñon Canyon Maneuver Site)	**TYPE:** Wildlife and Cultural Resources

Comments	Response
Via e-mail on 12/13/2010: Please find attached the SCEC's response to the stationing of Army Aviation full CAB unit to Fort Carson. Would you please verify that our comments have been received at the Public Affairs Office in Houston. We are not sending a printed copy. Via letter dated 12/09/2010: After reviewing the PEIS on the placement of a full CAB unit at Fort Carson, Colorado, we have no problem with Fort Carson Proper receiving a full CAB unit. Fort Carson Proper and surrounding El Paso and Fremont Counties are developed and ready to meet the training needs of a CAB unit. WE CANNOT SUPPORT PINON CANYON MANEUVER SITE USAGE BY THE CAB UNIT AT THIS TIME. Upon review of the Draft National PEIS dated September 2, 2010, we find too many discrepancies in the study. Most of the draft material is pulled from previous EA's and other documents that are out of date. **A COMPLETE NEPA ENVIRONMENTAL IMPACT STUDY IS TO BE DONE SPECIFICALLY ON PINON CANYON MANEUVER SITE AND PCMS ALONE, REGARDING THE FOLLOWING:** **THE IMPACT OF LIVE FIRE NO LARGER THEN 50 CALIBER FROM THE AIR.** **THE IMPACT OF LIVE FIRE WITH A HEVY MECHANIZED BRIGADE AND THE CAB UNIT.** **THE EFFECTS OF THE CAB UNIT IN MANEUVER TRAINING ON THE ECO-SYSTEM OF PCMS, SPECIFICALLY THE LAND, WATER, WILDLIFE.** **THE IMPACT TO SURROUNDING LAND ADJACENT TO PCMS.** Taking into account, all the above factors, a complete NEPA environmental impact study has never been done on the Pinon Canyon Maneuver Site. Back in 2004, to go to live fire, 50 caliber or less, only an environmental assessment was done, NOT an actual environmental impact study. The original intent of PCMS was ground infantry training with LIGHT mechanized vehicles. Twenty years usage has completely changed. Rushing into the use of PCMS by a CAB unit, plus the heavy mechanized unit prior to compliance of the	Thank you for your comments. The potential impacts associated with training a CAB at the PCMS were discussed in Fort Carson's 2009 *Grow the Army* FEIS. That FEIS primarily studied the effects of stationing an Infantry Brigade Combat Team (IBCT), along with the possible stationing of a CAB. No construction at the PCMS was associated with the assignment of a CAB, and none is currently projected in the PEIS. 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 Integrated Training Area Management (ITAM) program. Subsequent to the completion of the installation's 2007 *Grow the Army* FEIS, the Department of the Army decided not to station the 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 resulting decision from the PEIS is to station a CAB 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. Please note that there have been three EISs done with regard to activities at the PCMS: the original acquisition EIS in 1980, the Transformation EIS in 2007, and the Grow the Army EIS in 2009. The Council on Environmental Quality's regulations for implementing the procedural provisions of the National Environmental Policy Act (NEPA) does not require an EIS for all actions. The Environmental Assessment level of review done regarding the introduction of live-fire at PCMS was considered appropriate and legitimate. Additionally, the 1980 PCMS acquisition EIS did not limit mechanized vehicles to "light". The purpose and need as described in the acquisition EIS was to acquire training land to meet minimum maneuver training space needs for the Fourth Infantry Division (Mechanized). Paragraph 1.4.2 of the 1980 Draft acquisition EIS, "Personnel and Vehicles", stated: "about 826 wheeled and 432 tracked vehicles would be located within the training area per brigade training period." Although the EIS didn't specify the tracked vehicles, they would have included some variant of M-60 tanks, weighing over 50 tons each, and M-113 personnel carriers, weighing over 12 tons each. Bradley fighting vehicles, which were in development or production in 1980 and started being fielded in 1981,

original EIS will lead to further damage done to the cultural sites and the eco-system. The overhaul of the structure of the personnel in charge of overseeing the sustainability of the eco-system and the cultural sites will have gross adverse affects to PCMS and must be addressed. We recognize that adequate sustainability for good training of our military men and women must be done; but hand in hand the sustainability of the maneuver site eco system has to be a top PRIORITY. The original EIS stated that 95 water wells were working. In the draft PEIS it is stated that there are 30, when in fact there are only 9 working water wells on 234,000 acres. Based on this misleading statement in the draft PEIS, the damage done to the site by the Warhorse Rampage Maneuver to the cultural sites and the eco-system, the loss of key individuals to oversee the maneuvers, the lack of funding for proper support to PCMS, the SCEC request proper implementation of abiding with compliance to the original NEPA EIS and that Fort Carson follow all army regulations that pertain to proper land management and cultural management on PCMS. <u>It must be recorded that there are no positive social economic benefits to Las Animas County and surrounding communities</u>. There will not be any stationing of military personnel at PCMS. Once again Las Animas County will become a military bedroom community with El Paso County reaping the entire monetary windfall. Draft does not address the spontaneous landing of helicopters on the open areas of the maneuver site—this is very irreversible damage to soil and vegetation will come. Also the spontaneous landing of helicopters is a very high risk in our drought region for wildfires. Common sense tells us that they will not use the landing strip only- if they are to be part of maneuver training even in the war theater they do not do all landings on the airfield. This issue is not addressed at all in the draft PEIS; how can the draft EIS really address the actual impact to PCMS Eco-system. Thank you for reviewing our response to placement of an Army Aviation Unit at Fort Carson, Co and use of Pinon Canyon Maneuver Site for training.	weighed over 27 tons. The Division would also have had heavy artillery and engineer vehicles. Paragraph 1.4.2 of the 1980 Draft acquisition EIS also stated that use of PCMS would include an "anticipated 774 hours of helicopter use per brigade training period." As evidence of a considered and deliberate approach, rather than a rushed one, introduction of a CAB was studied in Fort Carson's 2009 *Grow the Army* EIS. If a decision is reached following this PEIS to station a CAB at Fort Carson, with training also to occur at PCMS, Fort Carson will do some additional site-specific NEPA analysis, probably with regard to both PCMS and Fort Carson. The effects of the increase in training at PCMS resulting in part from the gain of a heavy BCT gained by Fort Carson through Base Realignment and Closure (BRAC) were initially studied in the installation's 2007 Transformation EIS for PCMS. The Record of Decision following the 2007 Transformation EIS for PCMS was vacated in 2009 by Court Order. In response, the Army is in the process of completing an Environmental Analysis studying a reduced and refined proposed action for the increased training, which is anticipated to be released for public comment in late January 2011. Changes in organizational structure and in personnel do not alter the Army's responsibility for and commitment to stewardship of environmental and cultural resources at both PCMS and Fort Cason. We appreciate your recognition of the primary purpose of Fort Carson, including PCMS; i.e., to prepare assigned and attached military personnel to successfully perform any and all missions to which they may be tasked by our Nation to perform. In light of the importance to the National of those missions and the dangers those missions often pose to the young men and women who have to carry them out, we view our purpose in terms of providing "the best possible" training, rather than "adequate" training. That said, we also have statutory, regulatory, and practical requirements to sustain the environmental and cultural resources at PCMS. As we said above, we have taken those requirements very seriously in the past, we do so now, and we will continue to do so in the future. Thank you for noting that, since the publication of the 2007 Fort Carson *Grow the Army* FEIS, additional wells on PCMS have become non-functional. We have updated Section 5.8.1 accordingly. As indicated in Section 5.10.1 of the PEIS, in late summer 2010, the 2nd 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 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. The Army has addressed the loss of "key" individuals; however, to reiterate, changes in people don't mean changes in requirements or responsibilities. The Army is built on the premise that no individual is indispensible. Funding for "proper" support to PCMS is beyond the responsibilities of this PEIS but, as

	stated above, the Army takes its statutory, regulatory, and practical requirements to sustain the environment and cultural resources very seriously. No doubt, despite best intentions and reasonable plans, policies, and procedures, the Army has had instances in which we failed to comply with these requirements. There have also been misinterpretations or differing interpretations, including by regulatory or consulting agencies, that have contributed to what now appear to be discrepancies on our part. Bottom line, though, is that the mistakes we've made haven't significantly degraded either the natural or cultural resources in our care at PCMS, and, when mistakes are discovered, we acknowledge them and take action to improve in the future. Thank you also for your economics comment but please note that NEPA does not require actions taken to have to have positive economic benefits. The Army recognizes that more can be done to provide such benefits to PCMS and is taking steps in that direction. However, practical and legal concerns will undoubtedly limit their extent. The PEIS does not state that only landing strips will be used. For example, Section 5.7.2 identifies impacts to soil resources from helicopter landings in the maneuver area. Impacts to fire risks are also discussed in Section 5.9.1. Landing of helicopters is just one of many possible fire risks in a drought area. The largest fire at PCMS in recent years was started by a lightning strike. Regardless of the potential cause of a fire, the Army continues to work to minimize the possibility of igniting wildfires, whatever the source of ignition, and maximize the ability to contain them when they do start.
ITEM: 21. **AGENCY (COMMENTER NAME):** Individual (Onorina Vedovi-Rinker) **LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation
Comments	Response
Via e-mail on 12/13/2010: I am writing to express my strong opposition to the addition of a Combat Aviation Brigade at Fort Carson. The environmental impact on people and animals with all those helicopters buzzing over the mountains and the plains would cause even more significant damage to the quality of life we now enjoy. The army already has enough helicopters making offensive maneuvers at the present time. We do not need any more!	Thank you for your comments. Please see the response to comment #1 regarding the Army's need for the proposed action and why Fort Carson was selected as a viable stationing alternative. The Army recognizes that there will be impacts resulting from a stationing decision. This process helps to ensure an informed decision is made and appropriate mitigations are able to be identified and implemented.
ITEM: 22. **AGENCY (COMMENTER NAME):** Washington State Department of Transportation (Kevin Dayton) **LOCATION:** Joint Base Lewis-McCord and Yakima Training Center, Washington	**TYPE:** Transportation
Comments	Response
Via letter dated on 12/14/2010: Thank you for giving the Washington State Department of Transportation (WSDOT) the opportunity to review and comment on the draft Programmatic Environmental Impact Statement for the possible future placement of a Combat Aviation Brigade (CAB DPEIS). The focus of our comments is on regional transportation issues related to joint Base Lewis McChord (JBLM) and the Yakima Training Center (YTC) in Washington State. Since much of the CAB DPEIS refers to earlier documents and communications, attached are copies of WSDOT's three previous comment letters covering the DEIS (Grow the Army, dated October 26, 2009), the FEIS (Grow the Army, dated October 7, 2010) and the CAB DPEIS scoping letter (dated October 7, 2010). Please refer to these letters as they cover issues the army still needs to address prior to issuing a Record of Decision (ROD). WSDOT scoping comments, received previously by the Army for the CAB DPEIS, are included on pages F-4, F-5, and F-6. We believe these comments have not been adequately addressed and request that the Army delay issuing a ROD until a thorough analysis of transportation impacts is completed and specific appropriate	Thank you for your comments. JBLM has been an active participant in working with planning communities address issues related to rapid regional growth and to find solutions to help alleviate regional impacts, including those associated with transportation infrastructure and traffic congestion. JBLM planners have been involved with the completion of several planning efforts to address these issues and will continue to participate in monthly meetings with WSDOT planners to understand concerns and continue to develop solutions to alleviate regional traffic congestion. With regard to the analysis in the CAB PEIS and the 2010 JBLM *Grow the Army* FEIS, the Army feels that it has adequate information to understand the breadth of traffic issues and impacts that would result from CAB stationing to support a CAB stationing decision at Headquarters, Department of the Army level. As identified in Section 4.10 of the JBLM *Grow the Army* FEIS and Section 6.12 of this PEIS, we are aware that traffic congestion from CAB stationing in conjunction with other stationing actions would have a significant impact on traffic in the JBLM area. Section 4.10.6 of the JBLM *Grow the Army* FEIS

mitigation is identified. The specific issues previously raised by WSDOT and that still need to be addressed by the CAB DPEIS are: **2015 build out date:** A build out date of 2015 is still being used. This four year project does not explore the future implications of the base expansion upon the regional transportation system. It would be more appropriate to either use a build out timeline of 20 years; or a date of 2040 which is consistent with the year now being used by regional and local traffic forecasts and comprehensive plan updates for the greater Puget Sound region. **Insufficient Transportation Analysis** The CAB DPEIS recognizes that Joint Base Lewis McChord (JBLM) will have significant impacts for Transportation and Airspace. The Executive Summary mentions that mitigation measures to be implemented as part of the decision will be listed in the final Record of Decision (ROD) along with those that the Army will not be able to implement as part of the ROD. The mitigation measures referenced as being included in the 'detailed installation level EIS analyses' is the JBLM EIS "*Grow the Army FEIS*." WSDOT has two concerns with this proposed process: The first concern is that the Army has not properly sequenced consideration of traffic impacts from the JBLM Base Expansion EIS into its analysis. Specifically, the Army's consideration of the CAB at JBLM is a smaller, more specific action than the broader consideration of a JBLM base expansion. The CAB at JBLM has specific impacts that are readily definable and therefore should be described in greater detail than in the JBLM Base Expansion EIS. An appropriate process requires an independent, more thorough traffic analysis specific to CAB consolidation and formation at JBLM. The second concern is WSDOT, in addition to FHWA and local jurisdictions, has made previous comments that traffic considerations were not adequately assessed in the JBLM Base Expansion EIS. Despite this, the Army is relying solely on the traffic analysis of that EIS in considering the CAB at JBLM. The Army must ensure that site-specific conditions are adequately addressed in the existing programmatic document before using that information subsequent documentation, similar to what is required for adopting previous documentation in a Record of Environmental Consideration (32 CFR 651.14(2)). **Only One I-5 Interchange Analyzed:** The "Grow the Army" Draft EIS addresses only one interchange on I-5 and the subsequent Final EIS only referenced the Lakewood Growth Coordination Study's Traffic Analysis (which included four interchanges on I-5 between Mounts Road – Exit 116 and State Route 512 – Exit 127). While it is acceptable for the "Grow the Army" DEIS to rely on previous analysis, it should also go one step further and supplement that analysis based on data used to measure the impacts specifically for the "Grow the Army" DEIS and the CAB DPEIS. **New Entry Gate – Mounts Road (Exit 116):** The Army should also consider in its analysis the newly opened Mounts Road entry gate for possible AM and PM peak impacts. **Impacts Beyond the I-5 Corridor not Analyzed:** The CAB DEIS does not address impacts beyond the I-5 corridor, as requested previously by the WSDOT. The locations requested by WSDOT for additional analysis are: SR 507/East Gate Road; SR 7/176th Street South; SR 510/Reservation Road SE; and SR 510/Old Pacific Highway. The effect of vehicle and troop convoy transport between JBLM and the Yakima Training Center along I-5, SR 18,, I-90 and I-82 should also be included in the DEIS analysis.	discusses traffic impacts and identifies key deficiencies in Level of Service (LOS) of the transportation network. The Army is taking measures to address these significant impacts identified in both the JBLM *Grow the Army* FEIS and this PEIS. Some of the recent traffic initiatives include installing traffic signals on SR507 & East Gate Rd intersection and the recent opening of the new entrance to JBLM at Mount's Gate. The Army understands that regional transportation planning is a long term endeavor and JBLM will continue to participate in regular meetings with WSDOT to develop solutions. However, the Army feels that available information on traffic and transportation networks surrounding JBLM, to include the Army's September 2010 traffic study (Arcadis 2010), are adequate to support programmatic Army stationing decisions at this time. JBLM will continue to work with WSDOT and the Federal Highway Administration as an active partner to develop information and solutions to support regional transportation planning. Specific concerns such as I-5 interchanges, impacts on state roads, additional entry gates, and specific mitigations will continue to be discussed as part of WSDOT, Federal Highway Administration, and Army planning coordination, but are not being addressed within the CAB PEIS analysis which is being conducted to support programmatic stationing decisions. It should be noted, that the Army is now considering only stationing a subset of the aviation units comprising a CAB at JBLM. Instead of up to 2,700 Soldiers, the Army is considering reducing the scope of aviation unit stationing at JBLM to 1,400 Soldiers. Such a final decision to reduce the total number of Soldiers and Family members is being considered in light of the significant transportation impacts at JBLM, and should help to reduce impacts to regional traffic and transportation networks. A final decision on this reduction in stationing numbers will be made as part of the Record of Decision concluding this environmental impact analysis process.

Appropriate Mitigation for Transportation Impacts not Identified:
The Army has not appropriately identified mitigation for transportation impacts related to JBLM expansion. It is reasonable to assume that mitigation measures identified in the CAB DEIS will not be sufficient since the study did not analyze the entire affected transportation network. According to 32 CFR 651.15(5)(b) "When analysis proceeds to an EA or EIS, mitigation measures **will be clearly assessed** (*emphasis added*) and those selected for implementation will be identified in the FNSI or the ROD." The EIS document itself must describe the specific mitigation measures needed to address the identified (and significant) transportation impacts. Once a proposal is found to have environmental impacts, mitigation measures must be discussed in the EIS (see CEQ Reg 1502.16(h)), and the comparative presentation of alternatives in the EIS must include a description of the appropriate mitigation measures not already included in the proposed action (see CEQ Reg 1502.14(f)).

Proposed Regional Improvements are too Vague
On page 6-63, under *Cumulative Effects* there is the following statement: "Multiple long-term capital improvements are being planned in the region that will accommodate the increase in traffic. Included, for example, are regional freeway improvements on I-5 and the 'Bypass of point Defiance Rail Project." While there are proposed freeway improvement projects within the I-5 Transportation Alternatives Analysis and Traffic Operational Model document that would help to address increases in traffic as the result of the Army's proposed growth at JBLM, there is no detail of how the Army might contribute to these potential projects.

The projects were identified as a result of the study, but no funding source currently exists to implement those improvements. WSDOT would like to see specific proposals from the Army as to how the Army would help the state to get these projects built.

One page E-8, under JBLM Transportation Improvements, improvements are proposed for the base but do not address regional transportation impacts off-base. The new system mentioned in the Master Plan Digest claims to offer improved efficiencies and improved safety along the I-5 corridor. This claim should be modeled to determine specifically what level of improved efficiencies and safety that might reasonably be expected.

When considering existing Army bases appropriate for CAB consolidation or formation, the Army created screening criteria where "Not having adequate (Army training) facilities…will not support the proposed action." The army should extend this logic to community transportation infrastructure necessary to support the addition of troops and their families. Many of these additional troops will be living in nearby communities and using local and regional transportation facilities to commute to and from JBLM as well as accessing services provided at the base.

The regional transportation system supports the Army's needs as well as the citizens of the State of Washington. It is to our mutual benefit to ensure these facilities continue to operate adequately now, and into the future, so they will serve the needs of all the travelling public. An inadequate transportation system off-base will negatively affect the ability of the Army to support the proposed action.

We look forward to working with you to resolve these issues. If you have any questions please contact:

ITEM: 23.	**AGENCY (COMMENTER NAME):** Individual (Curtis Stretz)	**LOCATION:** Joint Base Lewis-McCord, Washington	**TYPE:** Aviation (Noise)

Comments	Response
Via e-mail on 12/16/2010: Just a quick note on the proposed stationing of a CAB at JBLM. If they are going to use the same training routes the 4/160 SOAR uses then it will add substantial noise around Tacoma Narrows airport. The 4/160 uses a route that transitions west to east over the approach to the airport. They basically fly the approach to transition the airspace. The approach path to runway 17 causes aircraft to pass over housing at low altitudes and while that is not an issue for civilian aircraft, I can speak from experience that MH-60 and definitely the MH-47's can cause enough vibration to knock stuff off shelves in houses. Any	Thank you for your comment. Section 4.8.6.3.1 of the Fort Lewis Grow the Army Final EIS, incorporated into the CAB FPEIS, and 6.6 of the CAB FPEIS contain an evaluation of noise impacts from operations out of GAAF on sensitive receptors. The Army agrees that the addition of the CAB with its helicopters to maneuver training would increase the amount of noise generated by this type of training. Impacts to noise from operations at GAAF would be significant. With the stationing of the CAB, the increase in helicopter operations at GAAF would extend the LUPZ (60 ADNL) and Zone II (65 ADNL) noise

increase in those aviation activities would cause an Impact on an area that probably is not as obvious as many of the areas around the base. Right now usage is sporadic but typically 10 days per month I'll observe an overflight, mostly the traffic is MH-60's, MH-47's make up a much smaller percentage of the flights. While I don't really care, I can promise there are people in the community that may not be of the same opinion.	contours into the cantonment area. Noise from additional flights would carry into adjoining communities and may cause additional annoyance and complaints. As stated in Section 6.6.1 of the PEIS, the installation adheres to noise abatement policies that strive to minimize the impact of aircraft noise on the public. No aircraft will fly below 500 feet (152.4 m) along flight routes and all Army aircraft will maintain a minimum of 2,000 feet (609 m) AGL of national parks, monuments, recreation areas and scenic river. JBLM Regulation 95-1 imposes a 2,000 foot (609 m) altitude restriction for flight over congested areas off the installation. Exceptions to this regulation include emergency situations, periods when weather conditions dictate a lower altitude, or when the use of a lower altitude is mission-essential.
ITEM: 24. **AGENCY (COMMENTER NAME):** Individual (William Spradling)	**LOCATION:** Fort Carson, Colorado **TYPE:** Aviation
Comments	Response
Via e-mail on 12/16/2010: I would like to encourage the Army to bring the helicopter brigade to Fort Carson. We are a military town and want to support the military any way we can.	Thank you for your comment.
ITEM: 25. **AGENCY (COMMENTER NAME):** City of Fountain (Tim McGrew)	**LOCATION:** Fort Carson, Colorado **TYPE:** Transportation and Socioeconomics
Comments	Response
Via e-mail on 12/16/2010: Please see attached letter of support for a Ft Carson CAB. Via letter dated 12/16/2010: This letter is to support the decision to station the Army's next Combat Aviation Brigade (CAB) at Ft Carson, Colorado. The proposed site is next to the City of Fountain, which is home to generations of Fort Carson families. We are hugely supportive of our soldiers and all who serve. We wish them all the resources they need to excel and come home to their families. Ft Carson has the only division (4th ID) in the Army without a CAB collocated with the unit. A CAB will provide the synergies in training to assure they have the best we can give them. The PEIS review of the site at Gate 19 and Butts Airfield brings out several factors, all of which we believe can be addressed. The timeline affords sample time to address any needs. Major infrastructure work is in place. Aviation and training sounds in this town are common – we are on the airport approach route and hear artillery regularly. These are the sounds of freedom. In addition, the area outside the proposed site is in the city's urban renewal area: a study has been completed to redevelop I-25 Exit 128 serving Gate 19. Expect new stores, new businesses, and amenities for soldier families. We are working with current property owners at the Exit 128 interchange and to the north at Fort Carson Gate 20 Exit 132. A civic center and new shopping center/mall is planned. A transit oriented development serving the fort is also planned. The socioeconomic impact of the CAB is positive and dovetails with this community's plans. Fountain looks forward to the decision to station the Army's next Combat Aviation Brigade at Fort Carson. Please feel free to contact me if you have any questions. I can be reached at 719-322-2056, or at lisa@fountaincolorado.org.	Thank you for your comment and additional information on the future urban renewal and development plans. Fort Carson looks forward to continuing to work with the city of Fountain as part of regional collaborative planning efforts to ensure the sustainable growth of the installation and city of Fountain.

ITEM: 26.	AGENCY (COMMENTER NAME): Individual (Mary Davis)	LOCATION: Joint Base Lewis-McCord, Washington	TYPE: TRnsportatio

Comments	Response
Via e-mail on 12/16/2010: I drive on I-5 through Tacoma at least once a week. If the helicopter brigade is moved to JBLM rather than to CO I beg you to consider many ways to mitigate the traffic issues on I-5. An additional 2700 soldiers will have a huge negative impact on traffic – which has already been brought nearly to a total standstill on I-5 during both morning and afternoon commutes. Last night it took me over an hour to get through that area at 5:45 – driving 10-20mph the entire time (when it should have taken a few minutes). That can't be good for the soldiers either. I realize that an additional entrance was opened to Fort Lewis earlier this year and that has helped traffic – but it still does not flow well. I've seen quite a few accidents on the onramps onto I-5 (usually involving soldiers) during the evening commute. More than a new entrance will needed – an Army bus service, off base parking with bus transfer, incentives for carpooling, staggered start times…. The additional personnel will be a boon to the local economy in many ways – but Pierce County and the State of WA do not have the funds to add infrastructure now. I suspect that is the situation just about everywhere in the US at this time. The Army personnel and their families deserve an adequate living environment and so do the local residents. Please plan for that no matter where this brigade is placed.	Thank you for your comment. We acknowledge and agree that CAB stationing in conjunction with other stationing actions would have a significant impact on traffic in the JBLM area, as identified in Section 4.10 of the JBLM *Grow the Army* FEIS and Section 6.12 of the CAB PEIS. JBLM is working to address both on- and off-post traffic impacts. JBLM has been an active participant in trying to address issues related to rapid regional growth and to find solutions to help alleviate regional impacts, including those associated with transportation infrastructure and traffic congestion. JBLM planners have been involved with the completion of several planning efforts to address these issues and will continue to participate in monthly meetings with WSDOT planners to understand concerns and continue to develop solutions to alleviate regional traffic congestion. We understand how important these issues are to local residents and its Soldiers and Families, and JBLM will continue to work as a partner with WSDOT and the Federal Highway Administration to alleviate traffic congestion to improve quality of life. Some of the recent traffic improvements include opening a new entry gate to JBLM at Mount's Road. JBLM is also working with the WSDOT to install traffic signals on SR507 & the intersection at East Gate Rd in addition to other improvements. The installation already implements some telecommuting and flexible work schedules to limit commuting trips and will continue to assess new ideas to reduce regional and local traffic issues. JBLM looks forward to continuing its cooperative relationship with the local community, WSDOT, and the Federal Highway Administration to actively seek improvements and solutions to the traffic challenges in and around JBLM. One example is the Joint Base Lewis-McCord Growth Coordination Plan, which was completed and published in December 2010 [www.jblm-growth.com]. Roughly 100 agency partners collaborated to produce this plan using a grant administered by the City of Lakewood and funded by the U.S. Department of Defense, Office of Economic Adjustment. The plan seeks solutions to the consequences of JBLM's growth, including traffic impacts, as well as opportunities to leverage the potential benefits. It should be noted, that the Army is now considering only stationing a subset of the aviation units comprising a CAB at JBLM. Instead of up to 2,700 Soldiers, the Army is considering reducing the scope of aviation unit stationing at JBLM to 1,400 Soldiers. Such a final decision to reduce the total number of Soldiers and Family members is being considered in light of the significant transportation impacts at JBLM, and should help to reduce impacts to regional traffic and transportation networks. A final decision on this reduction in stationing numbers will be made as part of the Record of Decision concluding this environmental impact analysis process.

ITEM: 27.	AGENCY (COMMENTER NAME): United States Department of Agriculture (John Peterson)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (Biological Resources)

Comments	Response
Via e-mail on 12/17/2010: Attached via electronic mail of original Forest Supervisor response letter sent to Washington DC address as noted.	Thank you for your comments. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. Should there be changes in future training strategies that impact use of National Forest System lands, the Army would ensure timely and appropriate coordination with the U.S. Forest Service to discuss any changes. We recognize the U.S. Department of Agriculture must

Via letter dated 12/15/2010: The Pike and San Isabel Forests and Cimarron and Comanche National Grasslands National Environmental Policy Act (NEPA) staff reviewed the Army's Draft Programmatic Environmental Impact Statement (PDEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets. The document does not disclose how the increase in helicopters stationed at Fort Carson might impact the use of National Forest System lands on the Forests and Grasslands. The Pike and San Isabel National Forests, in particular, have concerns with the additional helicopter detachments because the Environmental Assessment (referenced on PDEIS page 5-59) that authorized high altitude helicopter training on the Forests specifically states, "there are no sites either on Fort Carson or Pinon Canyon Maneuver Site that meet requirements for this training in terms of elevation and associated topography". This statement leads the Forests to believe that any increase in helicopters on Fort Carson that increases training would most likely direct a portion of that new training onto the Forests. The Forests and Grasslands realize that Forest System Lands provide a variety of unique geographic and topographic settings to conduct training activities. However the use of the Forests for training must be balanced with other uses as evidenced by the following statement from the Master Agreement between the U.S. Department of Agriculture and the U.S. Department of Defense, "training on National Forest System lands will be authorized when compatible with other uses and in conformity with applicable forest plan(s)." The Pike-San Isabel National Forests and Cimarron-Comanche National Grasslands are requesting the Army include analysis in the Programmatic Final Environmental Impact Statement (PFEIS) to show the potential effects of increased helicopter training on National Forest System Lands and the Pinon Canon Maneuver Site as a result of the potential re-stationing of helicopter units to Fort Carson. The Forests and Grasslands consider a change from 24 helicopters now to as many as 224 in the future significant enough to require additional detailed analysis on potential effects to Forest System Lands.	balance competing uses for National Forest System lands and that proper coordination under the Master Agreement is essential for enabling effective management. The Army recognizes the value and appreciates the support of the U.S. Department of Agriculture in supporting the training of the Nation's Soldiers.
ITEM: 28. **AGENCY (COMMENTER NAME):** Individual (Jeff Chapdelaine) **LOCATION:** Fort Carson, Colorado **TYPE:** General	
Comments	Response
Via e-mail on 12/17/2010: We are TOTALLY IN SUPPORT of the new / proposed Helicopter Brigade in Colorado Springs! WE LOVE THE ARMY and ALL MILITARY BRANCHES! And.. HELICOPTERS ARE COOL!!! PLEASE MAKE US YOUR NEW HOME!!!!	Thank you for your comment.
ITEM: 29. **AGENCY (COMMENTER NAME):** United States Department of the Interior (Robert Stewart) **LOCATION:** Fort Carson, Colorado and Joint Base Lewis-McCord, Washington **TYPE:** Biological Resources	
Comments	Response
Via e-mail on 12/17/2010: PLEASE ACKNOWLEDGE RECEIPT BY REPLY TO THIS MESSAGE The Department of the Interior's comments on the subject document are attached. If you require paper-copy or word-processor version, please so advise. Via letter dated on 12/17/2010: The Department of the Interior has reviewed the Draft Programmatic Environmental Impact Statement (DPEIS), for the Growth, Realignment, and Stationing of Army Aviation Assets, Fort Carson, CO and Joint Base Lewis-McChord, WA, and offers the following comments.	Thank you for your comment. Text has been added to Section 5.9 of the PEIS to include information on the anticipated impacts of CAB stationing on the Gunnison's prairie dog and mountain plover. The reference to the Osterhout milk-vetch in Section 5.9 has been removed as requested. Text has been added in Section 5.9.2 discussing potential effects of CAB stationing on the Mexican spotted owl and adherence to the INRMP. Section 5.9.1 has been modified to clarify that the greenback cutthroat trout is no longer present at Fort Carson. Additional text on impacts to riparian habitat of the New Mexico jumping mouse has been added to Section 5.9.2 and a discussion of how BASH management will be consistent with

Pg. 5-37 - Although the Gunnison's prairie dog (Cynomys gunnisoni) and the mountain plover (Charadrius montanus) are on the El Paso County list of Federally-listed species, the DPEIS does not mention whether these species occur or possible effects to these species in the Fort Carson proposed action. We recommend that the DPEIS be revised to address these species. Pg. 5-37, Line 2039 - The DPEIS incorrectly states that the Osterhout milk-vetch (Astragalus osterhoutii) is on the county list for El Paso County. We recommend that it be removed. (The U.S. Fish and Wildlife Service acknowledges that one of its earlier species lists mistakenly identified this species as occurring in El Paso County.) Pg. 5-38, Line 2052 - The U.S. Fish and Wildlife Service (USFWS) was unable to determine whether the proposed action, as described in the DPEIS, is consistent with the guidance contained in the Integrated Natural Resource Management Plan (INRMP), including the conservation of greenback cutthroat trout (Oncorhyncus clarki stomias) and the Mexican spotted owl (Strix occidentalis lucida) that was jointly developed with the USFWS and the State of Colorado. The INRMP specifies certain restrictions will be adhered to within a certain designated area. We recommend that the effects of the proposed action be clarified with reference to any potential impacts to the restrictions and conservation provisions already specified in the INRMP. Pg. 5-40. Please note that USFWS' list of threatened and endangered species occurring in Las Animas County also contains the New Mexico jumping mouse (Zapus hudsonius luteus). The DPEIS should address the impacts of the proposed action on riparian areas potentially inhabited by this species. Pg. 5-41, Line 2152 - The DPEIS mentions that Bird Air Strike Hazard (BASH) management plans are being developed around black-tailed prairie dog towns. The USFWS recommends that the description of the proposed action be expanded to address whether the BASH management plans will be consistent with the prairie dog management plan that is part of the INRMP. If you have questions regarding these comments, please contact Leslie Ellwood, Wildlife Biologist, U.S. Fish and Wildlife Service Ecological Services Colorado Field Office at (303) 236-4747 or leslie_ellwood@fws.gov.	prairie dog management plan within the INRMP has been added to Section 5.9 as well.

ITEM: 30.	**AGENCY (COMMENTER NAME):** Individual (Floyd Bailey)	**LOCATION:** Fort Carson, Colorado and Joint Base Lewis-McCord, Washington	**TYPE:** Transportation, Noise, and Socioeconomics

Comments	Response
Via letter dated 12/09/2010: The Tacoma News Tribune published an article concerning the Army wanting to set up two Combat Aviation Brigades, one at Joint Base Lewis/McChord and one at Fort Carson, Colorado. The article stated the Army would accept comments from the public prior to establishing the Brigades. My comments are attached and I request your serious consideration. News Article in Tacoma, WA News Tribune: Army Plans to create two Combat Aviation Brigades one at Ft. Carson, Colorado one at joint Base Lewis-McChord, WA each with 120 helicopters, 700 wheeled vehicles, 2,700 soldiers and 4,000 military families. Re Joint Base Lewis-McChord, WA Army mentions impact on I-5 Freeway but does not reference any research into the increase in traffic accidents, injuries and deaths that the addition of the Brigade will cause in the area. Nor does the Army mention the need to increase schools, fire and police departments and other vital services as a result of the new Brigade.	Thank you for your comment. The Army is aware that stationing of additional Soldiers at JBLM would likely result in additional accidents in proportion to the number of increased miles that would be driven by additional drivers added as part of the action. Information on traffic impacts is contained in the JBLM *Grow the Army* FEIS in Appendix E (E-11 and E-12) and has been summarized in Section 6.12.2 of this PEIS. With regard to the increased demand for schools, fire, police and other off-post services, information related to CAB stationing is contained in Section 6.11.2 of this PEIS, with further details contained in the JBLM *Grow the Army* FEIS on pages 4-143 to 4-147. Currently 45.5 percent of military personnel live off post. As noted in this PEIS, we recognize that CAB stationing would result in increased demand for off-post public safety services (fire, police, emergency response, etc.). With additional Soldiers stationed at JBLM, there would be a corresponding increase to the local tax base (e.g., sales tax, property tax) to pay for these services. While JBLM has five elementary schools and handles most of the educational requirements of its on-post residents, the implementation of CAB stationing along with other Grow the Army stationing actions is projected to add up to 997 students to Clover Park School District and up to 416 new students in the Steilacoom Historical School District. The Army recognizes that impacts to schools would represent a significant impact. Additional text has been added for off post services in Section. 6.11.2. It should be noted, that the Army is now considering only stationing a subset of the aviation units comprising a CAB at JBLM. Instead of up to 2,700 Soldiers, the Army is considering

As I live in the area the noise created by the Brigade helicopters is of very serious concern. The Army states that only the Nisqually Reservation would be impacted by the very noisy helicopters. The Army does not provide any data what so ever to substantiate that 120 helicopters would not be a serious problem for a much larger area. The nation is in a recession and has a national debt that must be reduced. The news article states "it is not immediately clear how much the expansion would cost." The army also does not define "the military and humanitarian missions" of the proposed Brigades. Unilateral, unsupported decisions by the Army is not acceptable. Data and the source of the data must be provided to the news industry for citizens to accept or reject the proposed brigades.	reducing the scope of aviation unit stationing at JBLM to 1,400 Soldiers. Such a final decision to reduce the total number of Soldiers and Family members is being considered in light of the significant transportation and schools impacts at JBLM, and should help to reduce impacts to school districts and transportation networks. A final decision on this reduction in stationing numbers will be made as part of the Record of Decision concluding this environmental impact analysis process. With regard to noise impacts, Section 6.6 of this PEIS and Section 4.8.6.3.1 of the JBLMs Grow the Army FEIS (incorporated by reference into this PEIS) contain an evaluation of impacts from a potential CAB stationing. The Army agrees that the addition of the CAB to maneuver training would substantially increase the amount of noise generated. Cumulatively, noise impacts from operations out of GAAF on noise receptors would be significant. With the stationing of the CAB, the increase in helicopter operations at GAAF would extend the LUPZ (60 ADNL) and Zone II (65 ADNL) noise contours into the cantonment area. In addition, noise from additional flights would carry into adjoining communities and may cause additional annoyance and complaints. As stated in Section 6.6.1 of this PEIS, JBLM Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. The installation adheres to noise abatement policies that strive to minimize the impact of aircraft noise on the public. No aircraft will fly below 500 feet (152.4 m) along flight routes and all Army aircraft will maintain a minimum of 2,000 feet (609 m) AGL of national parks, monuments, recreation areas and scenic river. JBLM Regulation 95-1 imposes a 2,000 foot (609 m) altitude restriction for flight over congested areas off the installation. Exceptions to this regulation include emergency situations, periods when weather conditions dictate a lower altitude, or when the use of a lower altitude is mission-essential. Additional text has been added to Section 6.6.1 to discuss noise impacts. Sections 1.2 and 1.3 of this PEIS discuss the purpose and need for growing, realigning and stationing aviation units to promote more effective force management, training readiness, and enhanced quality of life. Issues of national debt and cost are beyond the scope of this PEIS.

ITEM: 31.	**AGENCY (COMMENTER NAME):** Individual (Jerald Cook)	**LOCATION:** Fort Carson, Colorado	**TYPE:** General

Comments	Response
Many in the Colorado Springs and Pueblo areas support Fort Carson and the addition of the Helicopter Brigade. Please continue your efforts to make this happen.	Thank you for your comment.

ITEM: 32.	**AGENCY (COMMENTER NAME):** U.S. Environmental Protection Agency (Maggie Pierce)	**LOCATION:** Fort Carson, Colorado and Joint Base Lewis-McCord, Washington	**TYPE:** General (Mitigation and Resource-Specific Impact Analysis)

Comments	Response
Via e-mail dated 12/20/2010: Please find the EPA's comments on the Draft Programmatic EIS for the Realignment, Growth, and Stationing of Army Aviation Assets attached to this e-mail. A hardcopy of the letter was also sent via post last week. Thank you for the opportunity to comment. Please contact myself or Teresa Kubo with any questions. Via letter dated 12/15/2010:	Thank you for your comments. Responses are provided for each issue below as they are raised.

The U.S. Environmental Protection Agency Region 8 (EPA) has reviewed the Army's Draft Programmatic Environmental Impact Statement (PEIS) for the Realignment, Growth, and Stationing of Army Aviation Assets. We provide our comments in accordance with our review responsibility under Section 102(2)(c) of the National Environmental Policy Act (NEPA), 42 U.S.C. 4332(2)(c), and Section 309 of the Clean Air Act, 42 U.S.C. 7609. The Draft PEIS considers three alternatives and a no-action alternative. It identifies a preferred alternative, alternative 3, which is implementation of both alternatives 1 and 2. The Army's preferred alternative is to realign units to form a twelfth Combat Air Brigade (CAB) and create a new CAB. One of the two CABs will be stationed at Fort Carson and the other will be stationed at Joint Base Lewis-McChord (JBLM). The Fort Carson CAB will conduct training activities at the Pinon Canyon Maneuver Site (PCMS) and the JBLM CAB will use the Yakima Training Center (YTC). A CAB consists of approximately 120 helicopters, 600 wheeled vehicles, and 2,700 soldiers. The CAB is organized into five battalions and a headquarters unit. CAB units include combat, reconnaissance, and logistics support aircraft. For Carson is approximately 137,000 acres; its cantonment area, at the northern end, approximating 6,000 acres. PCMS is approximately 235,000 acres; its cantonment area approximating 1,660 acres. JBLM is approximately 90,600 acres; 65,000 acres being maneuver areas. The project will entail garrison construction of offices, housing, vehicle and aircraft parking and maintenance, equipment storage facilities, recreational facilities, roads, barracks, family housing, dining facilities, maintenance shops, hangars, rotary runway parking aprons, and other infrastructure at each post. No construction would occur at the PCMS but future construction may occur at YTC. The EPA appreciates the efforts of the Army in preparing this Draft PEIS and we offer our comments and recommendations in regard to mitigation, impact characterization, and resource-specific impact analysis, including greenhouse gases. EPA recommends that the Final PEIS include a section on mitigation either within the discussion for each impacted resource or as a standalone section. The Draft PEIS does not identify or describe mitigation for impacts. Section 4.5 of the Draft PEIS indicates that the mitigation for this project is that identified in each installation's *Grow the Army* (GTA) Final EIS and the resource-specific sections reference additional documentation external to the EIS. If mitigation for this action is captured outside of this Draft PEIS, summaries of that information should still be included and the documents should be made available as appendices of on-line with links provided in the Draft PEIS. An explanation of the relationship between this PEIS and its alternatives to the GTA Final EIS should also be included in the Final EIS. EPA recommends the Army more thoroughly explain its basis for impact determination. The Draft PEIS identifies direct, indirect, and cumulative impacts characterized as "less than significant," "mitigable to less than significant," and "significant" by resource area (Tables 1 and 2). Sections 4.2.2 and 4.2.3 describe and identify significance thresholds for each category of affected resource; however, the document does not describe how the assessment of impacts against these thresholds was made. We recommend the Army include a description of how impacts were assessed for each resource in the Final PEIS. Consistent with Section 309 of the Clean Air Act, it is EPA's responsibility to provide an independent review and evaluation of the potential environmental impacts of this project. EPA's rating is based on the preferred action alternative. Based on the procedures EPA uses to evaluate the adequacy of the information and the potential environmental impacts of the proposed action, EPA is rating this Draft PEIS as Environmental Concerns – Insufficient Information, "EC-2". The EC-2 rating means EPA identified potential environmental impacts to air quality, water quality, wetlands, and cultural resources that should be avoided or reduced. EPA also concludes that the	Regarding general comments on mitigation and impact determination methodologies, responses are provided to these issues below.

Draft PEIS does not contain sufficient information to fully assess environmental impacts that should be avoided in order to fully protect the environment. EPA did identify opportunities for additional information disclosure and mitigation. A full description of EPA's EIS rating system is enclosed. If you have any questions regarding our comments or this rating, please contact me at 303-312-6004, Maggie Pierce of my staff at 303-312-6550, or Teresa Kubo of Region 10 at 503-326-2859. Attached Comments: **Mitigation** EPA recommends that the Final PEIS include a section on mitigation either within the discussion for each impacted resource or as a standalone section. The Draft PEIS does not identify or describe mitigation for impacts. Section 4.5 of the Draft PEIS indicates that the mitigation for this project is that identified in each installation's *Grow the Army* (GTA) Final EIS and the resource-specific sections reference additional documentation external to this Draft PEIS. If mitigation for this action is captured outside of this Draft PEIS, summaries of that information should still be included and the documents should be made available as appendices or on-line with links provided in the Draft PEIS. An explanation of the relationship between this PEIS and its alternatives to the GTRA Final EIS should also be included in the Final EIS. Description of mitigation should describe what will occur and link that mitigation to the impacts associated with the Army's preferred alternative. The mitigation description should include designation of the entity responsible for implementing the mitigation, the funding source, and specific temporal milestones to meet rehabilitation standards. For those impacts which have been identified as "mitigable to less than significant,' the Final PEIS should also describe how mitigation will reduce impacts to less than significant and characterize what types of impacts will not be mitigated. We also recommend a description of any monitoring and adaptive management that will be or have been developed for either the assessment of the effectiveness of mitigation measures or impacts.	In response to the EPA's comments, and to generate a clearer understanding of proposed mitigations, the Army has expanded Section 4.5 to clearly present potential mitigations that would be implemented as part of CAB stationing, including many that were listed in previous, site-specific Grow the Army FEISs. We have also added text to Sections 1.5 and 4.1 of this PEIS to clarify the relationship of the listed proposed mitigations herein, mitigations considered for CAB stationing in previously completed site-specific Grow the Army FEISs, and mitigations that would be contained in any appropriate follow-on site-specific NEPA analyses for implementing any CAB stationing decisions. Proposed mitigations for CAB stationing considered in site-specific Grow the Army FEISs are carried forward as part of this PEIS analysis. Proposed mitigations for CAB stationing are explicitly discussed in Section 4.5 of this final PEIS to provide additional clarity on the connection between proposed mitigations and the environmental impacts being reduced by the mitigation measure. Further details on the relationship of mitigations to environmental impacts can also be found within the Grow the Army FEIS's at the links provided below. Regarding the entity responsible for mitigations, the Army's Installation Management Command (IMCOM) would be responsible for implementing mitigations at the respective garrisons if they were selected for CAB stationing. IMCOM would issue funding to garrison staff that would coordinate the execution of mitigations approved by the Army and included in the final Record of Decision (ROD) for this action. Additional details on monitoring of mitigations and adaptive management are presented in each installation's Grow the Army FEIS and include, for example, discussions of their ISO 14001-conformant Environmental Management System and Range and Training Land Assessment Program. In addition, internal and external audits are conducted to assess the effectiveness of mitigation measures.
The Draft PEIS mentions an erosion control management plan for PCMS described in a Clean Water Act Section 404 permit issued in 2008 (p. 5-33 and p. 5-39) and a Programmatic EA for Erosion and Sediment Control Program developed in 1998 (p. 5-33) as mitigation for impacts associated with sediment erosion and wetlands, and Integrated Resource Management Plan (INRMP) for management of impacts to wildlife, and an Environmental Noise Management Plan (ENMP) for mitigation of noise impacts. The document also describes a programmatic agreement pursuant to Section 106 of the National Historic Preservation Act to protect cultural resources. In order to meet the requirements of NEPA, we recommend the Army summarily describe how these plans and programs mitigate impacts of the project in the Final PEIS and otherwise satisfy statutory responsibilities, and that the Army includes these documents as appendices or makes them available on-line and provides access information.	In order to reduce the size of the PEIS to enhance readability and accessibility of this programmatic document, the Army has not included source documents (i.e., INRMPs, ICRMPs, ENMPs, erosion control management plans) as appendices. Source documents not available on-line or included as part of appendices in site-specific EISs may be obtained by request to the applicable installation. At JBLM, Section 106 consultation activities have been completed for CAB stationing and other Grow the Army stationing actions. At Fort Carson, a programmatic agreement and updated ICRMP would be completed as part of site-specific NEPA for implementing CAB stationing, if a decision is made to station a CAB at Fort Carson. Site specific NEPA would provide additional details on the PA and cultural resource management procedures at that time. Further discussion on this is provided in response to the cultural resource comment below.
Impact determination and characterization EPA recommends the Army more thoroughly explain its basis for impact determination. The Draft PEIS identifies direct, indirect, and cumulative impacts characterized as "less than significant," "mitigable to less than significant," and "significant" by resource area (Tables 1 and 2). Sections 4.2.2 and 4.2.3 describe and identify significance thresholds for each category of affected resource; however, the document does describe assessment	The Army's methodology for assessing the significance of impacts is contained in the U.S. Army Environmental Command's *NEPA Analysis Guidance Manual*, May 2007, available at http://aec.army.mil/usaec/nepa/nepa-qlg.pdf. This manual, coordinated with the Council on Environmental Quality, provides impact ratings, definitions, and methodologies for

of impacts for each resource. We recommend the Army include a description of how impacts were assessed for each resource in the Final PEIS, identifying thresholds and the information used or available to characterize current and predicted conditions for each resource. Assessment of impacts typically involves a prediction of change to the current condition as a result of this project and other reasonably foreseeable future actions against qualitative or quantitative thresholds.	impact assessment. The manual was used in completing site-specific Grow the Army EISs, which included analysis of potential CAB stationing at both JBLM and Fort Carson. As indicated in Section 4.1, this PEIS leverages appropriate information from each without re-iterating all details contained in the site-specific analyses. We feel that detailed descriptions of how impacts were assessed for each resource are not appropriate in this programmatic analysis, particularly as site-specific impact determination has already been accomplished, and therefore we have made no changes to this PEIS. Furthermore, we recognize that additional site-specific NEPA analysis would be required at Fort Carson and PCMS to evaluate impacts for CAB stationing implementation not sufficiently addressed in the 2009 *Grow the Army* FEIS, if Fort Carson is selected for a CAB stationing. For more information on the relationship between this PEIS, Fort Carson's 2009 FEIS, and additional site-specific analysis that would be conducted, please see our response to comment #70. The 2009 Fort Carson *Grow the Army* FEIS is available at http://aec.army.mil/usaec/nepa/carson-feis_feb09.pdf and the 2010 JBLM *Grow the Army* FEIS is available at http://www.lewis.army.mil/publicworks/sites/envir/eia_gta_final.htm. These links have been added to Section 4.1 of this PEIS, per EPA recommendation.
The current condition likely represents the baseline against which impacts would be assessed; however, because other baseline conditions can be appropriate, the condition which represents the baseline against which impacts are assessed should be explicitly identified. We recommend that the Final EIS include any available data to characterize and quantify the current condition especially for those resources which as likely to be affected (Geology & Soils, Water Resources, Biological Resources, Cultural Resources, Socioeconomics, Transportation & Airspace, and Utilities, and Noise).	The Grow the Army documents provide additional context and more detailed discussions of the current conditions of the affected environment from which impact ratings for implementation of this proposed action were assessed. Additional text has been added to Section 3.4 to define the current baseline conditions and explain how these impact ratings were derived. Furthermore, a table summarizing impact ratings for baseline conditions of the no action alternative has been added to Section 4.3 of this PEIS.
Preferred alternative EPA recommends a more thorough description of the preferred alternative and what activities it will entail. Table 5 which describes the Garrison Facility requirements for a CAB in terms of square footage is helpful but does not convey footprint of location. The inclusion of a ma (or modification of existing maps such as Figures 3 and 4) to identify affected resources and the location of construction and training activities would be beneficial.	Figures have been incorporated into Section 2.6 to show construction footprints for CAB facilities proposed as part of the preferred alternative. These figures present more detail on where construction would occur if the installation were selected for CAB stationing. Further definition of the proposed action would be included, as appropriate, in follow-on site-specific NEPA analysis if a decision is made to station a CAB at Fort Carson.
Air Quality Fort Carson The Draft PEIS Air Quality Section on fort Carson (5.5.2) states that an increase in combustion activities such as those from boilers, emergency generators, equipment maintenance and motorized vehicles is expected from the proposed action. This has the potential to lead to an increase not only in CO, but also nitrogen oxides (NOx), sulfur dioxide (SO2), volatile organic compounds (VOCs), and particulate matter (PM10 and PM2.5). An emissions inventory should be presented that supports the conclusion that "less than significant impacts are projected." If the emissions inventory from the proposed project contains a substantial emissions increase, an air impact analysis should be conducted.	With regard to air quality emissions at Fort Carson, a complete air emissions inventory was included in the PSD analysis completed previously under the 2009 Fort Carson *Grow the Army* FEIS. Fort Carson's analysis included an air emissions inventory of the direct and indirect impacts of stationing 6,700 additional Soldiers at Fort Carson. The 2009 analysis included a 3,500-Soldier Infantry Brigade, a 2,800-Soldier Combat Aviation Brigade, and some additional smaller units. Fort Carson's analysis did not estimate any emissions exceeding significance thresholds. Additionally, air quality impact modeling was performed for all existing and proposed sources for the Fort Carson *Grow the Army* FEIS. The results did not show any exceedances to any air quality standard. Since that time the decision to station the 3,500 Soldier Infantry Brigade was cancelled by the Army (Headquarters, Department of the Army's *Updated Record of Decision for Army Growth and Force Structure Realignment*, May 2010). The potential CAB stationing and associated projects represented a fraction of the size of the modeled sources, and therefore are not expected to contribute greatly to regional air quality degradation or to result in significant impacts. This source analysis was included as appendix C of the 2009 Fort Carson *Grow the Army* FEIS, which can be found at the link above.

The Air Quality Section on Fort Carson (5.5.1) notes that the *Prescribed Fire Planning Document* and the *Fort Carson Fugitive Dust Control Plan* have been established. It does not describe anticipated impacts or how the plans will mitigate those impacts. We recommend the Final PEIS describe anticipated emissions at both Fort Carson and PCMS. A description of how and what the plans will mitigate and a link to access the document should also be included. The cantonment area of Fort Carson is located in the Colorado Springs maintenance area for carbon monoxide (CO). We note that a CO General Conformity Analysis and Determination (Analysis) for U.S. Army Garrison was conducted in January 2009. This Analysis was performed for the GTA Final EIS. The CAB emission sources are not directly located within the CO Maintenance area; however, vehicle emissions associated with the CAB expansion that would travel into the maintenance area are included in the Analysis. The results of the Analysis confirm that the *de minimis* threshold (100 tons per year) levels for CO were not exceeded; therefore a determination was not required.	A discussion of anticipated emissions from prescribed fire planning was included in the 2009 Fort Carson *Grow the Army* FEIS in Section 3.3.3. As discussed in that document prescribed fire is used as a management tool to support the installation's readiness mission and ecosystem health. Fort Carson maintains a burn permit to carry out prescribed burning activities. It is estimated that air emissions from prescribed burning included N_2O, CO_2, and CH4 as primary emissions that contributed an estimated 349.77 Tons of GHG equivalents of CO_2 to the atmosphere from prescribed burn activities. Fort Carson is required to employ all practical measures at Fort Carson and PCMS to avoid creating visible emissions that are in excess of 20 percent opacity, having any visible emissions go beyond the Installation's boundaries or creating a nuisance dust problem. Control of fugitive dust is regulated by the Colorado Air Quality Control Commission (AQCC) Regulation No. 1. Fort Carson is in the process of finalizing its fugitive dust management plan. Measures for fugitive dust mitigation proposed in the draft plan include restricting traffic speeds and flow over unpaved areas, use of water for short-term surface stabilization, and chemical stabilization for long term mitigations. Additional text has been added to Section 5.5.1 and 5.5.2 of this PEIS to discuss potential air quality impacts (adverse and beneficial) of these plans. The prescribed burn plan would be implemented regardless of CAB stationing and is therefore discussed as part of the affected environment. More detailed impacts analysis would be conducted, as appropriate, in follow-on site-specific NEPA analysis if a decision is made to station a CAB at Fort Carson.
<u>JBLM</u> On page 6-16 of the Draft PEIS, the document states that employees and their transportation activities are expected to have indirect impacts on the CO and O3 maintenance areas at JBLM, but that no significant degradation is anticipated. Given that 1) JBLM is located in an area that was previously designated as a nonattainment area for both ozone (O3) and CO; 2) the former Fort Lewis is operating under an air quality maintenance plan; and 3)j portions of JBLM could be a designated as nonattainment for ozone in the near future (DEIS page 6-13); we believe the Draft PEIS suggestion that no significant degradation is anticipated needs to be further substantiated. We recommend that the Final PEIS include a hotspot analysis that shows the calculated 8-hour carbon monoxide concentrations in ppm for the poorest performing gates/intersections such as the Liberty and Madigan gates. Emissions analysis should be conducted for existing year, full build-out of the CAB, and 2030 conditions. Should this analysis indicate that National Ambient Air Quality standards are likely to be exceeded; the Final PEIS should include a discussion of additional mitigation measures. We further recommend that the suite of mitigation measures considered look beyond traffic flow improvements to measures such as car pool, van pool, or public transit programs	A discussion of CO and O_3 impacts at JBLM was presented in the 2010 JBLM *Grow the Army* FEIS in Section 4.7 of that document. Generation of CO and ozone precursors for all alternatives, including CAB stationing, were predicted to have less than significant impacts to air quality. Additional text has been added to Section 6.5.2 to clarify these impacts. Additional emissions monitoring mitigation has been added to Section 4.5 in response to the EPA recommended hotspot analysis.
<u>Greenhouse Gases</u> Tables 10 and 13 of the Draft PEIS contain *Direct Greenhouse Gas (GHG) Emissions from Aviation Asset Flight Operations*, estimating 51,174.7 tons of annual CO_{2e} emissions. This emissions estimate is based upon annual operation hours and fuel usage for different aircraft types. The inclusion of quantified estimates in the form of CO_2-equivalents can be a valuable means to characterize the proposed action's potential contributions of GHGs; however, this estimate is incomplete. A more complete estimate of emissions would include the total GHG emissions from aviation, vehicle traffic, energy usage, and stationary sources associated with the proposed action. EPA also notes that the Draft PEIS does not include an estimate of the project's indirect GHG emissions, including emissions from increased commuter traffic or increases in power generation over the lifetime of the project. Because this information may be of interest to the public in obtaining a complete picture of the GHG	Additional discussion on greenhouse gases (GHG) has been added to Sections 5.5.2 and 6.5.2 of the FEIS to discuss increases in GHG emissions that would be associated with CAB stationing, including indirect impacts from increased commuter traffic.

emissions associated with the proposed project, it may be helpful to provide a quantitative estimate of these "indirect" emissions. This approach of estimating total direct and indirect emissions would also be consistent with the 2010 Draft CEQ Guidance. We recommend the Final PEIS include an estimate of the project's total direct and indirect GHG emissions over the lifetime of the project in CO_2-equivalent terms. It may also be useful to translate these emissions into equivalencies that are easily understood from the public's standpoint with a tool such as EPA's Greenhouse Gas Equivalency Calculator.	
The Final PEIS should also discuss any potential inconsistencies between the GHG emissions associated with the preferred alternative and any relevant Regional, Tribal or State climate change plans or goals, as well as the extent to which the Army would reconcile, through mitigation or otherwise, its preferred alternative with such plans. For example, Colorado's Climate Action Plan articulates a goal of reducing GHG emissions 20% below 2005 levels by 2020 and 80% below 2005 levels by 2050; the Governor of Washington issued an Executive Order in 2009 entitled "Washington's Leadership on Climate Change"; and, Washington is a partner and Colorado is an observer in the Western Climate Initiative.	A discussion of the proposed CAB stationing and its alignment with federal and state climate change plans has also been added to Section 5.5.2 and 6.5.2 along with additional qualitative discussion on GHG and potential impacts of climate change.
EPA also recommends revising the discussion of the link between the project's GHGs and climate change risks.	A discussion of climate change risks has also been added to Sections 5.5.2 and 6.5.2 of this PEIS along with a discussion of the link between GHGs and climate change.
While the Draft PEIS appropriately acknowledges that the preferred alternative GHG emissions would increase global GHG emissions and contribute to climate change, the Final PEIS should qualitatively discuss the link between GHGs and climate change and the potential impacts of climate change. As described in the CEQ 2010 Draft Guidance, the estimated level of GHG emissions can serve as a reasonable proxy for assessing potential climate change impacts and provide decision makers and the public with useful information for a reasoned choice among alternatives. Accordingly, to the extent that the preferred alternative (as compared to another alternative or no action), an alternative, or mitigation measures will result in lower GHG emissions, EPA recommends that the discussion reflect that lower GHG emissions overall would result in lower climate change risks. This discussion should also be addressed in the context of the cumulative impacts of GHG emissions. The Final PEIS should include analysis of reasonable alternatives and/or means to mitigate project-related GHG emissions.	GHG mitigation proposals have also been added to this PEIS along with a discussion of alternative energy use at Fort Carson and JBLM. The Army recognizes and has added text to discuss cumulative impacts of GHG emissions when combined with other national and global emissions increases, could add to the climate change risks globally. Increased use of alternative energy and reduction of energy consumption have been proposed to decrease GHG and climate change risks.
The Draft PEIS indicates that it purchases natural gas and electricity from Colorado Springs Utilities but that 2.3% of Fort Carson's energy usage is provided by solar electricity (p. 5-65). We recommend that the Final PEIS describe whether the use of solar electricity or other on-site or off-site renewable energy sources may be utilized with regard to this proposed project and how such mitigation might affect the GHG emissions projections.	Text has been added to discuss other renewable energy sources that are being utilized at Fort Carson along with discussion that articulates the installations desire to increase renewable energy use across the installation to support all of its units, not just the CAB.
Noise The Draft PEIS indicates that the Environmental Noise Management Program (ENMP) and Fort Carson Regulation 95-1 outline the policies and procedures for mitigating noise impacts to the surrounding communities. We recommend the Final PEIS summarize these documents and include them as appendices to the Final PEIS or links to them on-line. The Draft PEIS includes an addendum to Fort Carson's and JBLM's noise contour data for a CAB as part of Appendix B. These documents characterize risk in terms of the percentage of the population that is likely to be highly annoyed by noise from helicopter flyovers. Neither the 2008 addendum nor the 2006j original considers impacts to wildlife. Noise has the potential to impact bird nesting or migration and large mammal behavior and migration. We recommend the Final PEIS discuss potential impacts to wildlife because of noise and mitigation for those impacts.	Regarding noise, the Army acknowledges that there will be additional noise impacts to wildlife and sensitive species and has included additional text in Sections 5.6.2 and 6.6.2 of the FEIS to discuss these impacts. Additional information has been added to further elaborate installation policies on aviation operations and noise abatement. Additional information has also been added to Section 5.6.2 to discuss noise impacts to wildlife to include impacts to bird nesting and large mammal behavior to include mitigations that the installation plans on implementing to ensure impacts remain less than significant.
The Draft PEIS includes an addendum to Fort Carson's and JBLM's noise contour data for a CAB as part of Appendix B. These documents characterize risk in terms of the percentage of the population that is likely to be highly annoyed by noise from helicopter flyovers. Neither the 2008 addendum nor the 2006 original considers impacts to wildlife. Noise has the potential to impact bird nesting or migration and large mammal behavior and	At JBLM and YTC, the Army recognizes that there will be an increase in the potential for noise impacts to wildlife species as a result of implementing the proposed action. In accordance with the installation's Regulation 420-5, JBLM and YTC take active measures to avoid training activities which would generate noise or otherwise disturb sensitive

migration. We recommend the Final PEIS discuss potential impacts to wildlife because of noise and mitigation for those impacts. Mitigation could include avoidance of areas known to support sensitive wildlife at certain times of the year.

Water Quality

The Final PEIS should disclose and identify all waterbodies on Colorado's and Washington's Section 303(d) lists that may be affected by the project and demonstrate that the project will not contribute to degradation of water quality in these listed waters. In our scoping comments, we indicate that project planning should evaluate which waterbodies are listed on the States' current 303(d) list that could potentially be affected by the project. Waterbodies that may be affected by the project include those immediately within the project area and downstream of it. The Draft PEIS identifies Wildhorse Creek and Teller Reservoir as Section 303(d) listed streams but no others. The northern and eastern portions of fort Carson, including the cantonment area, are located within the Fountain Creek watershed (p. 5-31). EPA has identified the following additional streams within the project area that may be affected in Table 1 below. Constituents include *Escherichia coli* (*E. coli*), selenium (Se), and sulfate (SO_4).

Table1. 303(d)-listed stream segments within Colorado that may be affected by the project.

Waterbody ID	Segment Description	Portion	Clean Water Act Section 303 (d) Impairment	Colorado's Monitoring and Evaluation Parameters
COARFO02a	Fountain Creek, Monument Creek to Hwy 47	all	*E. coli*	
COARFO02b	Fountain Creek from Hwy 47 to the Arkansas River	all	Se, *E. coli* (May-October)	
COARFO04	All tribs. to Fountain Creek, which are not on National Forest or Air Force Academy Land	all	*E. coli*	
COARLA01a	Arkansas River, Fountain Creek to Colorado Canal headgate	all	Se, SO_4	
COARLA01b	Arkansas River, Colorado Canal headgate to John Martin Reservoir	all	Se	
COARLA07	Purgatoire River, I-25 to Arkansas River	all	Se	Sediment
COARLA09b	Apache Creek, Breckenridge Creek, Little Horse Creek, Bob Creek, Wildhorse Creek, Wolf Creek, Big Sandy Creek	all	Se	
COARMA04a	Wildhorse Creek	all	*E. coli*	NO_2

The Draft PEIS identifies Wildhorse Creek as located at the southern border of the installation and impaired for selenium and *E. coli* and having warranted a monitoring and evaluation listing for nitrate. As noted in Table 1 above, there are two separate segments including Wildhorse Creek in the Arkansas River Basin identified on Colorado's *Regulation 93: Section 303(d) List of Impaired Waters and Monitoring and Evaluation List*. The segment impaired for selenium is Lower Arkansas 9b (COARLA09b). The segment with a monitoring and evaluation listing for nitrate and the impairment for *E. coli* is Middle Arkansas 4a (COARMA04a). EPA recommends the Army clarify if these are the same streams and which segment(s) may be affected by the project.

species. Specifically, CAB training activities and overflights within designated areas will be avoided during the nesting period. Overflight restrictions are nest specific and include minimum approach distances of aircraft to reduce noise impacts. Restrictions include limitations on flight routes during particular times of year. Additional information has been added to Section 6.6.2 include a discussion of existing mitigations that reduce these noise impacts to wildlife.

Additional information on impaired 303(d) listed waterbodies has been added to Sections 5.8.1 and 6.8.1 along with additional discussion on anticipated impacts to Section 5.8.2 and 6.8.2. More detailed discussion of impacts can be found in Sections 3.6 and 4.6 of the Fort Carson *Grow the Army* FEIS and Sections 4.2 and 6.2 of the 2010 JBLM *Grow the Army* FEIS that look at water quality impacts in greater detail.

If a total maximum daily load (TMDL) has not been established for those waterbodies on the 303(d) list then, in the interim until one is established, the project should demonstrate that there will be no net degradation of water quality to these listed waters. Sources for contributions of *E. coli* that may be affected by the growth associated with this project include wastewater treatment plants, failing septic tanks, or contaminated storm sewers. Soil disturbance and increased irrigation attributable to construction, training, and growth have potential to contribute to impairments for selenium, sulfate, or sediment. Section 5.7.1 indicates that soil erosion, and consequently selenium and mercury, is a significant problem for both Fort Carson and PCMS.	
In our scoping comments, we noted that the section of the Purgatoire river from I-25 to its confluence with the Arkansas River is identified on the 303(d) list of impaired waters for selenium. This same segment is also identified on Colorado's Monitoring and Evaluation List for sediment. Selenium is naturally occurring within sediments of this region of Colorado. Activities which disturb the soil in the PCMS have the potential to contribute both selenium and sediment to the Purgatoire River. We continue to recommend that the Draft PEIS specifically address potential impacts to the Purgatoire River, as well mitigation for those impacts.	The Army has included additional discussion of naturally occurring selenium and erosion impacts at PCMS in Sections 5.8.1 and 5.8.2 of this PEIS along with a discussion of related PCMS erosion control activities. Impacts to water quality at Fort Carson and PCMS, if a decision is made to station a CAB at Fort Carson, will be further addressed in more detail as part of follow-on site-specific NEPA analysis. As stated above, additional site-specific NEPA analysis would be required at Fort Carson and PCMS to evaluate impacts for CAB stationing implementation not sufficiently addressed in the 2009 *Grow the Army* FEIS, if Fort Carson is selected for a CAB stationing.
The Draft PEIS indicates that there are an erosion control management plan for PCMS described on a Clean Water Act Section 404 permit issued in 2008 and a Programmatic EA for Erosion and Sediment Control Program developed in 1998 (p. 5-33).	
In order to meet the requirements of NEPA, we recommend the Army summarily describe how this plan and program mitigate impacts of the project and provide these documents as appendices or make them available on-line and provide access information.	As stated immediately above, we have included additional discussion of erosion control management in Sections 5.8.1 and 5.8.2 of this PEIS, including how these mitigate impacts.
Vegetation and Wildlife EPA recommends the Army disclose what species present at Fort Carson are protected under the Endangered Species Act (ESA) and describe its management for the protection of these species, summarily describing the Integrated Resource Management Plan (INRMP) and making it available as an appendix or on-line. We also recommend that the Army consult the U.S. Fish and Wildlife Service and the Colorado Division of Wildlife on the management and protection of these species and, if necessary, update its management and mitigation strategies accordingly. The Draft PEIS indicates that Fort Carson's INRMP discusses management of the greenback cutthroat trout (*oncorhyncus clarki stomias*), Mexican spotted owl (*Strix occidentalis lucida*), and Preble's meadow jumping mouse (*Zapus hudsonius preblei*) but does not identify specifically which species are present at Fort Carson.	Section 3.7 and 4.7 of the 2009 Fort Carson *Grow the Army* FEIS present additional biological information on special status species, noxious weeds, wetlands, and projected impacts of CAB stationing. Additional information on threatened and endangered species present at Fort Carson and PCMS, and other species of concern has been included in Section 5.9.1 of this PEIS.
The Draft PEIS does identify ESA species present at PCMS. It also states "the lower reaches of the Purgatoire River watershed, in which PCMS occurs, is one of the few places on the Great Plains that still supports a relatively intact large mammal community" but does not describe how those animals will be protected from activities. We recommend that the Final PEIS address how it will protect the large mammal community at PCMS from impacts of this action and describe any studies of wildlife and possible impacts to them from activities at either Fort Carson or PCMS. These studies need to be referenced in the FEIS and an explanation on how these studies will be used to monitor wildlife impacts as increased trainings occur on the down range facilities.	Information on projected impacts to the large mammal community at PCMS has been added to Sections 5.6.2 and 5.9.2 and additional mitigations have also been recommended and included in this PEIS in Section 4.5.
The Draft PEIS notes that some invasive species of vegetation are present PCMS, specifically identifying one, African rue (*Peganum harmala*), and noting eradication activities for it have taken place under a plan with the Colorado Department of Agriculture. Because training could result in the increased presence of noxious weeds, EPA recommends the Draft PEIS describe its management plan for these plants in the Final PEIS.	Clarification of noxious weed management activities and impacts have been added in Section 5.9.1.
Wetlands Wetlands comprise approximately 1,028 acres at Fort Carson and 361 acres at PCMS. The Draft PEIS indicates	Clarification on wetlands impacts at both Fort Carson and PCMS have been added to this

that "minimal individual and cumulative impacts to wetlands occur as a result of Fort Carson soil erosion control activities" (p. 5-39) and that the impacts are accounted for in the Clean Water Act Section 404 permit number SPA-2008-0058-SCO. The Draft PEIS also states "Wetlands will not be impacted as there are no wetlands in or near the proposed BAAF construction and/or renovation site" (p. 5-41). The second statement is contradictory to the first and we recommend clarification in the Final PEIS. The Draft PEIS is not explicit about whether impacts to wetlands are PCMS are anticipated; however, it seems that training activities which may affect soil erosion at PCMS also have the potential to affect wetlands. Table 2 describes impacts to Biological Resources, including wetlands, as mitigable to less than significant.	PEIS in Section 5.9.2.
We would like to see a section explaining the direct, cumulative, or indirect impacts to wetlands and what mitigation efforts will be implemented to offset these impacts. This should include impacts to wetland and stream buffers. As described in the mitigation and water quality sections above, we recommend that the Army summarily describe how impacts to wetlands will be mitigated by the above referenced permit conditions, describe the determination that those impacts will be mitigated to less than significant in terms of wetland quantity and quality and thresholds, and either provide the documentation describing mitigation as an appendix or provide it on-line and include information on how to access the document in the Final PEIS. In addition, if the Army is monitoring the status and trends of wetlands on the base, a summary of the current finding should be included.	Additional text has been added to this PEIS to clarify that no wetlands occur within the footprint of CAB facilities proposed for construction. Furthermore, proposed facilities do not lie within a stream buffer area. Training an additional CAB could result in indirect impacts to wetlands from erosion and sedimentation. Additional text has been added to Section 5.9.2 and 5.9.3 to discuss impacts and cumulative effects on wetlands at Fort Carson.
Cultural Resources and Tribes Fort Carson/PCMS The Draft PEIS discloses that a number of sacred sites, historic and prehistoric rock art sites, and other cultural properties, eligible for inclusion on the National Register of Historic Places (National Register), have been identified at Fort Carson and PCMS. Documents developed for cultural resources management include a comprehensive agreement between Fort Carson and 11 tribes concerning privacy, inadvertent discovery of human remains and cultural items, and tribal access; a memorandum of agreement among Fort Carson, the Colorado State Historic Preservation Office, and the Advisory Council on Historic Preservation; the I*ntegrated Cultural Resources Management Plan* (ICRMP); and the GTA Final EIS.	
The Draft PEIS indicates that consultation under Section 106 of the National Historic Preservation Act (NHPA) has been initiated. The Draft PEIS notes that a draft of the programmatic agreement (PA) for compliance with Section 106 will be completed in late 2010 and that an update of the ICRMP will be part of the Section 106 PA. EPA recommends the Final PEIS describe whether the aforementioned PA is complete and include of a summary of how cultural resources will be managed and how impacts to cultural resources will be mitigated or avoided at Fort Carson and PCMS. We also recommend that the Final PEIS include documents that are the basis for mitigation as appendices or make them available on-line and provide links. We also recommend a discussion of updates to the ICRMP or other documents.	Text in Section 5.10.1 of this PEIS has been updated to reflect the current status of the Section 106 PA and ICRMP. The programmatic agreement and updated ICRMP is currently being reviewed by Fort Carson and other Army staff. It is anticipated that these documents will be finalized and signed in the summer of 2011. The programmatic agreement and updated ICRMP would be completed in conjunction with site-specific NEPA for implementing CAB stationing, if a decision is made to station a CAB at Fort Carson. Site specific NEPA would provide additional details on the PA and cultural resource management procedures, including updates to the ICRMP, at that time.
JBLM/YTC We note that while the document references tribal consultation consistent with section 106 of the National Historic Preservation Act, it does not discuss government-to-government consultation with affected tribes consistent with Executive Order 13175 (*Consultation and Coordination with Indian Tribal Governments*). Given the noted impact to tribes, and the proximity of tribal resources, it is reasonable to expect a robust discussion of consultation efforts and outcomes in the Draft PEIS. Page 6-46 of the PEIS discusses cultural resources, but it is not clear from this discussion whether formal consultation was pursued. We recommend that the Final PEIS include a discussion of tribal consultation efforts and outcomes, and how tribal concerns will be addressed in accordance with federal tribal trust responsibilities.	At JBLM, Section 106 consultation activities have been completed for CAB stationing and other Grow the Army stationing actions. Consultation included tribal consultation. A discussion of tribal consultation for the JBLM *Grow the Army* EIS has been added to Section 6.10.1 that discusses the Section 106 consultation process and development of a programmatic agreement in coordination with the Nisqually, Squaxin Island, Puyallup, Yakama and Wanapum tribes. Additional information on the consultation process and outcomes can be found within the JBLM *Grow the Army* FEIS. Section 6.10.2 has been updated with discussion of consultation with affected tribes, concerns and outcomes, as

Water Quantity & Utilities Fort Carson/PCMS EPA continues to recommend that the Final PEIS provide additional information regarding the increased demand for water as a result of the proposed action. The Draft PEIS concludes that no changes to water or wastewater infrastructure are necessary; however, it does not substantiate this conclusion with a comparison of the need for increased capacity because of this project or others to the current capacity or planned expansions.	recommended by EPA. Section 5.13.2 has been updated to include additional information on the water demand that would result from stationing a CAB at Fort Carson as well as additional water use by family members living off-post. Additional discussion of wastewater generation and has also been included.
JBLM/YTC Page 6-65 of the DEIS states that it is expected that discharges from the Solo Point Waste Water Treatment Facility will violate permit treatment requirements more frequently in the future, and that increased demand together with more stringent permitting requirements will render the Solo Point WWTP insufficiently protective of Puget Sound water quality. EPA concurs with this assessment. When the current draft permit is issued for the Solo Point facility, it will require compliance with more stringent permit conditions. For this reason and because the WWTP is already near its treatment capacity, we are concerned that the increased population associated with the preferred alternative would make the WWTP unable to meet more restrictive permit limits. The construction of a new wastewater treatment plant is a key mitigation measure. We recognize that Army Installation Management Command has not approved funding for the Solo Point WWTP and that discussion is ongoing. Regardless of its funding status, we strongly recommend that construction of a new WWTP be brought forward in the FPEIS and ROD as a precondition of CAB installation.	Regarding wastewater treatment of the Solo Point wastewater treatment facility, construction of an upgraded wastewater treatment plant has been added in the mitigation Section 4.5 of this PEIS. This facility is currently one of the Army's top funding priorities for Fiscal Year 2013.
Environmental Justice Fort Carson/PCMS We encourage the Army to analyze and explicitly address whether a minority or economically disadvantaged community will be disproportionately affected by this project. The socioeconomics sections describes approximately 20% of El Paso County, 18% of Pueblo County, and 11% of Fremont County populations as minorities and notes that Fort Carson's residential population leads to a higher percentage of minorities within the vicinity of the post. Poverty levels in Pueblo and Fremont Counties are at or exceed 20% and there are small geographical areas within each county where more than 20% of the population lives below the poverty level.	Section 5.11.2 of this PEIS has been updated to include a discussion of environmental justice and disproportionate projected impacts to minority or economically disadvantaged communities surrounding Fort Carson and PCMS.
JBLM/YTC Page 198 of the PEIS states that increased training at JBLM will result in significant noise effects and that those impacts will be disproportionately realized by residents of the Nisqually Reservation (most of whom identify themselves as American Indian or Native Alaskan). The document goes on to say that although the effects of noise will disproportionately affect the Reservation, the overall environmental justice effects will be less than significant because the noise impact is not anticipated to change or otherwise affect any social, economic, physical, or health conditions that will result in social, cultural, or human health effects to the majority American Indian/Alaska Native population. We appreciate the disclosure of impacts to the Nisqually Reservation. This is an important step in an effective environmental justice analysis. It is not clear; however, how the determination that impacts would be "less than significant" was reached. Consistent with CEQ guidance we recommend that the Final PEIS provide additional information regarding physical environmental effects of the proposed action on tribes. Information should also be included regarding outreach and community involvement efforts; the results of those efforts; and how the	Section 6.11.2 of this PEIS has been updated to discuss environmental justice and clarify how outreach to the affected community around JBLM was conducted and why impacts have been determined to be less than significant.

feedback received has been incorporated into the document.			
ITEM: 33.	**AGENCY (COMMENTER NAME):** Individual (KC Carlson)	**LOCATION:** Joint Base Lewis-McCord, Washington	**TYPE:** Aviation (Cultural resources)
Comments		Response	
Via e-mail sent 12/21/2010: I work for VA Puget Sound Health Care System at their American Lake Division in Lakewood, WA. The VA hospital campus is literally across the I-5 highway from Joint Base Lewis-McChord. The VA operates a 27-bed Acute Psychiatric Ward, an 83-bed Community Living Center (nursing home), a 15-bed Blind Rehab and a 60-bed Domicilary, and provides outpatient healthcare services to over 60,000 Veterans annually. The VA is greatly concerned about adding additional aviation assets next to a hospital system that provides long-term and rehabilitative treatment to Veterans with extensive post traumatic stress disorder (PTSD), dementia, traumatic brain injury and other disease conditions. What assurances will the VA have that these additional aircraft won't add new flight paths and/or fly over the VA hospital thereby causing considerable stress on these at-risk, vulnerable patients? This American Lake VA hospital is listed on the National Register of Historic Places and has a defined historic district encompassing our medical center buildings. Not knowing the precise type of aircraft, of than the aforementioned helicopters, that could be realigned to JBLM, what environmental impacts would excessive noise, vibrations, breaking of sound barriers, overhead refueling, etc. have on the American Lake Division and its historic buildings? How often are flight training and "touch and goes" expected and at what intervals? Has this project been vetted with the Washington State Historical Preservation Society? What was their response to this project? Where can the public find additional information regarding the numbers and types of aircraft under consideration of this PEIS? Thank you for this opportunity to comment. Please respond to me at the address below.		Thank you for your comments. The Army shares your concern that its operations do not have a detrimental impact on veterans or other patients receiving care at the VA Puget Sound Health Care System, American Lake Division facility. Please see the response to comment #30 for information on noise impacts to JBLM and the surrounding community. As stated in Section 6.6.1 of this PEIS, flight altitudes will adhere to noise-abatement policies that minimize the aircraft noise footprint on and near the installation. The Army expects to have less than significant impact to the American Lake VA hospital from the proposed action analyzed in this PEIS, though the Army acknowledges that the frequency of noise-generating occurrences may increase for the VA hospital. Any specific issues. The Army operates under a programmatic agreement (PA) with the Washington State Historic Preservation officer with regard to historic properties on JBLM and YTC. The PA stipulates measures the installation will implement to avoid, minimize, or mitigate adverse effects to historic and archaeological properties from Grow the Army undertaking (which include a potential CAB stationing action). The numbers and types of aircraft in a CAB are generally described in Section 2.3 of this PEIS, although no decision has yet been made on the specific number or type of aircraft that may be stationed at JBLM as part of the proposed action analyzed in this PEIS.	
ITEM: 34.	**AGENCY (COMMENTER NAME):** Individual (David Reed)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (Noise)
Comments		Response	
Via e-mail sent on 12/21/2010: Attached you will find my public comments and opposition to the new 100 helicopter brigade being re-located to Fort Carson Colorado. Via letter dated 12/21/2010: My name is David Reed, and I own property near the town of Peyton, Colorado. We are located northeast of Fort Carson approximately 15 miles. I would have to be in opposition to the new aviation brigade being located in Fort Carson for several reasons. The first and foremost reason would be the noise created by 100 helicopters flying in the El Paso County area day and night, every day of the week with little to no break. We have had no information that would lead us to believe that this aviation unit would restrict its' flight patterns to the boundaries of Fort Carson. In fact it has been mentioned that the unit is looking at Fort Carson do to the mountains being in close proximity to hold high altitude flight training. We already have jet fighter training that encompasses much of the Sangre DeCristo mountain range and the noise from these jets is very disturbing to the environment and hinders the enjoyment of the outdoor recreation.		Thank you for your comments. Please see the response to comment #1 regarding the Army's need for the proposed action and why Fort Carson was selected as a viable stationing alternative. Fort Carson's proximity to mountains and the opportunity to conduct high-altitude training is not one of the screening criteria contained in Section 3.3 As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible. As stated in Section 5.12.2, the proposed action at Fort Carson will not require the Army to seek additional restricted airspace.	

Several times each year groups of Black Hawks gather in Fort Carson for training. When they do, we have these helicopters flying over our property day and night for several hours at a time. They appear to be practicing maneuvers and at times it appears that they are actually using our residence as a target. Sometimes they fly very low +- 500ft and after a while it begins to bother the livestock in the area. They remain here for a couple weeks at a time. Once they leave it quiets down until the next group arrives. I can only imagine what it would be like if a helicopter unit was permanently assigned to Fort Carson.

I am a FAA licensed pilot and fly in and out of Meadow Lake Airport and the Colorado Springs Airport. I suspect that bringing in a 100 helicopter brigade would impact the local flying areas. There are already so many restricted airspaces that it is hard for general aviation to even get around. I further suspect that this unit would use the eastern plains area for maneuvers (over my property) and the army would seek yet another MOA (restricted airspace) for their maneuvers.

I support and respect our armed forces but I must oppose this aviation brigade locating to Fort Carson.

ITEM: 35.	**AGENCY (COMMENTER NAME):** Individual (M. Carmichall)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (Noise and Safety)

Comments	Response
Via e-mail on 12/22/2010: I previously sent this comment, but I think it was to a different e-mail address; so I'm sending it again in case it was not received. However, what's the point. We know that the powers that be decided long ago that the Brigade would be stationed at Ft. Carson. It was a done deal before the Army even asked for comments from the public. This impact statement business is, and was always meant to be just a mere formality (ruse) so that the Army could say it crossed all its "t's" and dotted all its "i's" before making its final decision. Then, upon completion, no one could come back later and say the Army didn't do its due diligence. But the sad truth is (to those of us smart enough not to be fooled by all the lies, fraud, waste, abuse, and corruption of our government) that you didn't even wait until the impact statement report was completed to make your decision; further proving that you didn't really care because your mind had already been made up. You may be fooling a lot of people with your late-to-the-table "concern," but not all of the people. We would like to add our 2 cents worth on this proposed addition, and the impact it will have on us personally. We live in the foothills above Fort Carson. We moved here from another State and were not familiar with the area. Shortly after moving in, we were rudely awakened around 1:00 a.m. with what was not only a huge explosion that we heard, but that we felt, because it violently shook our house to its very foundation. We thought it was a gas explosion, but you guessed it...it was training at Ft. Carson! Since that time there are some days and nights where bombing training will go on for hours. On those days when we have helicopters fly over, they are so loud and low-flying that they cause our house to shake. They often pass directly over a large skylight that we have over our bathroom. Since we can see them, surely they can see us as well. Talk about invasion of privacy! I guess we can forget about ever being able to sell our house! With all the Military bases we already have in Colorado Springs, is it really necessary or fair to add yet another Brigade that will not only cause additional noise pollution, but negatively affect surrounding residential areas, ranchers and their livestock, and wildlife as well? In all of the United States is there not one other area of open space that would less severely impact the population at large? We also have severe, unexpected winds and downdrafts (one that recently caused a television helicopter to crash) that causes us great fear since the helicopters already at Ft. Carson fly right over our house; not to mention the extreme lightning and hail. We are so close to the Post, we can hear the loudspeaker warning of incoming storms almost daily in Spring and Summer.	Thank you for your comments. We assure you that no decisions have been made regarding the proposed actions described and analyzed in the PEIS. Like any effective NEPA analysis, the purpose of this PEIS is to assist the Army in making informed decisions, while communicating with the public on potential environmental impacts of proposed actions. We acknowledge your concerns about noise impacts. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible. We acknowledge your concern about safety. Please see the response to comment #1 for information on aviation safety

We don't believe that the Army really cares about our plight; and we don't believe that there was not a single Post other than Ft. Carson where this Brigade could be added, that would have less negative impact than there will be here in Colorado Springs.

ITEM: 36.	**AGENCY (COMMENTER NAME):** Individual (Jane Daeroon)	**LOCATION:** Joint Base Lewis-McChord, Washington	**TYPE:** Joint Base Lewis-McChord, Washington

Comments	Response
Via letter dated 01/04/2011: I am writing to say I am against stationing a new brigade at Joint Base Lewis-McChord for the following reasons: The United States already has trillions of dollars of debt. The wars in Iraq and Afghanistan are ending in 2014. Why spend borrowed money after 10 years of fighting which will add to the national debt? This area has major congestion from the population of military here now. More troops mean more traffic on already overcrowded highways. There is a possibility of using neighborhood streets to direct traffic to a military entrance. Mt. Rainier is a scenic wonder for people world-wide. People come to experience Mt. Rainier from many countries. According to park ranges pollution from the low lands (I-5 corridor) to Mt. Rainier is killing trees and other vegetation. The glaciers are receding. We do not need added pollution. Pollution is not only in the form of burning fuels, but also in the form of noise. We in this region, have noise from low flying aircraft at McChord helicopters at Ft. Lewis, shooting at both sites, as well as loud blasts from Ft. Lewis. The Nisqually Indian Tribe, environmental groups, ecologists, and others have been working for years for restoring the salmon runs and northwest fisheries. Expanding the bases would be a step in the wrong direction. Expansion would also impact the amount of training in Eastern Washington which will suffer an environmental impact there by increasing the danger of wildfires and impact the water quality at the Yakima Training Center. Please consider carefully the adverse impact this expansion will have on our national debt, the Nisqually Indian Reservation, the ecology of the two regions, the impact of Mt. Rainier, and the people of this area who will have to deal with increased noise. pollution, and traffic.	Thank you for your comments. We acknowledge your concern of the state of our Nation's debt. Every dollar the Federal government spends affects the budget and we need to ensure expenditures are appropriate and used wisely. That is one of the reasons this PEIS is important and why a clear purpose and needs is required. As stated in Section 1.3 of the PEIS, the Army's need for the proposed action is generated by the imbalance between current mission requirements and available aviation forces. In essence, our aviation unit Soldiers are deployed too often, reducing their time at home station. Reduced time at home station directly impacts the quality of life for these Soldiers and their Families, and affects the quality and quantity of the critical training these Soldiers need to prepare for combat. The screening criteria in Section 3.2 focused the Army's analysis of alternatives to those installations where aviation growth and realignment will be viable and support the Army's need. After applying the last screening criteria in Section 3.3, it was determined that only JBLM and Fort Carson were viable stationing locations capable of providing the necessary air-ground integration training. This type of training is a key aspect of the stationing decision and is one of the reasons why JBLM is evaluated in this PEIS. We acknowledge impacts to transportation would be significant if a decision is made to station a CAB at JBLM. Please refer to the response to comment #26 for information on transportation impacts to JBLM and the surrounding community. We understand your concern about air pollution impacts to the surrounding community, including Mount Rainier. Air pollution impacts of the proposed CAB stationing is analyzed in Section 6.5 of this PEIS. Please see the response to comment #30 for information on noise impacts to JBLM and the surrounding community. Impacts to fish species, including salmon, is analyzed in Section 6.9 of this PEIS. As noted in Section 6.9 of this PEIS, we expect significant impacts to native plant communities and sensitive species on YTC as a result of wildland fires. While management practices reduce wildfire impacts for most fires that may occur from training and other activities, the impacts of fires can effect unique habitats that are not adapted to an altered fire ecology. YTC's *Integrated Wildland Fire Management Plan* establishes wildfire risks, management goals, and strategies to be used to reduce the risk of fires on the installation and improve YTC's ability to reduce fire losses. Impacts to water quality at YTC are analyzed in Section 6.8 of this PEIS.

ITEM: 37.	AGENCY (COMMENTER NAME): Individual (Scott Nightengale)	LOCATION: Fort Carson, Colorado	TYPE: General

Comments	Response
Via e-mail on 12/22/2010: To paraphrase a letter written long ago, the sound of those helicopters is the sound of freedom. Those young men and women in those units are what help keep us free. I live by their flight path and have absolutely no problems with this. Bring them on!	Thank you for your comments. We appreciate your support of our Nation's Soldiers.

ITEM: 38.	AGENCY (COMMENTER NAME): Individuals (Anne and O.M. Earley)	LOCATION: Fort Carson, Colorado	TYPE: General

Comments	Response
Via e-mail on 12/22/2010: We believe the only environmental impact of having an Army Aviation Brigade stationed at Fort Carson, CO would be minimal. Any additional noise would be almost unnoticeable. Colorado Springs and the surrounding communities already deal with multiple lifesaving helicopter flights daily and only recently lost the Colorado Springs Police Department helicopter patrol. In addition, the Pikes Peak region already hosts multiple Army/Civilian/Air Force flights from Peterson Air Force Base/Colorado Springs Municipal Airport as well as the Army helicopters already stationed at Fort Carson and other aviation units that come to Colorado for high altitude training. Admittedly, we have not read the entire PEIS, but can think of no other environmental concerns that do not already occur with Fort Carson's current mission and training requirements, and cannot imagine that this brigade would add to them materially.	Thank you for your comments.

ITEM: 39.	AGENCY (COMMENTER NAME): City of Fountain (Colorado) Council Members	LOCATION: Fort Carson, Colorad	TYPE:

Comments	Response
Via e-mail dated 12/28/2010: The Council Members from the City of Fountain support the proposed aviation growth, realignment and stationing at Fort Carson, Colorado. Their signed letter of support is attached. Via letter dated 12/21/2010: On behalf of the City of Fountain, Colorado, we wish to thank you for the opportunity to comment on the Draft Programmatic Environmental Impact Statement (Draft PEIS). The City joins elected officials, business leaders and organizations throughout the Pikes Peak Region and the State of Colorado in unified support of the proposed stationing of a Combat Aviation Brigade (CAB) at Fort Carson. The economic impact of Fort Carson to the City of Fountain, the Pikes Peak Region and the State of Colorado is immense generating approximately $2.4 billion in economic activity. Fort Carson has the only division (4th ID) in the Army without a CAB co-located with the unit. Before the 4th ID left Fort Carson in 1995, there was a CAB at Fort Carson. The 3rd ACR has also called Fort Carson home. A CAB will provide the synergistic training for the soldiers at Fort Carson to most effectively train the way they will fight to ensure mission success – all of our soldiers deserve nothing less. The Draft PEIS indicates that direct and indirect impacts as well as cumulative impacts to valued environmental components are less than significant or mitigable to less than significant (for noise, geology and soils, and	Thank you for your comments and support.

biological resources). The City of Fountain will continue to work with numerous federal, state, and local partners to address the community impacts with the addition of a CAB at Fort Carson through the Fort Carson Regional Growth Plan. Our community is known for its support of the military and a welcoming environment for the men and women of our military and their families. It is an ideal place for Soldiers and their families – quality of life, educational opportunities, cost of living, and recreational opportunities are just a few of the other important reasons, for Soldiers and their families, to bring the CAB to Fort Carson. In summary, the City of Fountain, Colorado strongly supports the stationing of a Combat Aviation Brigade at Fort Carson and we look forward to a long continued partnership with Fort Carson.	

ITEM: 40.	**AGENCY (COMMENTER NAME):** Individual (Charles Gwyn)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Traffic, Infrastructure, Noise, Safety, Wildlife, and Socioeconomics

Comments	Response
Via e-mail dated 12/28/2010: Please do not allow the transfer of the proposed helicopter brigade and any further expansion of the Fort Carson Army Base in Colorado Springs for the following reasons: 1. The urban sprawl of apartment complexes supporting Ft. Carson has added thousands of low cost apartment units and has overloaded the City infrastructure. Increased traffic has saturated the existing street and highway capacity in the southern part of the Springs with attendant increases in traffic accidents and delays and no accompanying road improvements other than entrance roadways into the base 2.Noise from Base training exercises and maneuvers and accompanying aircraft has eliminated the quiet residential environment along the front range and southern part of the city both day and night, 3. There has been a dramatic increase in city crime including home invasions, burglaries, assaults and homicides. 4. There has been additional increases in costs for automobiles, appliances, and commodities to accommodate discounts given to military personnel, 5. For aircraft exercises, the low altitude flights along the front range and up the canyon toward Woodland Park have drastically disturbed the residential and wildlife environments, 6. Although the expansion of Ft. Carson during the early part of this decade appealed to the business interests of the Springs, any additional expansion will completely destroy any remainder of the once tranquil community and eliminate the attractive living environment that was experienced during the previous 25 years when the Springs was noted as a community that encouraged new start up businesses, provided an ideal environment for raising a family, and a community for retirees. Although we have been silent on the above issues in the past, the continued destruction of the Springs environment by the by the Army has reached the breaking point. In order to conserve the remaining City environment, we request that you not consider any further additions to the Base and instead choose rural locations for military expansion where the environmental impact is less.	Thank you for your comments. Please see the response to comment #1 regarding the Army's need for the proposed action and why Fort Carson was selected as a viable stationing alternative. We acknowledge your concerns about the potential impacts of the proposed actions on the surrounding community. As noted in Section 5.11 of this PEIS, we anticipate the cumulative socioeconomic impacts of CAB stationing to be less than significant. Traffic impacts to Fort Carson and PCSM are analyzed in this PEIS at Section 5.12. We also acknowledge your concerns about noise impacts and disturbance from low altitude flights. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible. We are not aware of data showing an increase in local crime rates nor additional costs for consumer goods related to the proposed action or past actions of the Army impacting Fort Carson. In accordance with 42 C.F.R. Section 1508.14, a NEPA analysis should address economic or social effects only to the extent that they are "interrelated" with "natural or physical environmental effects." To clarify, as noted specifically on page 2-12 of the PEIS, none of the proposed actions would require land expansion for either Fort Carson or PCSM. We do acknowledge there would be an increase in the numbers of Soldiers, Family members, and aviation assets at Fort Carson should the installation be selected for a CAB stationing.

ITEM: 41.	AGENCY (COMMENTER NAME): Colorado Springs Chamber of Commerce (Brian Binn, President)	LOCATION: Fort Carson, Colorado	TYPE: General

Comments	Response
Via letter dated 11/24/2010: Thank you for the opportunity to comment on the Draft PEIS and to lend support for the decision to station the Army's next Combat Aviation Brigade (CAB) at Fort Carson, Colorado. The PEIS does an excellent job in evaluating the factors related to stationing the CAB at Fort Carson or Joint Base Lewis-McChord (JBLM). The majority of our elected officials at the Federal, State, County, and City level, as well as many organizations, such as the Greater Colorado Springs Chamber of Commerce and our Military Affairs Council strongly support the selection of Fort Carson. Ft Carson has the only division (4th ID) in the Army without a CAB collocated with the unit. Before the 4th ID left Ft Carson in 1995, there was a CAB at Fort Carson. The 3rd ACR has also called Fort Carson home. A CAB will provide the synergistic training for the Soldiers at Fort Carson to most effectively train the way they will fight to ensure mission success – all of our Soldiers deserve nothing less. As noted in the PEIS, there are added requirements and factors, easily remedied, for Fort Carson to effectively and efficiently bed down the new CAB. Based on the likely timelines after a final decision for the Army, there is ample time for the needed actions. Fort Carson already has the major infrastructure requirements with Butts AAF, and has identified the necessary MILCON for building the CAB at Fort Carson. Over the past several years, with the decisions of the last BRAC to bring the 4th ID back to Fort Carson, the installation has significantly improved its capability to provide the necessary quality of life and operational infrastructure to fully accommodate the additional growth of bringing the CAB to Fort Carson. Fort Carson training ranges, Pinon Canyon Maneuver Site (PCMS) and the National Guard High Altitude Aviation Training Corridor provide unparalleled access to an environment of demanding, realistic, and needed training for our Soldiers. Our community is known for its support of the military and a welcoming environment for the men and women of our military and their families. It is an ideal place for Soldiers and their families – quality of life, educational opportunities, cost of living, and recreational opportunities are just a few of the other important reasons, for Soldiers and their families, to bring the CAB to Fort Carson. Our community looks forward to the decision to station the Army's next Combat Aviation Brigade at Fort Carson. Please feel free to contact me if you have any questions. I can be reached at 19-575-4325, brian@cscc.org.	Thank you for your comments and support.

ITEM: 42.	AGENCY (COMMENTER NAME): Individual (David Ottoes)	LOCATION: Fort Carson, Colorado	TYPE: General

Comments	Response
Via e-mail dated 12/27/2010: Fort Carson and the US Army have my complete support for the expansions being considered. I have been a resident in south Colorado Springs for 15 years and have no ill effects from the proximity of Ft. Carson.	Thank you for your comments and support.

ITEM: 43.	AGENCY (COMMENTER NAME): Washington Department of Ecology (Gwen Clear, Environmental Review Coordinator)	LOCATION: Yakima Training Center, Washington	TYPE: Hazardous Materials

Comments	Response
Via letter dated 12/15/2010: Thank you for the opportunity to comment on the Draft Programmatic Environmental Impact Statement for the Growth, Realignment, and Stationing of Army Aviation Assets. We have reviewed the documents and have the following comment. **Toxics Clean Up**	The Army anticipates no impact to the cleanup site from any of the alternatives analyzed in the PEIS. However, we note your comment, and we thank you for highlighting the issue.

The Yakima Training Center facility included in this proposal is a known (or suspected) contaminated site on the Washington State Department of Ecology (Ecology) Confirmed and Suspected Contaminant Sites List. Ecology Facility/Site ID: 105; TCP Cleanup Site ID # 2301. Hazardous substances may be present at the site in amounts and/or concentrations likely to affect human health or the environmental. Site cleanup may be required in the future by Ecology under the Model Toxics Control Act. Site characterization and/or cleanup may be desirable prior to the site alteration or development. If you have any questions or would like to respond to these Toxics Clean-up comments, please contact Valerie Bound at (509) 454-7886.	

ITEM: 44.	**AGENCY (COMMENTER NAME):** Pikes Peak Area Council of Governments (Wayne Williams, Chair)	**LOCATION:** Fort Carson, Colorado	**TYPE:** General

Comments	Response
Via letter dated 12/13/2010: Please include the attached resolution adopted by the PPACG Board of Directors on 8 December 2010 in the written comments related to the Draft Programmatic Environmental Impact Statement regarding the stationing of a Combat Aviation Brigade at Fort Carson. RESOLUTION BY THE PIKES PEAK AREA COUNCIL OF GOVERNMENTS BOARD OF DIRECTORS IN SUPPORT OF A COMBAT AVIATION BRIGADE AT FORT CARSON December 8, 2010 WHEREAS, the Pikes Peak Area Council of Governments is an association of 16 local governments representing the Pikes Peak Region; and WHEREAS, the Pikes Peak Area Council of Governments is the regional planning agency for the Colorado Springs metropolitan area with responsibilities in the area of military impact planning; and WHEREAS, Department of the Army has released a Draft Programmatic Environmental Impact Statement (Draft PEIS) that proposes the stationing of a Combat Aviation Brigade (CAB) at Fort Carson; and WHEREAS, the Draft PEIS indicates that direct and indirect impacts as well as cumulative impacts to valued environmental components are less than significant or mitigable to less than significant (for noise, geology and soils, and biological resources); and WHEREAS, Fort Carson generates approximately $2.4 billion in economic activity and more than 31,000 jobs in the Pikes Peak region and state; and WHEREAS, PPACG will continue to work with numerous federal, state, and local partners to address the community impacts with the addition of a CAB at Fort Carson through the Fort Carson Regional Growth Plan; and NOW, BE IT THEREFORE RESOLVED, the Pikes Peak Area Council of Governments Board of Directors hereby supports the stationing of a Combat Aviation Brigade at Fort Carson. RESOLVED, APPROVED, and ADOPTED, by the Pikes Peak Area Council of Governments this 8th day of December 2010, at Colorado Springs, Colorado.	Thank you for your comment and for forwarding to us the resolution of the PPACG Board of Directors.

ITEM: 45.	AGENCY (COMMENTER NAME): Individual (Deborah Cade)	LOCATION: Joint Base Lewis-McChord, Washington	TYPE: Transportation

Comments	Response
Via letter dated 12/13/2010: I have reviewed the above PEIS for the planned expansion at Joint Base Lewis-McChord and have the following comments. I live in North Tacoma and have been commuting to my old job in Olympia for 15 years. My commute on Interstate 5, which because of Fort Lewis is the only route between Tacoma and Olympia, used to take 35 minutes. It now routinely takes anywhere from an hour and fifteen minutes to over two hours. Some of the delay is due to an increased accident rate, but most is due to the hugely increased congestion. I used to have evenings free to work around my house, or participate in community activities. Now I generally work late to try to "miss" the traffic backup. Even with leaving my office at 6 or 6:30, I still regularly encounter traffic backups through JBLM, and rarely get home before 7:30 p.m. That is the hour and a half that I used to be able to do something other than work – now it's gone. The PEIS does not analyze at all the cumulative impact of the planned expansion together with the significant adverse traffic impacts of the previous expansion and base consolidate decisions. The PEIS noise that the base has expanded by over 36,000 troops, families, and civilian employees since 2003. However, it devotes all of about five lines to the cumulative traffic impacts to I-5. The PEIS alleges at page 6-63 that "Multiple long-term capital improvements are being planned in the region that will accommodate the increase in traffic." Nothing in this document says what these "long-term capital improvements" are. Although the PEIS lists a number of fiscally constrained highway projects for the Fort Carson area, there is no such list in the document for JBLM. Perhaps that is because there is actually no funding for I-5 improvements anytime in the foreseeable future. "Long-term" improvements that will not be funded or built in my working lifetime cannot be considered to "accommodate the increase in traffic" that has [missing second page]… JBLM also needs to do more with its troops to emphasize safe driving. I can't tell you how many times I've seen a car or motorcycle on I-5 that is speeding and swerving in and out of traffic – and it is always being driven by a young man in a military uniform. When you have an inordinately large population of 18-25 year old males, you are going to have a higher accident rate – that's why their insurance rates are so high. The slightest accident on this section of I-5 quickly creates a ten mile backup that can take hours to clear, making our drive even longer than the hour and a half that it is routinely. The federal government needs to contribute significantly to the needed improvements on I-5 in Mounts Road to SR 512 segment. The PEIS refers to other growth in Pierce and Thurston counties contributing to the congestion. However, by far the most significant growth in this area has been the growth at the base. The growth in subdivisions and commercial areas in Lacey and east Pierce County is an indirect consequence of the growth at the bases; the additional troops and families, and civilian employees, need places to live and to shop. All of this generates traffic on this short section of I-5. The base consolidation program is intended to promote efficiency and ultimately save costs, but it should not be carried out at the expense of those of us who were already living here and who have depended on I-5 as our sole route between work and home for a very long time. The cost of the base consolidation program should include the cost of mitigating the adverse impacts of that program, including paying for the expansion of I-5. In the meantime, the PEIS is deficient for failing to address the significant impacts to I-5, the cumulative impacts to I-5 from the previous base consolidation and expansion actions (none of which are listed), and the failure to identify any mitigation for those impacts.	Thank you for your comments. We acknowledge your concerns about traffic impacts to the community surrounding JBLM. Please refer to the responses to comments #22 and #26 for information on transportation impacts to JBLM and the surrounding community. Comment #22 was from the Washington State Department of Transportation. We also acknowledge your concerns about traffic safety. Army Regulation 385-10, The Army Safety Program, contains requirements for traffic safety and loss prevention to reduce the risk of death or injury to Army personnel and civilians. Through training and other means, the Army seeks to instill in our Soldiers the importance of vehicle safety, expecting Soldiers to operate motor vehicles in a safe manner and always to employ risk management principles when using their privately owned vehicles We care about the safety of our Soldiers and that of the public.

ITEM: 46.	AGENCY (COMMENTER NAME): Colorado Department of Natural Resources Division of Wildlife (Dan Prenzlow)	LOCATION: Fort Carson and PCMS, Colorado	TYPE: Wildlife (Protected Species) and Aviation (Over Flights)

Comments	Response
Via letter dated 12/10/2010: The Colorado Division of Wildlife has been made aware of the above mentioned draft programmatic Environmental Impact Statement (PEIS). We have reviewed the published document and offer the following comments for consideration. Several species of wildlife not specifically addressed in the draft PEIS that we recommend receive consideration include Golden Eagle and American Peregrine Falcon both species of concern in Colorado. Both the golden eagle and peregrine falcon nest in the canyons on the east and southern slopes of Pikes Peak, and utilize Fort Carson for foraging. If training flights should egress Fort Carson the west along the east or south face of the Pikes Peak massif then consultation with the Division of Wildlife should take place for identification of specific nest sites and adoption of best management practices in the form of avoidance measures. This also applies to the Mexican Spotted Owl since several protected activity centers (PAC's) exist on the east, southeast, and southern slopes of Pikes Peak. No mention is made in the PEIS that Chronic Wasting Disease (CWD) is present with a high degree of prevalence in the deer population at Fort Carson. Chronic wasting disease is a fatal neurological disease found in deer, elk and moose. It belongs to a family of diseases known as transmissible spongiform encephalopathies or prion diseases. The disease attacks the brains of infected deer, elk and moose, causing the animals to become emaciated, display abnormal behavior and impaired mobility, and eventually die. Since the prevalence and spread of CWD is density dependent and further curtailment of hunting of big game is mentioned as a possible outcome of increased training activity CDOW believes this rises to the level of a significant adverse affect that should be more specifically addressed in the PEIS. CDOW is concerned that with a lack of hunting to maintain or decrease deer and elk densities at Fort Carson that densities will increase, Fort Carson will serve as a population sink, and eventually dispersal of infected deer and elk to the surrounding area will occur further spreading this disease to currently healthy herds. We believe that with proper management of deer and elk through hunting at Fort Carson animal densities can be properly maintained to minimize the spread of CWD to the surrounding area. CDOW requests more specific discussion and analysis of this potential outcome of increased training in the final PEIS with specific mitigation measures identified in the ROD that will move this VEC significance threshold from significant with adverse impact more towards "significant but mitigable" as defined in the PEIS. More detailed evaluation and mitigation of the Route Hawk should be undertaken in the PEIS and ROD with regard to impacts to nesting and wintering waterfowl, wintering bald eagle, nesting osprey, nesting and foraging great blue heron and cormorant, foraging white pelican, and bighorn sheep, as well as impacts to the recreating public at Pueblo State Wildlife Area when crossing the Arkansas river west of Pueblo. Pueblo State Wildlife area extends west of Pueblo Reservoir along the Arkansas River almost to Hobson. CDOW believes that over flights at 100' during critical seasonal periods could have significant adverse impacts to several of the species listed above and should be addressed in the PEIS and mitigated in the ROD. A similar analysis should be undertaken where Route Hawk crosses the Arkansas River east of Pueblo at the Pueblo County Line. It appears, as best we can tell, that the design of the Route Hawk low level training route from Fort Carson to PCMS avoids the Apishapa State Wildlife Area. This State Wildlife Area is located northeast of PCMS between U.S. Highway 350 and State Highway 10. Avoidance of this important State Wildlife Area by low level aircraft over flights is important and appears to be the case given that there is strict adherence to the established Route Hawk and Centerline. If instead, aircraft fly on a true compass bearing between Fort Carson and PCMS then impacts to this State Wildlife Area and surrounding lands leased for recreational hunting purposes will need to be addressed and mitigated in the final EIS and ROD.	Thank you for your comments. We acknowledge your concerns about analysis of potential impacts to the golden eagle and peregrine falcon. As explained in Section 4.1 of this PEIS, this programmatic document incorporates the 2009 Fort Carson *Grow the Army* FEIS analysis by reference. The 2009 FEIS included detailed analysis of the potential addition of a CAB to Fort Carson, and provided analysis of potential impacts to both the golden eagle and peregrine falcon. Additional management information on these species can be found in Fort Carson's INRMP. With regards to Pikes Peak, please see the response to comment #3 which explains that, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. This means that there would be no new impacts beyond those described in the 2007 Environmental Assessment. The 2007 Environmental Assessment specifically provides that there would be no overflights of known Mexican Spotted Owl nesting sites. Fort Carson staff is aware of the presence of the CWD on Fort Carson. If a decision is made to station a CAB at Fort Carson, that action is anticipated to have no affect on the occurrence or spread of CWD. CWD is not known to occur at PCMS. Text has been added to Section 5.9.2 in this PEIS regarding CWD. We acknowledge and appreciate your comments on the need for more detailed analysis and mitigation of species impacts associated with Route Hawk. Follow-on NEPA analysis to implement the stationing of a CAB to Fort Carson, if such a decision is made, would cover the increased use of Route Hawk for CAB training activities, as appropriate. We have confirmed that Route Hawk avoids the Apishapa State Wildlife Area.

The Colorado Division of Wildlife again expresses appreciation for the opportunity to review this programmatic EIS. We look forward to hearing from you with regard to the issues we have raised and with seeing them addressed in more detail in the final EIS and ROD. Please feel free to contact us with any questions or information requirements you might have to address the issues outlined above.			
ITEM: 47.	**AGENCY (COMMENTER NAME):** El Paso County (Dennis Hisey)	**LOCATION:** Fort Carson, Colorado	**TYPE:** General
Comments		Response	
Via letter (no date): As Chairman of the Board of El Paso County Commissioners I am writing to express the Board's unanimous support for the location of the Army's 13th Active Component Combat Aviation Brigade (CAB) at Fort Carson, Colorado. El Paso County is the proud home of Fort Carson and the Board of County Commissioners is unanimous and unwavering in its support of our Soldiers and their mission to defend our freedom. We salute the Army's leadership in moving to establish two new Combat Aviation Brigades because we understand from talking with our Soldiers who've been on the ground on battlefields around the world that air support is frequently the difference between victory and catastrophic loss. Location of a CAB at Fort Carson will give these Army aviators training unequalled real world training opportunities. The tall mountains and deep gorges of southern Colorado are legendary challenges for pilots of all types of aircraft. The Army currently requires aviators to train at the Colorado National Guard's High Altitude Aviation Training site prior to deployment in Afghanistan. Fort Carson's proximity to the experts at this facility would give the Army an opportunity to maximize efficiency by limiting time and distance barriers – not to mention the fact that every training mission taking off from fort Carson will provide valuable experience from take-off to touch-down. Since locating the 41D at Fort Carson, it has demonstrated that unique geography of the Mountain Post provides soldiers with tough, realistic training opportunities. The Ivy Division's Brigade combat Teams and other units based at Fort Carson have reported that their training in the thin mountain air of Colorado gave them the upper hand in subsequent missions in Iraq and Afghanistan. But the lack of a CAB at Fort Carson has limited training opportunities for Soldiers to develop a clear understanding of aviation assets and to maximize relationships with those assets before deployment. Existing hangars and facilities at Fort Carson are ready to support the 13th CAB. Butts Army Airfield (BAAF) is big enough to support construction of additional facilities required by the CAB. BAAF is already home to an Attach Aviation Battalion and is due to receive a Reserve Component MEDEVAC detachment soon. All of these will compliment the 13th CAB and contribute to the efficient use of training assets for the Army. Finally, the El Paso County Board of Commissioners urges location of the new CAB here because we know that our Soldiers and their families endure many hardships in protecting our freedoms and they deserve the outstanding quality of life offered here in El Paso County. We offer affordable housing, good schools, a variety of adult education opportunities, an enviable four-season climate and unlimited access to healthy outdoor activities. As a community, our support of Soldiers and their families is unequalled and Fort Carson has earned its reputation as "The Best Hometown in the Army-Home of America's Best."		Thank you for your comments and for your continued support of Fort Carson.	

ITEM: 48.	AGENCY (COMMENTER NAME): Friends of the Peak (Eric Swab)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (noise, biological, and recreation)

Comments	Response
Via letter (no date): I would like to submit the following comments concerning the Draft Programmatic Environmental Impact Statement (PEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets. This being the PEIS covering the potential establishment of a Combat Aviation Brigade (CAB) at Fort Carson, Colorado. Clearly the establishment of a CAB at Fort Carson will have a positive economic benefit for the Pikes Peak Region. In addition I acknowledge the invaluable service that Fort Carson Personnel have provided in fighting wild land fires and in the search and rescue of civilian users of public lands. While I fully appreciate the need to train military personnel in an environment that approximates the conditions in which they will be fighting, there are some special circumstances that make the Pikes Peak massif unique among the Rocky Mountains and hence less appropriate for military training. Pikes Peak is the only high mountain in the state of Colorado that is situated so closely to a densely populated area. The population of the Colorado Springs Metropolitan Statistical area is over 625,000 people, and consequently many residents look to Pikes Peak for a variety of recreational opportunities. Comparable opportunities require driving 1.5 hours or more from the City. The Pikes Peak Highway, the Manitou and Pikes Peak Railway, the Pikes Peak Auto Hill climb and the pikes Peak Marathon all attract visitors from the state, the nation and from foreign countries. The result is that the Pikes Peak massif is already heavily impacted by human activity. My primary concerns are; the impact of noise on human users, the impact of noise on wildlife and impact on the environment from military training. I note that the PEIS states that cumulative noise impact from fort Carson was found to be "Mitigable to less than significant". My experience as a hiker this past summer has been that the noise of three or four helicopters circling above me on Pikes Peak was significant. Given that 24 helicopters are currently stationed at Fort Carson, I believe the impact of 120 more will be difficult to mitigate. The PEIS appears to focus on the impact of the CAB on the populated areas of the Pikes Peak Region and on the Pinon Canyon Maneuver Site, but not on the National Forest or the Mountains to the west. The PEIS makes only passing reference to an Environmental Assessment that was conducted in 2007, entitled "Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training, October 2007". Obviously one of the major reasons for establishing a CAB in Colorado is access to the mountains for training. An increase of from 24 to 144 helicopters should require a new Environmental Assessment of high altitude military helicopter training, at least. Recognizing that the National Forest Service is the steward of the Pikes Peak massif and that the **"Master Agreement Between Department of Defense and Department of Agriculture Concerning The Use of National Forest System Lands For Military Activity"** (MABD&A) spells out specific requirements for coordination between the two departments, I would like to make five suggestions for mitigating the impact of the proposed establishment of a CAB at Fort Carson. **Look at Other Public Lands for Training** Because of the already heavy use of the Pikes Peak massif I would encourage the Army to look at other public lands for landing zones that have a lesser impact on public users. If the Army considers it necessary to user the Pikes Peak massif, then an Environmental Impact Study should be done. **Establish a Liaison With the Pikes Peak Ranger District** It is my understanding that the Directorate of	Thank you for your comments. We acknowledge your concerns about impacts to Pikes Peak. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. Army installations, including Fort Carson, underwent reorganizations to a standard structure. As a result, DECAM functions are now under the Directorate of Public Works, Environmental Division. Contact information for the Environmental Division is available on the Directorate's Web site, http://www.carson.army.mil/DPW/. This Division is the point of contact for Pikes Peak Ranger District liaison activities on environmental issues.

Environmental compliance and Management (DECAM), the agency responsible for coordination between the Army and the Pikes Peak Ranger District (PPRD), no longer exists or at least is no longer functioning in this capacity. In order for both parties to comply with the MABD&A, it is essential that the lines of communication between the Army and the District be open and ongoing. **Enhance Communications With the Public** The Army should establish a process whereby Fort Carson can receive and respond to the issues and concerns of forest users. The forest user should be able to find out when and where training activities are to take place and what restrictions to user access those activities might demand. **Update Use Restrictions** The Use Restrictions spelled out in Exhibit C of the "US Department of the Army, fort Carson Special Use Permit for Mountain/High Altitude Helicopter Training", need to be updated. Better criteria for the selection of, and the assessment of damage to, landing zones needs to be developed in coordination with the PPRD. Based on the current Use Restrictions the landing zones that are "heavily used recreation areas" should be increased to include LZ9, "Rosa" and LZ 10, "Beaver". If new landing zones are chosen the popularity of the area with forest users should be part of the criteria for selection. No over flights or landing should take place on weekends in the areas of heavy public use. Any training event that impacts the environment should be reported immediately to the PPRD. No materials or supplies that might be attractive to wildlife should be left unattended at landing zones. LZ 8, Frosty Park, is a wetland that the PPRD is making an effort to recover from the damage done by motor vehicles and should be removed from the list of landing zones. These Use Restrictions should become a part of the training for the CAB pilots and crews. **Establish a Training Itinerary** A schedule of training missions should be established which would minimize the impact on human use and impact on wildlife of the pikes peak massif. Scheduling should include consideration for times of the year, wildlife migration pattern, times of day, and number of flights by landing zone. This information should be made available to the public, so that forest users can avoid the training areas during these times. I am not personally opposed to the establishment of a Combat Aviation Brigade at Fort Carson, I would like to see the impacts of such a move on Pikes Peak massif mitigated.	

ITEM: 49.	**AGENCY (COMMENTER NAME):** Tacoma-Pierce County Chamber (Gary Brackett)	**LOCATION:** Joint Base Lewis-McChord, Washington	**TYPE:** Socioeconomics and Transportation

Comments	Response
Via letter dated 11/24/2010: Thank you for the opportunity to comment on the Draft PEIS on Proposed Aviation Growth, Realignment and Stationing. The Chamber has been involved in this process through its participation in the open public process. As a result, please note that the Chamber is supportive of the Preferred Alternative – Alternative 3. Washington State enjoys a positive economic contribution from all its military installations. This is a just released report for the state, but it gives you a good picture of JBLM: http://www.wedc.wa.gov/Publications.htm in addition to other defense industry economic contributions. The community (Region of Influence: Pierce and Thurston Counties) has enjoyed a positive economic and social relationship with Joint Base Lewis-McChord (JBLM). The return deployment over this summer of about 18,000 soldiers (joined by some returning families) has made a significant economic contribution to the local economy in these recessionary times. In spite of the national recovery underway, the local area still suffers from recessionary impacts. Those impacts are forecast in the Chamber's Pierce County Economic Index, to begin improving attributable to significant contribution from JBLM in this final quarter 2010. That forecast is not yet	The Army looks forward to continuing its cooperative efforts with the Washington State Transportation Commission and the City of Lakewood to address traffic impacts. Thank you for your comments.

available until its public release December 16, 2010. As a growth installation, JBLM is collaborating in a two-county evaluative process to determine those socioeconomic impacts and appropriate coordinated community actions to assure cooperative efforts for mission support and a high level of quality of life for all citizens (civilians and military personnel and their families). The city of Lakewood is the lead for that two county study of the growth impacts from JBLM. The draft is here: http://www.jblm-growth.com/ which is scheduled for completion December 31, 2010.

Already completed is another OEA funded study to assess and determine mitigating actions relating to Interstate 5. This cooperative effort by JBLM, the Washington State Department of Transportation and the City of Lakewood as grant administrator, is already completed and being incorporated into public policy, as evidenced here: http://on-ramp.blogspot.com/2010/09/wsdot-announces-plans-for-i-5.html. The Chamber has recently submitted comments as here: http://c-9blog.blogspot.com/2010/10/consider-defense-issues-in.html to the Washington State Transportation Commission as they are updating the State's transportation policies, recommending incorporation of national defense obligations in those policies. As mentioned earlier, the community is the beneficiary of community involvement by soldiers and their families. There is a wide range of contributions that are exemplified in the actions of soldiers recognized by the award of the John H. Anderson Military Citizen of the year. That and other community interaction is documented with the Chamber's C-9 Blog at: www.c-9blog.blogspot.com.

If I may provide you additional information or assistance in your evaluative process, please call on me.

ITEM: 50.	**AGENCY (COMMENTER NAME):** Individual (David Hughes, Col (Ret.))	**LOCATION:** Fort Carson, Colorado	**TYPE:** General

Comments	Response
Via email / letter dated 1/1/2011: Comment on Stationing Aviation Brigade at Fort Carson, Colorado I have strong views, on whether or not the Army should station a 100 helicopter Brigade with 2,700 soldiers at Fort Carson. Bluntly, I think the unit should be stationed there, and while its operations may periodically disturb those who have chosen to live nearby I insist that NIMBY should NOT be a major determinant in its stationing. That its stationing should be solely determined by the training needs of the Army, and especially the needs for joint training with the major combat formations stationed at Fort Carson – currently the 4th Infantry Division (Mechanized) and its supporting units. Mechanized Brigades have been deliberately designed to train with, and operate in combat with, Aviation units. I bring 40 years military perspective to this issue, for I was assigned as the first G-3 – Operations and Training Officer - to the 5th Infantry Division (M) which was quickly reorganized as the 4th Division (M) at Fort Carson in 1968. I was a Battalion Commander, the Chief of Staff of both the Division and Post, and then the 2d Brigade Commander between 1968 and early 1972. I was assigned there by request of its Commanding General because of my combat command record in both the Korean and the Vietnam Wars, and my knowledge from assignments in the Pentagon both in Army Staff Planning, and in the Secretary of Defense's office about the future nature of warfare and what the Army would need to be prepared to engage in them. I.e. what kind of training they would have to do. Our predictions then have been born out quite accurately now – with a series of protracted Insurgent Wars including Iraq and Afghanistan where the premium is on boots on the ground soldiers widely dispersed supported by airmobile transport and aviation support in both counterinsurgency and special operations, and potential Conventional Wars similar to Desert Storm requiring mechanized, armor and air supported large formations. In fact Secretary of Defense Gates has recently described the future reality that 50% of the Army has to be capable of fighting both Insurgent Wars and Conventional Wars, while smaller portions have to be capable of	Thank you for your comments, your service, and your continued support of the Army.

fighting either exclusively Insurgent Wars or Advanced Technology Wars. Fort Carson's units are a major part of that dual-readiness 50%

What difference does that make? Right now 4th ID soldiers who have been deployed to Afghanistan repeatedly countering the Taliban insurgents, are right now, upon their return, training at Fort Carson for their OTHER vital mission, readiness for conventional war in places it could occur rapidly such as on the Korean Peninsula. It has to train at BOTH, constantly. That is a heavy burden to put on our no-draft and smaller forces. The US Army does not have the luxury, as in the past, of taking years to mobilize, and then get prepared for the next war. Readiness, and the training to achieve it, is the ONLY reason for Fort Carson's existence.

During that period of assignments to Fort Carson I became acutely aware of
Why the Army chose Fort Carson, a hitherto 2d rate wartime-only expansion post – to station a full Mechanized Infantry Division – a substantial proportion of the entire Fighting Strength of the US Army - there with long range plans for Carson as a major permanent future-needs Post.
What obstacles Civilian Communities outside Fort Carson have repeatedly tried to block its needed FOR VITAL TRAINING expansion. Even after those same communities fell all over themselves desiring Fort Carson not be closed down in 1968 and later Base Closings for its economic benefits in an area and city – Colorado Springs - which would dry up and blow away if it were not for the payroll both civilian and Army that Carson represents.
What creeping NIMBY sentiments by communities who, during this period of an all Volunteer Force, care little about the training needs of Army personnel – especially the volunteer force. With no draft, few Americans care what happens to soldiers or why. Most surrounding communities or legislators at the State of Colorado level have no real stake in Fort Carson's mission or how well its soldiers are trained.
My long held conclusion is that El Paso County cannot have it both ways – the full economic benefits of Fort Carson's personnel and support structure costs, and then limit the training that its stationed units can have – particularly in a shrinking Army, post Afghanistan.

Secretary of Defense Robert McNamara was ready to shut down Fort Carson in 1967-68. In the first of a series of Base Closing Reviews, Fort Carson was considered a high-overhead, low-Defense-value post. A Major General Heintges was dispatched to survey a number of similar Army Posts. He reported back that\, BECAUSE of the expansibility of Fort Carson to the south toward the Arkansas River, in a nation whose military posts in the east were being encroached upon evermore to the point that advanced Army weapons in Mechanized units were unable to be fired on the Post.

Fort Carson had been a boots-on-the-ground Infantry Division post from 1941 to 1968. Its field training space was adequate for the maneuver units of a strait Infantry Division. But by 1968 as Vietnam was going to phase down, there were, and ARE NO MORE plain infantry divisions. All divisions have to be either armor, mechanized infantry, airborne, or airmobile. Army combat units are not designed to minimize the impact on the environment in or around their training bases. The best possible and realistic TRAINING is the #1 function of combat units while not yet engaged in another war or armed operation.

Fort Carson was saved originally because it could house AND TRAIN a Mechanized Division – which the 4th ID was converted into after 51 years of being a non-mechanized Infantry Division. That took much MORE field training space for maneuver units, and a fully adequate impact area – for artillery, mortar, tank gun, high performance ground support aircraft AND Army Aviation helicopter air-ground firing.

Even though local and state political leaders assured the Army that it would welcome the retention of the Fort, and support its expansion, in fact, from the beginning, greedy Pueblo who wanted the new FEDERAL reservoir on the Arkansas for itself opposed the needed expansion to the south in Pueblo County to the north shore of Pueblo Reservoir where amphibious tracked vehicle training – vital to the 4d ID when all its Personnel Carriers

were amphibious. Training was needed for cross river operations in Europe which was then the main Soviet military threat, AND my Readiness Mission as a Mechanized Brigade Commander – to be able to fly quickly to Europe without heavy equipment, from Peterson Field, climb into matching mech-infantry carriers prepositioned in Europe, take to the field and engage in combat across the small and some large rivers in Central Europe. No time to train AFTER arrival in the operational theater.

The Army could have used its power of eminent domain but it chose not to, for political opposition, not national military security, reasons.

As a consequence I, as a 4,000 soldier Brigade Commander in 1971 over 2 Mechanized Infantry Battalions and 2 Tank Battalions was crippled by inadequate down range maneuver space, and denied access to water for unit training. We were fortunate that the Soviet Union did not make a hostile move against NATO while I was in command of that Brigade. Our operations would have been less than they could be, and bloodier. There is old soldier wisdom that is just as true today as it was at Pearl Harbor – more sweat, less blood. The better prepared for action units are, the lower casualty rates.

In 1968 there was the issue of a strip of private land called Rancho Colorado relatively near the Fort Carson Impact area, and across I-25 from Widefield-Security-Fountain area. The Army correctly understood that as both the Post and communities around it grew that there would be the inevitable NIMBY complaints about the sound of live firing training.

A fly-by-night real estate firm declared it was going to 'develop' Rancho Colorado with housing, (to cash in on the expansion of the post) even though it had no water and very poor prospects for a successful development on that arid land. The Army could have condemned that other-wise useless strip – for a sound barrier for towns east of I-25. But the 3 man El Paso Board of County Commissioners voted 2 to 3 against the Army condemning it for the needs of the Army. On knee-jerk ideological grounds of supporting 'private development' over 'government' needs. So the Army declined to do condemn it , even though decades later after a half-baked development was started there, losing money, the NIMBY complaints started up from the handful of people who lived on that extremely marginal strip. Much later (after 2000) the developer was more than ready to negotiate a sale of the land to the Army. He was bailed out of his bad investment by the Army which was forced to pay far more than it would have in the first place.

Often totally overlooked in the uses of Fort Carson has been the reliance on Carson for summer field training of Army National Guard units from Colorado and adjacent states. Especially are needed by them the live firing ranges and the Impact Area. While currently the Reserve units of the Army are getting lots of real-war training in combat theaters, as active duty troop levels are reduced post Afghanistan there is bound to be continued reliance on National Guard and Reserve component which require training areas,

such as Fort Carson across the spread-out west to keep their military skills up.

The only bright spot during those early days was the building of Butts Army Airfield for aviation support and training. As Army aviation BEGAN to become ever more militarily important for all types of operational needs. Both fixed wing and rotary wing aircraft were stationed there, flying training missions, support-of-ground-unit missions, administrative missions, at Fort Carson, and into the Rocky Mountains. Fort Carson's helicopters were the genesis through the MAST program of almost sole reliance on civilian mountain rescue missions by 1970, then enabling a transition from almost sole reliance in 1970 to current dependence on private hospital and government helicopters

And of course the then small Special Forces units stationed at Carson (now a full SF Group) relied on those aircraft for their extreme and classified training. That need continues. Whether or not there will be sufficient Army Aviation resources at Fort Carson to support continuous (always ready for missions) Special Forces units,

will also weigh in the balance of whether Fort Carson should be shut down or not. Then followed the costly acquisition of the Pinion Canon Training areas. Which ONLY occurred at huge and recurring annual expense because the Army folded on its planned expansion of Fort Carson to the south toward Pueblo? Now, if the Army is not permitted to develop, FULLY including for Live Fire, and full Aviation operations will start the shutdown of Fort Carson. Carson does not exist for the economic benefit of Colorado. As my comments above imply, I stand in defense for the ESSENTIAL TRAINING of soldiers at Fort Carson, on the post, at also in the Pinion Canon Training area, with and without live fire, in the mountains on Federal land, or by land owner permission, by lease or sale. I am sick and tired, after 40 years monitoring the incessant NIBMY resistance, all the way to Congress for both expansion of Carson at Pinion Canon and full training at or over Fort Carson. I insist that Army, for a change, stand up the complete training needs of the SOLDIER, and not the ENVIRONMENT. I am a Colorado Native who grew up on my Family 3,000 acre Cattle Ranch SE of Denver, homesteaded in 1898, rode in the National Horse Show and Rodeo, and knew cattle ranching before my military career. I know how Ranchers try to cling to their land. As if there is NO other consideration as important. But who also, not forced by the Draft to fight for this country (not volunteer) and thus won't pay the price soldiers do who are not trained the best and most complete way the US and its Army can train them. Put that Aviation Brigade at Fort Carson where it belongs. I am already fully knowledgeable that the Army will promulgate a huge host of limitations and restrictions on all military training units anyway. I am not the bit worried about commander at Fort Carson damaging the Environment or disturbing the population any more than it is necessary for their TRAINING MISSION. David R Hughes, Colonel (Ret) DSC, SS w/2 OLC, BSV w/OLC, PH w/OLC, CIB w/Star Designated 2004 Distinguished West Point Graduate. PS. I will testify and confront face to face ANY Colorado resident or politician in hearings who holds that environmental protection is first priority OVER the Combat Soldier training needs at Fort Carson. And if the final decision is against the training needs for Fort Carson units, I will be the FIRST to lobby the Army to close down Fort Carson permanently.	

ITEM: 51.	**AGENCY (COMMENTER NAME):** Individual (Kay Woltman)	**LOCATION:** Fort Carson, Colorado	**TYPE:** General

Comments	Response
Via email dated 1/4/2011: In regards to the Army moving a Combat Aviation Brigade to Colo. Springs, CO. EIS # 20100438 Moving this unit to the Fort Carson Army Base would be in the best interest of all related parties. Fort Carson provides the means necessary for this type of military training. It is the only training that is not available right now at Fort Carson. It would bring soldiers & their families to the Colorado Springs area, which would mean growth & jobs for our community. We have the experience & expertise with the number of military bases that are already located in this area.	Thank you for your comments.

ITEM: 52.	AGENCY (COMMENTER NAME): Individual (Dan Moberly)	LOCATION: Fort Carson, Colorado	TYPE: General

Comments	Response
Via email dated on1/4/2011: I would like to express my approval for a new Combat Aviation Brigade at Fort Carson, Colorado. I am a 58 year old resident of Colorado Springs, and living here all of my life I know what an important role Fort Carson plays in our community. Being in the Army back in the 1970's I know how important air support is to ground troops. Fort Carson has the space, the facilities to accommodate a new Brigade, and Colorado Springs can accommodate the personnel's needs.	Thank you for your comments and support.

ITEM: 53.	AGENCY (COMMENTER NAME): Individual (Lynne Gish)	LOCATION: Fort Carson, Colorado	TYPE: General

Comments	Response
Via email dated on 1/4/2011: Colorado Springs and the surrounding area has been blessed with the presence of Fort Carson for many years. The additional troops that would be stationed at Fort Carson and the impact on the local economy far outweighs any perceived negative environmental affects. Colorado Springs would welcome a Combat Aviation Brigade.	Thank you for your comments and support.

ITEM: 54.	AGENCY (COMMENTER NAME): U.S. Department of Agriculture, Forest Service (Jerri Marr)	LOCATION: Fort Carson, Colorado	TYPE: Aviation (helicopters)

Comments	Response
Via email dated 1/5/2011: The attached comments concerning your Federal Register Notice should have been sent to your attention. Your notice appeared on the same page as a notice of mine and the respondent erroneously picked up my name for submission of their public comments. Please take for action. Via letter dated on 12/15/2010: The Pike and San Isabel Forests and Cimarron and Comanche National Grasslands National Environmental Policy Act (NEPA) staff reviewed the Army's Draft Programmatic Environmental Impact Statement (PDEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets. The document does not disclose how the increase in helicopters stationed at Fort Carson might impact the use of National Forest System lands on the Forests and Grasslands. The Pike and San Isabel National Forests, in particular, have concerns with the additional helicopter detachments because the Environmental Assessment (referenced on PDEIS page 5-59) that authorized high altitude helicopter training on the Forests specifically states, "there are no sites either on Fort Carson or Pinon Canyon Maneuver Site that meet requirements for this training in terms of elevation and associated topography". This statement leads the Forests to believe that any increase in helicopters on Fort Carson that increases training would most likely direct a portion of that new training onto the Forests. The Forests and Grasslands realize that Forest System Lands provide a variety of unique geographic and topographic settings to conduct training activities. However the use of the Forests for training must be balanced with other uses as evidenced by the following statement from the Master Agreement between the U.S. Department of Agriculture and the U.S. Department of Defense, "training on National Forest System lands will be authorized when compatible with other uses and in conformity with applicable forest plan(s)." The Pike-San Isabel National Forests and Cimarron-Comanche National Grasslands are requesting the Army include analysis in the Programmatic Final Environmental Impact Statement (PFEIS) to show the potential effects of increased helicopter training on National Forest System Lands and the Pinon Canon Maneuver Site as	Thank you for your comments. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.

a result of the potential re-stationing of helicopter units to Fort Carson. The Forests and Grasslands consider a change from 24 helicopters now to as many 224 in the future significant enough to require additional detailed analysis on potential effects to Forest System Lands.	

ITEM: 55.	**AGENCY (COMMENTER NAME):** Individual (Carmela Trujillo)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation. Noise, and Wildlife

Comments	Response
Via email dated 1/5/2011: I am writing to comment on the Environmental Impact Statement being prepared concerning the addition of a full Combat Aviation Brigade at Fort Carson. Several aspects of the local environment will be adversely affected by the addition of 120 helicopters and up to 2,700 more troops to Fort Carson. I live in a secluded area not far from several of the Landing Zones for Army helicopters. The Rampart Range cluster of Fort Carson Landing Zones is only a few miles from us here at Mount St Francis. A dramatic increase in flights to and from those Landing Zones would greatly affect our normally peaceful environment. In addition our region is blessed by many acres of forest lands that are ideal for hiking and camping. The existing level of use of the National Forest is already impacting our area. Our local economic and political environment is already saturated by the giant military presence of the Army and Air Force in the region. A major increase such as the one being proposed would only exacerbate that problem. We desperately need diversity in our local economy. This expansion would be a step in the wrong direction.	Thank you for your comments. We understand your concern about the potential for increased disturbance. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible. We also acknowledge your concern about potential impacts on hiking and camping on National Forest System lands. As explained in the response to comment #3 above, the Army's use of these lands is governed by formal agreement with the U.S. Forest Service and analyzed within a separate environmental assessment. The Army intends to remain consistent with the agreement and this assessment, meaning that use of the National Forest System lands by the Army will not exceed levels previously agreed upon and analyzed within these documents.

ITEM: 56.	**AGENCY (COMMENTER NAME):** Individual (Aaron J. Weil)	**LOCATION:** Fort Carson, Colorado and Joint Base Lewis-McChord, Washington	**TYPE:** Transportation

Comments	Response
Via letter dated 12/23/10: We have one freeway I-5 that runs through Ft. Lewis, three lanes each way for eight miles. At Ft. Lewis they have six to eight exits, all but two exit onto I-5. The others exit to two lane roads one in each direction. The freeway needs more lanes that will take years to build. If you came here to look you would be in gridlock both north and south from 7AM to 9:30AM and from 2PM to 6PM every weekday. I live in Lacey my wife works at State Farm Insurance in DuPont. Before all the extra people you have already added at the fort, it took my wife 10 minutes each way to get to work and return at night. Now most days it takes 25 minutes. If there is an accident in the north or south lanes, the back-up could be 10 miles or more. In the summer with tourist using the only N/S freeway, it is worse. The money to expand the freeway and build a cross base road, which they have talked about for years to be built is not available in this economy. And what about the delays during construction? As a retired Air force sergeant who uses the freeway and fort and base for services and all the people who work on and around Ft. Lewis and McChord, this would be a bad idea. If I were on active duty and you sent me to this mess, it sure would affect how I performed my duties. Please, please, please do your homework and give this opportunity to some other area or this country that has the area and roads to support your mission. Lots of other states would love to have you. I-5 is filled up and overflowing. I'm enclosing this interoffice State Farm memo. Share the info. and not the names. Via e-mail dated 11/02/2010 One of our employees was able to attend a meeting with local city administrators and Intel to review JBLM	Thank you for your comments. Please refer to the response to comment #26 for information on transportation impacts to JBLM and the surrounding community. As noted in the response to comment #26, the Army is now considering only stationing a subset of the aviation units comprising a CAB at JBLM. Instead of up to 2,700 Soldiers, the Army is considering reducing the scope of aviation unit stationing at JBLM to 1,400 Soldiers. Such a final decision to reduce the total number of Soldiers and Family members is being considered in light of the significant transportation impacts at JBLM, and should help to reduce impacts to regional traffic and transportation networks. A final decision on this reduction in stationing numbers will be made as part of the Record of Decision concluding this environmental impact analysis process.

growth plan and traffic study. Below is a brief summary and facts regarding the base and the traffic concerns. Please note the following and the possible impact to the DuPont office as traffic becomes more congested. What to expect in the next couple of weeks. Approximate 18,000 soldiers have been on leave and will be returning. Traffic might become congested again when the soldiers start to return to their duties on JBLM. They will continue to look for solutions to this problem, but it looks like the real fix is to add another lane to I-5 and this could take approximate 10 years and around $600 million dollars to complete it. Joint Base Lewis McChord recent growth has increased from 35,331 to 50,587 (43%) for personnel (both military and civilian) and associated family members grew from 36,399 to 54,444 (77%). As many as 18,000 + troops returned from deployments this fall. An anticipated growth is expected to increase the total number of direct personnel to 52,404. By 2016, JBLM will support 136,124 soldiers, airmen, dependents and employees, in addition to the 117,971 military retirees already present. Total population accessing JBLM on a regular basis is estimated to be 254,095.	

ITEM: 57.	**AGENCY (COMMENTER NAME):** Individuals (Charles and Carol Gwyn)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Transportation,Noise, and Socioeconomics

Comments	Response
Via letter dated 12/28/10: Please do not allow the transfer of the proposed helicopter brigade and any further expansion of the Fort Carson Army Base in Colorado Springs for the following reasons: 1. The urban sprawl of apartment complexes supporting Ft. Carson has added thousands of low cost apartment units and has overloaded the City infrastructure. Increased traffic has saturated the existing street and highway capacity in the southern part of the Springs with attendant increases in traffic accidents and delays and no accompanying road improvements other than entrance roadways into the base. 2. Noise from Base training exercises and maneuvers and accompanying aircraft has eliminated the quiet residential environment along the front-range and southern part of the city both day and night. 3. There has been a dramatic increase in city crime including home invasions, burglaries, assaults and homicides. 4. There have been additional increases in costs for automobiles, appliances, and commodities to accommodate discounts given to military personnel. 5. For aircraft exercises, the low altitude flights along the front-range and up the canyon toward Woodland Park have drastically disturbed the residential and wildlife environments. 6. Although the expansion of Ft. Carson during the early part of this decade appealed to the business interests of the Springs, any additional expansion will completely destroy any remainder of the once tranquil community and eliminate the attractive living environment that was experienced during the previous 25 years when the Springs was noted as a community that encouraged new start up businesses, provided an ideal environment for raising a family, and a community for retirees. Although we have been silent on the above issues in the past, the continued destruction of the Springs environment by the Army has reached the breaking point. In order to conserve the remaining City environment, we request that you not consider any further additions to the Base and instead choose rural locations for military expansion where the environmental impact is less	We appreciate your comments. Please see the response to Mr. Gwyn's comment #40 above, which We acknowledge your concerns about the potential impacts of the proposed actions on the surrounding community. As noted in the PEIS section analyzing socioeconomics, Section 5.11, we anticipate the cumulative socioeconomic impacts of CAB stationing to be less than significant. Traffic impacts to Fort Carson and PCSM are analyzed in the PEIS at Section 5.12, page 5-55. Noise impacts to Fort Carson and PCMS are analyzed in the PEIS at Section 5.6, page 5-19. As explained in the PEIS at Section 5.12.1, page 5-57, and in the Operational Noise Study referenced at Appendix B, page B-38, Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas. We are not aware of data showing an increase in local crime rates nor additional costs for consumer goods related to the proposed action or past actions of the Army impacting Fort Carson. In accordance with 42 C.F.R. Section 1508.14, a NEPA analysis need address economic or social effects only to the extent that they are "interrelated" with "natural or physical environmental effects." To be clear, as noted specifically on page 2-12 of the PEIS, none of the proposed actions would require land expansion for either Fort Carson or PCSM; however, there would be an increase in Soldiers and aviation assets stationed and training at Fort Carson and PCMS.

ITEM: 58.	**AGENCY (COMMENTER NAME):** Friends of the Peak (Michael Cotter)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (noise, recreation, and biological resources)

Comments	Response
Via e-mail dated on 01/06/11: Please find attached comments on the CAB at Fort Carson, Colorado from Friends of The Peak. Via letter dated 01/06/11:	Thank you for your comments. We acknowledge your concerns about impacts of the proposed actions on recreational hikers and on the environment of Pikes Peak in general. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as

I am writing on behalf of Friends of The Peak to voice our concerns over the establishment of a Combat Aviation Brigade (CAB) at Fort Carson, Colorado. While we are not opposed to the CAB being stationed at Fort Carson, we would like the Army to consider making the Pikes Peak massif and the surrounding area a no training zone and no fly zone due to the unique features of the area. Friends of The Peak is an all-volunteer organization dedicated to preserving, restoring and appreciating Pikes Peak. Over the last 15 years we have been involved in advocating and volunteering to preserve and rehabilitate endangered habitat on Pikes Peak. This includes efforts with tundra above tree line and waterways below the Pikes Peak Highway. Our efforts have also focused on maintaining and creating hiking trails on Pikes Peak to give the public access to the many different areas on Pikes Peak while limiting harmful impact. Pikes Peak currently has a small herd of bighorn sheep that has been decreasing in size. Both the Colorado Division of Wildlife and the US Forest Service are concerned about the impact of people on the bighorn sheep. If the CAB is allowed to train and fly over Pikes Peak they could have a huge impact on these sheep. In addition, Pikes Peak has a number of historical sites and fragile forest lands that could be permanently damaged by training missions on the Pikes Peak massif. The recreational users in the Colorado Springs area are drawn to Pikes Peak due to its ease of access, the diverse recreational opportunities, and the sense of solitude. The current helicopters stationed at Fort Carson can regularly be seen around Pikes Peak and can often be heard even when they are a distance away. The potential 6 fold increase in the number of helicopters stationed at Fort Carson has the potential to negatively impact the recreational users in the area and create bad will towards the troops at Fort Carson. By limiting the flyovers and training sessions on Pikes Peak, the Army can positively influence public opinion and show they are listening to the concerns of the Pikes Peak users. The Board of Friends of The Peak fully recognizes the benefits that the Army provides to the Colorado Springs area and the Nation. We also recognize that the parts of Pikes Peak that make it unique are also the parts that make Pikes Peak attractive for the Army to use in training the troops. However, Fort Carson is unique in that it is close to a number of mountainous areas that can be used for training, both Army areas and less used public lands. We hope that the Army will recognize the unique character of the Pikes Peak massif and work to find an alternative to using this area. In addition, we hope that the Army will open a dialogue with the public to communicate their plans and be open to the feedback that they receive about these plans.	analyzed in the 2007 Environmental Assessment.

ITEM: 59.	**AGENCY (COMMENTER NAME):** Individuals (Mary and Tom Mourar)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (noise, biological resources, recreation, and health & safety)

Comments	Response
Via e-mail dated 01/06/11: This letter is to provide comment on the Draft Programmatic Environmental Impact Statement (PEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets and concerning the potential establishment of a Combat Aviation Brigade (CAB) at Fort Carson, Colorado. We understand the importance of managing the military and its training for current and future demands but are concerned about the potential impact of the proposed increase in helicopter numbers on the Colorado Springs metropolitan area and the surrounding environment. We find it hard to believe that the PEIS did not find a significant impact related to increased noise. As residents of Colorado Springs, we find that we are already significantly impacted by the noise related to current military operations and functions in the area. The PEIS specifies how the helicopters will travel beyond base boundaries to limit the impact of their noise but provides too many exceptions. We've also found that helicopters flying around and over the city to be quite loud even at 1000 feet and are concerned about the noise from 110 more helicopters. The PEIS does not address the training sites used in the Pike/San Isabel National Forest other than to mention	Thank you for your comments. We acknowledge your concerns on noise, safety, quality of life, and impact on the environment. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible. We also acknowledge that noise from helicopter operations can impact wildlife. Additional information has also been added to Sections 5.6.2 and 6.6.2 of this PEIS to discuss noise impacts to wildlife. We continue to conclude that impacts to noise from potential CAB stationing to Fort Carson would be less than significant. We acknowledge your concern about safety, and assure you that the Army is fully

the Special Use Permit. This omission raises serious concerns with the PEIS. An Environmental Assessment was conducted in 2007 (Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training, October 2007) for the 24 helicopters at Fort Carson. According to the PEIS, the number of helicopters will increase by an additional 110 or 120. Therefore, the 2007 Environmental Assessment is inadequate for this large number of helicopters and another Environmental Assessment needs to be conducted to truly assess the impact of the significant increase in helicopter numbers and their use of the current or other landing zones on National Forest land. This updated EA should be completed prior to the decision to proceed with moving the CAB to Fort Carson. Pikes Peak is a popular recreation area and is heavily used by residents of the area as well as visitors from every state and outside of the United States. The idea of using it as a training zone for military helicopters has us concerned about the safety of recreation users and the experience of the visitors. The Environmental Assessment and Special Use Permit describe the concerns about use of landing zones during the hunting season, summertime high recreation use, and Christmas tree cutting which means the Army acknowledges the impact on humans in the National Forest. The Colorado Springs economy depends on income from tourists, not just the military. These concerns were not addressed in the PEIS. The PEIS describes steps that will be taken to mitigate the noise around the metropolitan area, but doesn't address the impact on wildlife. Recreationists and residents of the area have already noticed changes in wildlife habits after helicopters have used the landing zones. Landing zones on Pikes Peak and Rampart Range are near protected locations where bighorn sheep lamb and elk calve. We're also concerned about the landing zones (currently designated LZ1 and LZ2) near the Rampart East Roadless Area in the South Rampart Range. Although it does not have a wilderness designation it has been identified as having wilderness-like qualities by the Forest Service and citizens of the state. This large tract of undeveloped land provides a large habitat zone, possibly including sensitive or endangered species, as well as a wildlife travel corridor from the mountains to the plains, which has become increasingly endangered in Colorado's Front Range. With these concerns, we suggest that the Army reassess its findings of No Significant Impact related to noise and quality of life for the residents of Colorado Springs metropolitan area. We think that there will be significant impact from the additional helicopters that needs to be addressed prior to moving any CAB to For Carson. We also think the Army should conduct a new environmental analysis to fully consider the impact of the four-fold increase in number of helicopters and their use of landing sites within the National Forest. The environmental analysis should consider the impacts on the wildlife in areas immediately surrounding the landing zone as well as under the flight corridors approaching these zones. The analysis should also provide a full assessment of the impact on human use of these zones, with the high level of recreation use on Pikes Peak and the wilderness-like experience of the Rampart East Roadless Area.	committed to aviation safety. Aviation accident prevention is an integral part of the Fort Carson Safety Program and applies to all aviation units assigned to or operation on Fort Carson. It includes certain mandatory weather-related restrictions and requirements. With safety policies contained in Fort Carson Regulation 95-1, contractors engaged in maintenance, industrial, ground and flight operations on Fort Carson are also part of the team ensuring safety standards are implemented. The Safety Program applies to not only military personnel, contractors, and military equipment, but also applies to ensuring the public is kept safe. The Army continuously works to identify hazards, assess the hazards, develop controls and countermeasures, implement the controls and most importantly provide supervision on all aviation missions.

ITEM: 60.	**AGENCY (COMMENTER NAME):** Individual (Susan Gordon)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Noise, biological resources, and socioeconomics

Comments	Response
Via e-mail on 01/07/11: Attached please find my comments regarding the potential establishment of one or more Combat Aviation Brigades. Via letter dated 01/06/11:	Thank you for your comments. We acknowledge your concerns about noise impacts. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Specifically, Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training

I am writing to express my concern about the proposed addition of a Combat Aviation Brigade at Fort Carson, Colorado Springs, CO. I manage Venetucci Farm, a 190 acre diverse farm located approximately 2 miles directly east of the base. I am very concerned about the potential negative impact the noise from the increased number of flights over and near the farm will have on the farm animals, as well as on overall quality of life. Almost daily during the summer months, we hear the noise from the firing ranges, as well as from frequent flyovers of military aircraft. An increase in the number of helicopter flights will certainly add to that negative impact. Because we spend much of the day out doors, the loud, incessant noise from the range and low flying military aircraft negatively impacts our work space. It has been reported that the CAB unit would involve about a 500% increase in helicopter activity to and from the base and in the surrounding mountains. Not only will this add to the negative impact on quality of life that we already experience due to our close proximity to Ft Carson, but it will also potentially annoy campers and hikers who travel to Colorado to enjoy the serenity of the mountains. The mountains west of Colorado Springs are already home to 16 Landing Zones used for flight training. In addition to the 120 helicopters scheduled to be housed at Ft Carson, the CAB unit means the addition of 2700 troops and their families. I am concerned that not enough attention has been given to the economic and social impact that the influx of these troops will have on the Colorado Springs and surrounding communities. Infrastructure including roads, parks, public schools, social services and fire and police services are already stretched and underfunded. The increase in population from the CAB unit will put additional demands on these systems and services that are neither prepared nor adequately funded to respond. Thank you for the opportunity to express my concerns regarding the proposed addition of a Combat Aviation Brigade at Ft Carson. As Military leaders look for ways to implement the $78 billion cuts recently called for by Secretary Gates, the CAB would be a good starting place.	whenever possible. Please note, as explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. We acknowledge your concerns about the potential socioeconomic impacts of the proposed actions on the surrounding community. With regard to the increased demand for infrastructure and services in the surrounding communities to support higher populations, we believe the socioeconomic impacts related to a potential CAB stationing is adequately addressed in this PEIS and Fort Carson's 2009 *Grow the Army* FEIS, which is incorporated by reference in this PEIS. The greatest level of detail is in Appendix H of the 2009 FEIS, an analysis titled "Socioeconomics Economic Impact Forecast System." The increased demand for services provided by local governments would be partially off-set by increased tax base (e.g., sales tax, property tax) created by the increased population resulting from a potential CAB stationing. We conclude that socioeconomic impacts from a potential CAB stationing at Fort Carson would be less than significant.

ITEM: 61.	**AGENCY (COMMENTER NAME):** Wild Connections (James Lockhart)	**LOCATION:** Fort Carson and Piñon Canyon Maneuver Area, Colorado	**TYPE:** Aviation (helicopters), Noise, and Wildlife

Comments	Response
Via email dated 1/7/2011: The following comments are made on behalf of the undersigned environmental groups: Central Colorado Wilderness Coalition, Great Old Broads for Wilderness, Quiet Use Coalition, Rocky Mountain Chapter of the Sierra Club, San Luis Valley Ecosystem Council, and Wild Connections. They concern the portion of the Draft Programmatic Environmental Impact Statement (PEIS) that addresses the Growth, Realignment, and Stationing of Army Aviation Assets concerning establishment of a Combat Aviation Brigade (CAB) at Fort Carson, Colorado. According to the PEIS, bringing a full Combat Aviation Brigade to Fort Carson would more than quadruple the number of helicopters stationed there, increasing it from the current 24 to at least 110 and 120, or as many as 144 if a new CAB were activated in addition to the units already stationed at Fort Carson. This would require a presumably proportionate increase in the use of mountainous areas in this part of Colorado for high altitude training purposes. Whether this would be done by increased use of existing training areas or by identifying and utilizing additional areas, or both, the impact would clearly be significant. We are concerned that this could have significant adverse impacts on wildlife and human recreational use of Pike/San Isabel National Forest. The PEIS gives very little consideration to these impacts, except in the vicinity of Fort Carson and the Pinon Canyon Maneuver Site. With regard to Pike/San Isabel National Forest, it states only: **5.12.1 Affected Environment** Additionally, lands of the Pike/San Isabel National Forests have been used to provide the Army and Fort Carson locations related to mountain/high altitude training of helicopter pilots and instructors since about 1978 and is operated under a Special Use Permit. An Environmental Assessment was conducted in 2007 (Use of National	Thank you for your comments. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.

Forest System Lands for Mountain/High Altitude Military Helicopter Training, October 2007) in cooperation with the USFS for reissuance of the Special Use Permit. There are no flights or operations conducted in the vicinity of Federally designated wilderness areas and adherence is maintained as to environmental and safety laws and regulations that are in place for this type of activity.

The PEIS in other contexts recognizes that helicopter operations can have very significant impacts. It describes an Environmental Noise Management Program aimed at managing and limiting noise impacts to the surrounding communities. It notes that to minimize these impacts, helicopters normally maintain a minimum of 1,000 feet (304.8 m) above ground level (AGL), and 0.25 mile (0.4 km) standoff outside Fort Carson while flying through the mountain passes until clear of inhabited areas. It identifies the following as "noise sensitive" areas: residential areas, schools, office space, and child development centers, and also Cheyenne Mountain State Park, west of Fort Carson, presumably because of human recreational use. We suggest that the same is true of areas in Pike/San Isabel National Forest where helicopters would not simply be flying over at relatively low altitudes, but practicing hovering or landing. We therefore suggest that potential impacts to these public lands need to be considered in order to form a proper basis for analysis of the action alternatives.

Although the PEIS describes cumulative noise impact to be "Mitigable to Less Than Significant", we believe that the actual impacts in the vicinity of the landing zones are extreme. According to the 2007 Environmental Assessment mentioned above, training is prohibited in most of the landing zones during hunting season; in five of the zones during the summertime due to heavy recreational use; and in three zones during late November through mid-December due to Christmas tree cutting. No landing is permitted in any zone when people or vehicles are present. This suggests that the training is considered incompatible with nearby human activities. In fact, it seems that no human or animal would remain within one or two hundred feet of a low-hovering military helicopter because of noise (up to 97.5 db at 200 feet according to the 2007 EA) and wind currents from the rotors. Human and wildlife activities would presumably be affected to a significant degree at a considerably greater distance. Frequent helicopter use of an area could cause both humans and animals to abandon use of it. We suggest that these impacts cannot be mitigated, except by choosing training times and locations that, to the maximum extent possible, avoid conflict with human and wildlife activities.

Although none of the landing zones are located in designated wilderness areas, several of them are within or adjacent to Forest Service inventoried roadless areas which Wild Connections has identified as suitable for wilderness designation in the Wild Connections Conservation Plan; namely the Weston Peak roadless area west of Fairplay, and the Front Range

(Rampart East) roadless area northwest of Palmer Lake. (For further description of the Wild Connections Conservation Plan, see the Wild Connections website at http://www.wildconnections.org/conservationplan.html.) The lack of a current formal wilderness designation in these areas does not mean the character of the land is any less important, nor that helicopter traffic flying close to the ground, hovering, or landing in these locations is any less impacting to humans and wildlife. Indeed, these areas, and indeed other roadless areas within Pike/San Isabel National Forest, are important as core areas where wildlife can exist with relatively little human interference.

We suggest that in order to properly analyze these impacts, the Army needs to:

1. Consider whether changes in other uses since 2007 require reexamination of the current sites' suitability. We note in particular that the Pikes Peak Ranger District is in the process of completing the South Rampart Travel Management Plan, which could significantly affect recreational use in the vicinity of the approved landing zones in the Rampart Range and near the Rampart East Roadless Area.

2. Consider the cumulative impact of more helicopters using the existing training sites.

3. Consider whether these impacts would require, or make it appropriate to consider, deletion of some existing training areas or landing zones, and designation of new ones to reduce the impacts. If so, identify and analyze the impacts of this action. Since this proposal has impacts to human recreational use, we feel that it would be appropriate for the Army to take public comment on this proposal, with the idea of not only identifying areas of substantial human use, but also areas where recreationists are devoted to "quiet use" activities that would be more significantly impacted by helicopter noise and intrusion on a natural landscape.	

ITEM: 62.	**AGENCY (COMMENTER NAME):** Individuals (Mona & Burt Imber)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Noise

Comments	Response
Via email dated 1/6/2011: Our only concern regarding the proposed helicopter brigade is the potential noise impact on the environment of the south Colorado Springs area. The thought of helicopters flying over our peaceful residential area at any time of the day is frightening. It would have a significant impact on our property values if the airspace is not restricted to much further south from Fort Carson.	Thank you for your comments. We acknowledge your concerns on noise impacts. As indicated in Section 5.6.1 of the PEIS, Fort Carson Regulation 95-1 prescribes specific noise abatement requirements for aviation personnel. Fort Carson follows the FAA regulations for the airspace in which they are flying, and has a noise abatement policy to minimize impacts to residential areas and livestock. Fort Carson strives to be an engaged member of the community and tries to minimize the impacts of military training whenever possible.

ITEM: 63.	**AGENCY (COMMENTER NAME):** FAA Western Service Center (Douglas Switzer)	**LOCATION:** Not specified	**TYPE:** Airspace, Noise, and Transportation

Comments	Response
Via email dated 1/7/2011: The FAA has the following observations regarding the PEIS For the Realignment, Growth, and Stationing of Army Aviation Assets dated November 2010: 1) Concur with the document conclusion that no changes or additions to existing Special Use Airspace or Air Traffic Procedures are necessary, as well as no new airspace or procedures. 2) The Significant Impacts identified in the document, particularly the cumulative impacts to the Noise and Transportation & Airspace categories are noted.	Thank you for your comments. We note your concurrence regarding Special Use Airspace and Air Traffic Procedures.

ITEM: 64.	**AGENCY (COMMENTER NAME):** Trails and Open Space Coalition (Susan Davies)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (helicopters), Noise, and Wildlife

Comments	Response
Via email dated 1/7/2010: The Trails and Open Space Coalition has consistently advocated for trails and open space in the Pikes Peak region. We are supported by more than a thousand members. We consistently work to improve the trail/open space experience for local hikers and cyclists. We would like to submit the following comments concerning the Draft Programmatic Environmental Impact Statement (PEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets. This being the PEIS covering the potential establishment of a Combat Aviation Brigade (CAB) at Fort Carson, Colorado. We understand the establishment of a CAB at Fort Carson will have a positive economic benefit for the Pikes Peak Region. And we appreciate the invaluable service that Fort Carson Personnel have provided in fighting wild land fires and in the search and rescue of civilian users of public lands. But we are very concerned about a proposal that would increase the number of helicopters from 24 to 120. We would ask that you take into consideration the impact that amount of activity will have on recreational users, the impact of noise on wildlife and impact on the environment from military training. Our members tell us the noise of three or four helicopters circling above on Pikes Peak is significant.	Thank you for your comments. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment.

We don't pretend to understand what kind of impact that increase will have on wildlife and the environment. Further environmental investigation will do a better job out assessing the risk and determining if this project should go forward as planned. All we ask is that you consider what the effects will be as you make your decision. Thank you for this opportunity to comment.			
ITEM: 65.	**AGENCY (COMMENTER NAME):** Individual (Claude Neumann)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (biological resources, recreation, health and safety, and noise)
Comments		Response	
Via letter dated 1/7/2011: I would like to take the opportunity to submit comments regarding the PEIS for the Growth, Realignment, and Stationing of Army Aviation Assets concerning the potential establishment of a Combat Aviation Brigade (CAB) at Fort Carson. While I do recognize the importance of maintaining proper and authentic training conditions for necessary military operations, I must question proceeding with this proposal without adequate study. My concern regarding this proposal of increased training operations is the flights over and landing zones in or near the National Forest, and specifically the Rampart East Roadless Area (RERA) northwest of Palmer Lake and other roadless areas in the immediate area. Allowance for these operations is currently under a special use permit with the Forest Service for the past 28 years. An environmental assessment (EA) was apparently done in 2007 to renew this permit. I am a frequent quiet use / recreational user of this area and have also worked for over 10 years with the various stakeholders in trying to achieve protection of these areas. My major concerns and points are itemized below. My efforts include work with the Colorado Mountain Club, Douglas County, Wild Connections Conservation organization, and the Forest Service. Though my comments are specific to the above areas to the north of Ft Carson, I also have serious concerns about the additional operations in the Pikes Peak area from Colorado Springs to Pinyon Canyon. Substantial Increase In Operations & the EA- My first concern is what I feel is the inadequacy of the existing EA (environmental assessment) for either the previously approved operations and especially the expanded operations. Under this proposal, I feel a four fold increase in operations will have substantially greater affects on human use and wildlife in the areas affected. The EA appears to have done little consideration of these ramifications under the present level of operations, and I feel would be especially inadequate for the expanded operations. Importance of the affected Area - This area has also become of much more concern over those 28 years as it is literally an island in the midst of heavy recreational use to the west and and human expansion to the east. Since the 1976 congressionally mandated formation of inventoried roadless areas, many of us have worked diligently to assure that these last vestiges of wild and undeveloped land remain as is, as much as possible. Many of them are under consideration for potential wilderness. (reference to the Citizens proposal for wilderness, Wild Connections Conservation Plan published by "Wild Connections"). These areas, along with the established Wilderness areas are critical to preservation of remaining open and wild lands. <u>Affect On Wildlife</u> - Protection of the above areas becomes critical when considering the overwhelming data suggesting that encroachment and degradation of habitat has a profound affect on wildlife survival and wildlife movement, particularly close to an urban area. . The areas are especially important as refuge for our remaining wildlife which are also "crammed" in between that surrounding activity. Helicopter operations produce substantial disturbance and with a certain frequency of operations, one must seriously question the magnitude of the affects. Yet the EA does not appear to have done that. These roadless areas represent an important component in the survival of wildlife. An EA must carefully consider the ramifications of intense operations as proposed.		Thank you for your comments. Your comments appear to be directed at the October, 2007 Environmental Assessment for the Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training. As explained in the above response to comment #3, change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment is not part of the proposed action analyzed in this PEIS.	

Affects on Humans – Human quiet use of the area could also be significantly impacted. Being in the midst of surrounding disturbances from human activity, they represent an important refuge for human respite and recreation. Increasingly they will be important for that purpose, because of the proximity of urban areas nearby. Another possible affect to humans is elevated danger of fire from these operations that should be considered in the EA. Better Places for Operations – Since a substantial amount of forest land is already heavily used in the area for motorized – noise producing activity, I feel serious study should be given to confining operations to these areas where wildlife and human activity has already been disturbed. Perhaps this study would clarify whether the intuitive conclusion that wildlife (and human quiet users) are better served by not having to flee the few areas where they have reached a level of solitude. Dispersed Operations – I also question whether further dispersal of these operations would be a more optimal solution than the apparent concentration of activity in one general area. This question may be better resolved in a more comprehensive EA. Better Dialogue with the Ranger Districts and Public – It seems that with intensifying operations in one area, the need grows to better communicate with the Ranger Districts involved and the public. I feel the EA should better assess how this can be done as I suspect it has not been done much in the past. In addition, if an expanded operation is indeed instituted, perhaps an ongoing monitoring program would be called for to enable the public on-going chances to offer feedback. It might be important for the EA to more succinctly specify the extent of the operations. Opportunity for Public Comment – With the increasing public exposure and awareness of these operations, it seems like the public, and technical experts, has not had a proper chance to comment on the proposal. I feel a more expanded environmental assessment would provide that chance for the public to comment before a significant plan is implemented. SUMMARY - I thank you for receiving and considering my comments and those of the many that are concerned about this proposal. I truly believe that a better EA could help achieve more concerned citizen acceptance and enable our military to have the proper conditions to achieve it's training goals	

ITEM: 66.	**AGENCY (COMMENTER NAME):** The Colorado Mountain Club (Phil Kummer)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Aviation (Biological resources and Noise)

Comments	Response
Via letter dated 1/7/2011: Thank you for the opportunity to comment on the Draft Programmatic Environmental Impact Statement (PEIS) for the Growth, Realignment, and Stationing of Army Aviation Assets and concerning the potential establishment of a Combat Aviation Brigade (CAB) at Fort Carson, Colorado. We are a committee of members from the Colorado Mountain Club and other interested citizens working to protect a designated Forest Service roadless area, the Rampart East Roadless Area. We understand the importance of managing the military and its training for current and future demands but are concerned about the potential impact of the proposed increase in helicopter numbers on the environment surrounding Colorado Springs. The emphasis of the PEIS is on the community of Colorado Springs, the area surrounding Piñon Canyon and points in between. It does not address the training sites used in the Pike/San Isabel National Forest other than to mention the Special Use Permit. This omission raises serious concerns with the PEIS.	Thank you for your comments. As explained in the above response to comment #3, there would be no change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment. Should mountain/high altitude training strategies change in the future, that change would be analyzed in a future, site-specific NEPA analysis.

An Environmental Assessment was conducted in 2007 (Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training, October 2007) for the 24 helicopters at Fort Carson. According to the PEIS, the number of helicopters will increase by an additional 110 or 120. The 2007 Environmental Assessment is inadequate for this large number of helicopters and another Environmental Assessment needs to be conducted to truly assess the impact of the significant increase in helicopter numbers and their use of the current or other landing zones on National Forest land. The PEIS describes steps that will be taken to mitigate the noise around the metropolitan area. The Environmental Assessment and Special Use Permit describe the concerns about use of landing zones during the hunting season, summertime high recreation use, and Christmas tree cutting. Therefore, both documents acknowledge the potential high impact and safety concerns of helicopter activity and their use of these landing zones. The same impact must also exist for the wildlife. The 24 helicopters currently stationed at Fort Carson and other military helicopters have already impacted recreation users on Pikes Peak and the Rampart Range to the north of Pikes Peak, including several people being waved off of a point by an approaching helicopter in Rampart East Roadless Area. Recreationists and residents of these areas have also noticed changes in wildlife habits after helicopters have used the landing zones. Landing zones on Pikes Peak and Rampart Range are near protected locations where bighorn sheep lamb. Although it does not have a wilderness designation, the Rampart East Roadless Area has been identified as having wilderness-like qualities by the Forest Service and citizens of the state. This large tract of undeveloped land provides a large area of wildlife habitat, possibly including sensitive species, and serves as a wildlife corridor from the mountains to the plains. Wildlife corridors have become endangered in Colorado's Front Range from Colorado Springs to Fort Collins. We are particularly concerned about two landing zones in the Rampart Range that are on the edge of the roadless area, LZ1 and LZ2. Landing Zone 1 is within the roadless area boundaries proposed by citizens. With these concerns, we suggest that the Army conduct a new environmental analysis to fully consider the impact of the four- to five-fold increase in number of helicopters and their use of landing sites within the National Forest. The environmental analysis should consider the impacts on the wildlife in areas immediately surrounding the landing zone as well as under the flight corridors approaching these zones. The analysis should also provide a full assessment of the impact on human use of these zones, with the high level of recreation use on Pikes Peak and the wilderness-like experience of the Rampart East Roadless Area.	

ITEM: 67.	**AGENCY (COMMENTER NAME):** Wild Connections (James Lockhart)	**LOCATION:** Fort Carson, Colorado	**TYPE:** Natural resources (Pike/San Isabel National Forest), Noise, and Aviation (helicopters)

Comments	Response
Via letter dated 1/7/2011: The following comments are made on behalf of the undersigned environmental groups: Central Colorado Wilderness Coalition, Great Old Broads for Wilderness, Quiet Use Coalition, Rocky Mountain Chapter of the Sierra Club, San Luis Valley Ecosystem Council, and Wild Connections. They concern the portion of the Draft Programmatic Environmental Impact Statement (PElS) that addresses the Growth, Realignment, and Stationing of Army Aviation Assets concerning establishment of it Combat Aviation Brigade (CAB) at Fort Carson, Colorado. According to the PElS, bringing a full Combat Aviation Brigade to Fort Carson would more than quadruple the number of helicopters stationed there, increasing it from the current 24 to at least 110 and 120, or as many as 144 if a new CAB were activated in addition to the units already stationed at Fort Carson. This would require a presumably proportionate increase in the use of mountainous areas in this part of Colorado for high altitude	Thank you for your comments. As explained in the above response to comment #3, change to the use of National Forest System lands for mountain/high altitude military helicopter training as analyzed in the 2007 Environmental Assessment is not part of the proposed action analyzed in this PEIS. Should mountain/high altitude training strategies change in the future, that change would be analyzed in a future, site-specific NEPA analysis.

training purposes. Whether this would be done by increased use of existing training areas or by identifying and utilizing additional areas, or both, the impact would clearly be significant. We are concerned that this could have significant adverse impacts on wildlife and human recreational use of Pike/San Isabel National Forest.

The PElS gives very little consideration to these impacts, except in the vicinity of Fort Carson and the Pinon Canyon Maneuver Site. With regard to Pike/San Isabel National Forest, it states only:

5.12.1 Affected Environment
Additionally, lands of the Pike/San Isabel National Forests have been used to provide the Army and Fort Carson locations related to mountain high altitude training of helicopter pilots and instructors since about 1978 and is operated under a Special Use Permit. An Environmental Assessment was conducted in 2007 (Use of National Forest System Lands for Mountain/High Altitude Military Helicopter Training, October 2007) in cooperation with the USFS for reissuance of the Special Use Permit. There are no flights or operations conducted in the vicinity of Federally designated wilderness areas and adherence is maintained as to environmental and safety laws and regulations that are in place for this type of activity.

The PElS in other contexts recognizes that helicopter operations can have very significant impacts. It describes an Environmental Noise Management Program aimed at managing and limiting noise impacts to the surrounding communities. It notes that to minimize these impacts, helicopters normally maintain a minimum of 1,000 feet (304.8 m) above ground level (AGL), and 0.25 mile (0.4 km) standoff outside Fort Carson while flying through the mountain passes until clear of inhabited areas. It identifies the following as "noise sensitive" areas: residential areas, schools, office space, and child development centers, and also Cheyenne Mountain State Park, west of Fort Carson, presumably because of human recreational use. We suggest that the same is true of areas in Pike/San Isabel National Forest where helicopters would not simply be flying over at relatively low altitudes, but practicing hovering or landing. We therefore suggest that potential impacts to these public lands need to be considered in order to form a proper basis for analysis of the action alternatives.

Although the PElS describes cumulative noise impact to be "Mitigable to Less Than Significant", we believe that the actual impacts in the vicinity of the landing zones are extreme. According to the 2007 Environmental Assessment mentioned above, training is prohibited in most of the landing zones during hunting season; in five of the zones during the summertime due to heavy recreational use; and in three zones during late November through mid-December due to Christmas tree cutting. No landing is permitted in any zone when people or vehicles are present. This suggests that the training is considered incompatible with nearby human activities. In fact, it seems that no human or animal would remain within one or two hundred feet of a low-hovering military helicopter because of noise (up to 97.5 db at 200 feet according to the 2007 EA) and wind currents from the rotors. Human and wildlife activities would presumably be affected to a significant degree at a considerably greater distance. Frequent helicopter use of an area could cause both humans and animals to abandon use of it. We suggest that these impacts cannot be mitigated, except by choosing training times and locations that, to the maximum extent possible, avoid conflict with human and wildlife activities.

Although none of the landing zones are located in designated wilderness areas, several of them are within or adjacent to Forest Service inventoried roadless areas which Wild Connections has identified as suitable for wilderness designation in the Wild Connections Conservation Plan; namely the Weston Peak road less area west of Fairplay, and the Front Range (Rampart East) roadless area northwest of Palmer Lake. (For further description of the Wild Connections Conservation Plan, see the Wild Connections website at http://www.wildconnections.org/conservationplan.html.)

The lack of a current formal wilderness designation in these areas does not mean the character of the land is any less important, nor that helicopter traffic flying close to the ground, hovering, or landing in these locations is any less impacting to humans and wildlife. Indeed, these areas, and indeed other roadless areas within Pike/San Isabel National Forest, are important as core areas where wildlife can exist with relatively little human

interference. We suggest that in order to properly analyze these impacts, the Army needs to: 1. Consider whether changes in other uses since 2007 require reexamination of the current sites' suitability. We note in particular that the Pikes Peak Ranger District is in the process of completing the South Rampatt Travel Management Plan, which could significantly affect recreational use in the vicinity of the approved landing zones in the Rampart Range and near the Rampart East Roadless Area. 2. Consider the cumulative impact of more helicopters using the existing training sites. 3. Consider whether these impacts would require, or make it appropriate to consider, deletion of some existing training areas or landing zones, and designation of new ones to reduce the impacts. If so, identify and analyze the impacts of this action. Since this proposal has impacts to human recreational use, we feel that it would be appropriate for the Army to take public comment on this proposal, with the idea of not only identifying areas of substantial human use, but also areas where recreationists are devoted to "quiet use" activities that would be more significantly impacted by helicopter noise and intrusion on a natural landscape.	

ITEM 68.	**AGENCY (COMMENTER NAME):** Washington Department of Fish and Wildlife (Greg Schiarto)	**LOCATION:** Joint Base Lewis McChord, Washington	**TYPE:** Biological Resources (Endangered Species), Noise, Aviation (Helicopters), and Mitigation

Comments	Response
Via letter dated 1/6/2011: Thank you for the opportunity to review the Draft PElS for the Realignment, Growth, and Stationing of Army Aviation Assets at Joint Base Lewis-McChord. After review of this document the Washington Department of Fish and Wildlife (WDFW) has the following comments on the content of this Draft PElS and the potential for these actions to impact special status wildlife species. Of particular concern are the four federal candidate species: streaked horned lark, Mazama pocket gopher, Taylor's checkerspot butterfly and mardon skipper butterfly; all are state-listed species in Washington.	Thank you for your comment. We maintain a keen interest in the protection, conservation, and stewardship of JBLM and YTC's wildlife populations. Specific responses to other comments are provided below.
1. The PElS repeatedly refers to JBLM' s *Grow the Army* FEIS as a source of additional detailed information on biological impacts and mitigation for the proposed stationing of the CAB. The WDFW found both the assessment of impacts and mitigating actions in JBLM's FElS to lack the necessary scope and specificity regarding impacts of the proposed actions on the four federal candidate species, making the FEIS and consequently the PElS incomplete and inadequate. Both documents rely on qualitative descriptions of impacts, making impact assessment and mitigating actions subjective and arbitrary. Unmitigated impacts to federal candidate species are unacceptable to WDFW.	We feel that discussion of biological impacts and impacts to candidate species presented in the JBLM *Grow the Army* FEIS and contained within this PEIS adequately address impacts to biological resources. The Army acknowledges that there would be impacts to federal candidate species and has proposed several mitigation measures to address and reduce identified impacts. A list of mitigations, including many for candidate species, can be found in Table 4-41 and 4-41 of the JBLM *Grow the Army* FEIS as well as Section 4.5 of this PEIS.
2. The FEIS relies heavily on monitoring, and corrective actions outlined in the INRMPs hinge on adequate funding and access to training lands. Access to training lands has become exceedingly difficult with 40,000 troops simultaneously stationed there. Consequently there is no means for assessing impacts to federal candidate species as a result of the proposed actions or to mitigate for damages incurred or anticipated.	The Army is committed to providing access to training areas for management for mitigation in order to ensure training area sustainability for future training. The Army will continue to monitor and conduct management activities in accordance with JBLM regulations, the Integrated Training Area Management (ITAM) Program, and other installation management plans. This PEIS and JBLM's 2010 FEIS identify mitigation to minimize, avoid, or compensate for adverse effects to environmental resources. All practicable means to avoid or minimize environmental harm from the selected alternative, to include feasible measures identified within the INRMP, would be adopted. A mitigation and monitoring plan will be implemented to ensure that these mitigation measures are implemented, monitored, and their effectiveness measured, with appropriate adjustments made when necessary. In addition, JBLM would continue to implement the requirements of the installation's Regulation 420–5, *Procedures for the Protection of State and Federally Listed, Threatened,*

	Endangered, Candidate Species, Species of Concern, and Designated Critical Habitat. As part of this regulation, JBLM would continue to adjust training activities to protect candidate species. Such protections include: • Taylor's Checkerspot: as depicted on JBLM's environmental coordination map, training activities involving off-road maneuver and ground disturbing activities are prohibited in Johnson Prairie, Upper and Lower Weir Prairies, and limited on the 91st Division Prairie. • Streaked Horned Lark: restrict mowing of areas at Gray Army Airfield (GAAF) identified as nesting sites during the nesting season (April 15 to July 15) unless vegetation height poses a safety concern to aviation; prohibit recreational activity in Training Area 14 during the nesting season; and review and potentially revise planned training activities within nesting areas to minimize adverse impacts. • Mazama Pocket Gopher: as depicted on the JBLM environmental coordination map, training activities involving off-road maneuver and ground disturbing activities are prohibited in Johnson Prairie, Upper and Lower Weir Prairies, and limited on the 91st Division Prairie.
3. The scale, timing and frequency of fires on the AlA under current conditions are a source of significant conservation concern and appear to adversely impact several federal candidate species (mardon skipper, Taylor's checkerspot, streaked homed lark, and Mazama pocket gopher) through direct and indirect mortality and are a significant source of habitat loss and degradation. The current condition and any worsening of these effects are unacceptable impacts to these species and must be mitigated via new efforts, since the existing fire management plan does not include corrective actions for the AlA.	As discussed in the JBLM *Grow the Army* FEIS, the Artillery Impact Area (AIA) is the only area that can support artillery and mortar live fire training, into which artillery and mortar rounds can be fired at JBLM, and these rounds occasionally cause fires. The installation's Forestry section conducts a prescribed burn within the AIA each year prior to the high-fire hazard season to minimize the occurrence of intense fires. As discussed in Section 4.3.3.6.2.1 of the 2010 FEIS, fires would continue to maintain open grassland and would have beneficial, as well as adverse impacts to federal candidate species. Overall, impacts to federal candidate species from wildfire are anticipated to be less than significant. The Army has proposed several mitigation measures for candidate species in Section 4.5 of this PEIS.
4. An additional 55,000 take-offs and landings are expected as a result of the proposed CAB. Many of these would occur at GAAF and other sites currently occupied by streaked homed lark. This is expected to lead to an increase in air strikes, that would likely result in significant mortality of this rare and declining species in South Puget Sound.	Section 4.3.3.6.3.1 of the 2010 Fort Lewis *Grow the Army* FEIS, which is incorporated by reference into this PEIS, included in its Special Status Wildlife Species discussion an assessment of potential adverse effects to the streaked horn lark from helicopter flights. That FEIS also explains that the installation would protect the streaked horned lark by continuing to implement the requirements of the INRMP and installation regulation 420-5, *Procedures for the Protection of State and Federally Listed, Threatened, Endangered, Candidate Species, Species of Concern, and Designated Critical Habitat*. In addition, Table 4-42 of the FEIS contains a variety of specific mitigation measures for the streak horned lark: specifically, creating and maintaining suitable habitat for the lark, restriction of areas at GAAF identified as nesting sites during the nesting season, prohibiting recreational activity in Training Area 14 during nesting season, and reviewing and potentially revising planned training activities within nesting areas to minimize adverse impacts. To reduce the potential for bird strikes, Table 4-42 of the 2010 FEIS also provided that the installation would develop and maintain habitat and protective buffers for all identified streaked horned lark nesting colonies, and restrict low level hovering by aircraft near nesting colonies and in buffer areas during the nesting period. As noted above, Section 4.5 of this PEIS has been updated to incorporate proposed mitigation measures for the streaked horned lark.
5. The PElS and FEIS reference construction of 110 acres of CAB facilities, many of which would be placed on habitat at GAAF that is currently occupied by streaked homed lark. Larks exhibit high site-fidelity on their	According to the 2010 JBLM *Grow* the Army FEIS, there are no streaked horned lark populations within the areas identified in the FEIS as potential future CAB construction

breeding grounds and a poor tolerance of visible structures above the 6-inch grass height they inhabit. Significant and long-term habitat loss and degradation would result from CAB facility construction; ill-timed construction could also result in destruction of nests and young. No mitigating actions have been proposed in the PElS or the FEIS. Please address this short-coming and identify a source of funding for these and other requiring mitigation actions.	sites, although there are known active nests near GAAF. Table 4-42 from the 2010 FEIS contained a variety of mitigation measures to protect the lark such as requiring the installation to develop and maintain habitat and protective buffers for all identified streaked horned lark nesting colonies. Section 4.5 of this PEIS has been updated to incorporate proposed mitigation measures for the streaked horned lark. Regarding funding, the Army is committed to adopting all practical means to avoid or minimize environmental harm from the affects of CAB stationing at JBLM and YTC, should a decision be made to station a CAB at JBLM. Should a CAB be stationed at JBLM, JBLM would implement a mitigation and monitoring plan to ensure that mitigations in the Record of Decisions from this programmatic FEIS and the 2010 site-specific FEIS are implemented and monitored, and their effectiveness measured, with appropriate adjustments made when necessary. Mitigation measures stated in the Record of Decision are those measures that the Army has committed to fund, subject to the availability of funds.
6. Table 4-6 in the FEIS indicates **more than a 4- to 10-fold** increase in training impacts, most notably **generating 1,567 to 3,797 acres of bare ground annually, given the amount of maneuver area available on JBLM is limited to about 3,800 acres!** Furthermore, current supplies of native seeds and plugs· from all existing sources in South Puget Sound provide enough material to treat about 400-500 acres, without considering the poor survival rates that would be expected in the face of ongoing training. The FElS fails to address how training land repairs would be paid for and implemented to avoid a shift to 100 percent cover of bare ground within a 10-15 year time frame.	We do not agree that there would be more than a 4- to 10-fold increase in training impacts at JBLM. However, we recognize that there would be increased training intensity should a CAB be stationed at JBLM, and a corresponding increase on of impacts to our training lands. Sustainability of our training lands is extremely important to the Army. Our policy and guidance for managing and operating Army training lands to support long-term utility and viability is contained in Army Regulation 350-19, *The Army Sustainable Range Program* (SRP), a major component of which is the ITAM program. As explained in Appendix G, Section 3.2, of the 2010 JBLM *Grow the Army* FEIS, the installation ITAM program currently repairs training lands and ranges using a variety of methods that include the use of native plugs, native seed mix, and sterile wheat. ITAM has had great success in using these methods to repair the land. Monitoring is being completed on the success of ITAM native plug planting and the Plant Propagation Manager is developing methods to increase the survival of the native plugs. We recognize that increased training will require increased rehabilitation efforts. The ITAM staff works as effectively as possible to assess and monitor training activities by managing funds by priority. The Army is committed to providing access to training areas for management or mitigation in order to ensure training area sustainability for future training. The Army will continue to monitor and conduct management activities in accordance with installation regulations, the ITAM Program, and other installation management plans.
7. Helicopter training impacts are not described in detail or quantified. NOE training activities "as low as the vegetation would permit" could cause significant mortality to prairie butterflies and streaked homed lark. Larks will be significantly adversely affected by the increase over baseline conditions of more than 55,000 take-offs and landings at GAAF. Please specify how and where all such activities would occur, what seasons and with what frequency so that impacts can be properly assessed and suitable mitigation strategies developed and implemented. Nothing in the Mitigation section of the FEIS compensates for these effects.	The details of helicopter training that are currently known are presented in Section 2.2.3.3 of JBLM's 2010 *Grow the Army* FEIS. As noted above, the Special Status Wildlife Species discussion is Section 4.3.3.6.3.1 of the 2010 FEIS includes an assessment of potential adverse effects to the streaked horned lark and federal candidate butterflies from helicopter flights. Section 4.5 of this PEIS has been expanded to include proposed mitigation measures such as continuing to implement existing environmental programs, plans, and BMPs that would offset CAB stationing impacts to prairie butterflies and streaked horned lark; and, restricting low level hovering by aircraft near streaked horned lark nesting colonies and in buffer areas during the nesting period

8. A circular argument throughout the PElS and the FEIS states that “Significant" impacts can be made "Significant but Mitigable to less than Significant" by implementing the INRMP, PBMS, and CCA. These documents were not written with the knowledge or purpose of addressing impacts of the proposed actions. No dedicated funds are available for implementation of these plans or mitigation associated with the FEIS. Mitigation dependent on unsecured funding is not mitigation at all.	Proposed mitigation measures in this PEIS for JBLM and YTC, should JBLM be selected for a CAB stationing, are based on measures from existing JBLM management plans. These are dynamic documents and as new versions are approved, mitigation measures in those documents will be implemented. Further, mitigation measures that will be stated in the Record of Decision are those measures that the Army has committed to fund, subject to the availability of funds. All practicable mitigations would be implemented, as stated above.
Washington Department of Fish and Wildlife believes both the PElS and the FEIS are incomplete in their assessment of impacts to the four federal candidate species, that stated impacts are significant and negative, and that mitigating actions referenced in these documents are wholly inadequate to prevent significant decline and endangerment. In addition, no dedicated source of funding has been identified to offset the stated impacts to species and their habitats 01' to insure even basic operating costs related to implementation of the INRMP. Substantial work remains for these documents to be acceptable to WDFW and to meet the guidelines specified under NEPA. The WDFW would welcome the opportunity to work with the Army and the USFWS to identify workable solutions to these issues and insure training land sustainability into the future.	Please see response to item # 1 of your comment regarding sufficiency of the 2010 FEIS and this PEIS. Please see discussion above regarding funding and implementation of mitigations.

ITEM 69.	**AGENCY (COMMENTER NAME):** Individual (Kathy Shantz)	**LOCATION:** Fort Carson, Colorado	**TYPE: General**

Comments	Response
Via letter dated 12/16/2010: I am writing to express my wholehearted support for the helicopter brigade Fort Carson is possibly in line to obtain. I have lived in Fountain, Colorado for over 25 years and for 5 years shared the north border of my property with Ft Carson on Charter Oak Ranch Road. (Johns – 1994 + !999) We actually had a fire from a shooting range on that border in 1997, complete with fire trucks wetting down our roof. I had no problem with this or the noise that often shook pictures crooked on the walls. We constantly hear traffic to and from Butts Field. I consider this the “Sound of Freedom” and am extremely grateful to all branches of our military for their service and sacrifice. I cannot imagine that the small environmental impact would hurt Colorado or New Mexico. Certainly less impact that Afghanistan or other involvement within our borders. I doubt they would ask for input from the citizens?	Thank you for your comments and support.

ITEM: 70.	**AGENCY (COMMENTER NAME):** Not One More Acre! (John M. Barth)	**LOCATION:** Fort Carson and Piñon Canyon Maneuver Area, Colorado	**TYPE:** Entire document

Comments	Response
Via letter dated 1/6/2011: On behalf of Not 1 More Acre!, P.O. Box 773, Trinidad, Colorado 81082, I am submitting this National Environmental Policy Act (“NEPA”) comment letter regarding the Department of Army’s Programmatic Environmental Impact Statement (PEIS) for the Growth, Realignment and Stationing of Army Aviation Assets, Federal Register Notice of Intent, (referred to herein as the “Draft CAB PEIS”). Not 1 More Acre! (“N1MA!”) is a Colorado non-profit corporation formed to promote the ecological, cultural and economic of health of southern Colorado and northern New Mexico. On October 10, 2010 N1MA! submitted a scoping comment letter to the Army on this proposal. N1MA!’s October 10, 2010 scoping letter is incorporated herein by reference. For the reasons stated below and in our October 10, 2010 scoping letter, Not 1 More Acre! opposes relocating or	We have thoroughly reviewed your extensive comments, and appreciate your concerns. Responses are provided for each issue below as they are raised.

adding any new or existing CAB, Army, Joint Forces, military civilian or contract personnel to be stationed, trained, or housed at Piñon Canyon Maneuver Site ("PCMS"), Colorado. Procedural issues with the PEIS To date, the Army has yet to explain why it is proceeding with a Programmatic EIS. Programmatic EISs normally apply to actions of nationwide application and breadth. See, U.S. Environmental Protection Agency's scoping comment letter dated October 12, 2010 (Draft PEIS pp. F-16 through F-22). The instant PEIS mainly applies to site-specific actions at Fort Carson, PCMS, Fort Lewis, YLC and any existing bases that would lose a CAB in the event one is transferred either to Fort Carson or Fort Lewis. Please explain why the Army is utilizing a PEIS and allow the public to comment on the appropriateness of this procedure. For example, is this action part of a larger program, project, or plan of the Army's? If so, shouldn't the cumulative impacts of the larger program, project, or plan be considered as a whole at this time? Has a new CAB been authorized or otherwise established without public knowledge? Please clarify this issue and provide the public with an opportunity to comment.	As explained in Section 1.3 of this PEIS, the Army suffers from an imbalance in current mission requirements for aviation assets and available aviation forces. This imbalance exists across the Army and forces aviation units to deploy too often, reducing their time at home station. Reduced time at home station directly impacts the Quality of Life for our Soldiers assigned to aviation units and their Families, and affects the ability of these Soldiers to prepare for combat. To address this Army-wide deficiency in our aviation program, and in accordance with 40 C.F.R. § 1502.20, and 32 C.F.R. § 651.14(c), the Army has decided to conduct this programmatic environmental analysis to assist Army leaders in making national-level decisions on how best to allocate existing aviation assets, whether additional aviation assets are necessary, and where best to station existing and/or additional aviation assets. Generally, a programmatic analysis of this nature would be followed by a more detailed analysis analyzing site-specific impacts that follow from the programmatic decision. In this instance, fortunately, certain installations – well aware of the imbalance between mission requirements and available aviation assets – anticipated the likelihood they could be chosen for CAB stationing, and proactively analyzed the potential requirements and environmental impacts of CAB stationing. Fort Carson is one such installation. In February 2009, Fort Carson published its *Grow the Army* FEIS [available at: http://aec.army.mil/usaec/nepa/carson-feis_feb09.pdf]. This 2009 *Grow the Army* FEIS tiered from the Army's programmatic *Final Environmental Impact Analysis for Army Growth and Force Structure Realignment*, published in October 2007 [available at: http://aec.army.mil/usaec/newsroom/news/arforgenfinal.pdf]. The Fort Carson *Grow the Army* FEIS analyzed the addition of approximately 6,700 Soldiers, which included detailed analysis of the addition of a 2,800-Soldier CAB. In particular, Chapter 4 of the Fort Carson *Grow the Army* FEIS thoroughly analyzes impacts of potential CAB stationing and training at PCMS, and addresses many, if not most, of the site-specific issues you raise in your comments. We fully recognize that, should the Army decide to station a CAB at Fort Carson and to train the CAB at Fort Carson and PCMS, there would be additional, site-specific NEPA analysis required prior to implementing a CAB stationing decision. The fact that additional NEPA analysis will be required makes this a classic "tiering" situation within the meaning of CEQ regulation 40 CFR 1502.20 and 1508.28. We believe that the analysis contained in this PEIS is sufficient to enable the Army to make an informed, programmatic decision about CAB stationing.
Factual errors with the PEIS The Draft CAB PEIS refers to PCMS as being part of Fort Carson (ex. "Fort Carson's PCMS" at Draft PEIS p. 5-1). PCMS is not part of Fort Carson. Rather, it is an independent military installation of the United States Department of Army. See, Exhibit 1 hereto, (U.S. District Court Order dated September 8, 2009). This distinction is important because as an independent military facility, the Army must acquire all necessary approvals under the National Environmental Policy Act before proceeding with actions that may adversely impact the environment, cultural heritage and economy. As explained further below, the Army may not proceed with stationing a new or existing CAB at Fort Carson because all prerequisite NEPA approvals have not been	Section 2.1.4 of the 2009 Fort Carson *Grow the Army* FEIS describes PCMS as a separate installation. It was appropriate for that FEIS to look at impacts at both Fort Carson and PCMS because the proposed actions at each installation were connected within the meaning of CEQ NEPA regulation 40 CFR §1508.25.

obtained.

Failure to secure record of decision for PCMS Transformation

The Piñon Canyon Maneuver Site is a Department of Defense ("DoD") installation located in southeastern Colorado in Las Animas County, approximately 150 miles southeast of Fort Carson and Colorado Springs, Colorado. No soldiers are permanently stationed at the PCMS. Its primary, but not exclusive, mission is to support maneuver training exercises for soldiers stationed at Fort Carson. See, Exhibit 1 hereto.

The Army acquired the PCMS in the early 1980s. Previously the land had been used mainly for family-owned ranching. The PCMS is located along the western margin of the Great Plains. Adjacent private land is zoned for agricultural uses and used for dryland grazing. The terrain includes wooded hills, volcanic formations, grassy plains, mesas, dissected plateaus and deep canyons. Exhibit 1. The Comanche National Grasslands, Apishapa State Wildlife Area, Picket Wire Canyonlands, State School Board lands and county roads are adjacent to PCMS.

When the Army proposed to acquire land in southeastern Colorado for combat maneuver training, it prepared an EIS for Training Land Acquisition to assess the environmental impacts associated with such use. The Army selected the Piñon Canyon site even though it was "slightly more fragile" than the alternative Huerfano River site. The Draft EIS for Training Land Acquisition recognized that land in semi-arid southeastern Colorado couldn't accommodate perpetual use for maneuver training. Accordingly, the amount of land to be acquired must be large enough "to allow for rest and recovery of the land on a rotating basis." In assessing the variables to be considered in a Land Use and Management Plan ("LUMP"), the Army identified Training Intensity and Time of Use as the key variables.

Military training operations began at the PCMS in 1985. Since then, the PCMS has been used for training exercises, on average, less than twice a year (Army's After Action Reports 1985 – 2002). Exhibit 1 hereto.

As noted above, the Army is undergoing a restructuring process, referred to as "Transformation." Three programs are relevant to the Proposed Action addressed in the Final PCMS Transformation EIS:

Army Modular Force ("AMF") is a program for changing the size of Army units by reorganizing forces into Brigade Combat Teams. All Army soldiers are being reconfigured into Brigade Combat Teams. The AMF initiative changes Army training doctrine. Base Realignment and Closure ("BRAC"), governed by the Base Realignment and Closure Act of 1990 as amended, is "a process by which military installations are closed or realigned to meet the infrastructure, training and force structure requirements of the military and save taxpayers' money." Recommendations of the 2005 Base Closure and Realignment Commission became law in November 2005. One of those recommendations was to relocate a Division Headquarters and a Heavy Brigade Combat Team and other support units from Fort Hood, Texas to Fort Carson. The Commission's analysis states that, "with or without including Piñon Canyon Maneuver Site in the accounting acreage, Fort Carson still has more contiguous maneuver acres per brigade combat team than Fort Hood." Exhibit 1 hereto.

Integrated Global Presence and Basing Strategy ("IGPBS") is a program for assessing the size, character, and location of the military's overseas presence.

IGPBS has subsequently been renamed Global Defense Posture Realignment (GDPR). It is referred to as such in the 2009 Fort Carson *Grow the Army* FEIS.

As part of that effort, some forces currently based overseas are being returned to the United States over a period of years. The Army determined that an Infantry Brigade Combat Team from Korea will be stationed at Fort Carson. Exhibit 1.

The combined effect of these programs increases the troop population of Fort Carson to approximately 30,000 soldiers. With support personnel and families, Fort Carson will have a population of 80,000.

The Army's projections of the total maneuver training requirements of the Brigade Combat Teams to be stationed at Fort Carson exceed the capacity of the PCMS. An area expansion has been under consideration for several years. Exhibit 1. A moratorium on major land acquisitions by military departments has been in effect since 1990. A waiver of the moratorium for any land acquisition involving more than 1,000 acres or costing more than $1.0 million requires approval by the Office of the Secretary of Defense. Exhibit 1. An Analysis of Alternatives Study, dated May 6, 2004, concluded that the PCMS has a maneuver area shortfall and recommended the acquisition of additional training land adjacent to the PCMS. The "Piñon Vision Operations Order 05-09," dated December 22, 2004, describes a plan for implementing "the long-term expansion of [PCMS] in order to obtain adequate training areas and ranges to support current and future Army and Joint Force mobilization, mission rehearsal and training requirements." A second Analysis of Alternatives Study and a Land Use Requirements Study, both dated April 12, 2005, addressed expansion. Exhibit 1. On January 12, 2006, an updated version of planning document Piñon Vision detailed the acquisition of 2.4 million acres of the desired 7 million acre expansion at Piñon Canyon. [AR 275 O-PLAN 05-18]. In November 2005, the Army published in the Federal Register a notice of intent to prepare an environmental impact statement for the purpose of examining the impacts to the PCMS resulting from the recommendations of the 2005 Base Closure and Realignment Commission. In April, 2006, the Army conducted public scoping hearings regarding the issues to be addressed in the PCMS Transformation EIS. Exhibit 1. In May 2007, authorization for expansion construction at PCMS was inserted in the Armed Services committee. In July 2006, the Army submitted a formal request to the Deputy Under Secretary of Defense, seeking approval to acquire up to 418,577 acres of land in and around the PCMS. Exhibit 1. Having advanced authorization for acquisition of real property to expand Piñon Canyon through Congressional defense committees but without public review, the Army decided to proceed with an assessment of the environmental impacts of increased use of the present facility. Accordingly, on October 13, 2006, the Army published a Draft PCMS Transformation Environmental Impact Statement, identifying the proposed action as (1) increased frequency, duration and intensity of training exercises at the PCMS; (2) construction of new facilities in the cantonment, and (3) construction of new facilities in the training areas ("the Proposed Action"). Without public knowledge, authorization for the acquisition of real property to expand Piñon Canyon became law in the Warner National Defense Authorization Act on October 17, 2006. The Army held public hearings in November 2006 on the Draft PCMS Transformation Environmental Impact Statement. Those hearings were followed by another public comment period, which ended on February 16, 2007. Exhibit 1. On February 8, 2007 – eight days before the close of the public comment period – the Office of the Secretary of Defense approved the Army's request for a waiver of the moratorium on land acquisition. Despite that approval, the Army issued the Final PCMS Transformation Environmental Impact Statement in June 2007. On August 2, 2007, the Army issued the ROD, authorizing construction of new facilities in the cantonment area, construction of new facilities in the training areas, and an increased use of training areas at the PCMS. The Army issued the Final PCMS Transformation Environmental Impact Statement in June 2007. On August 2, 2007, the Army issued a Record of Decision ("ROD") to increase the use of the Piñon Canyon Maneuver Site to conduct training of an increased troop population stationed at Fort Carson, Colorado in conformity with the transformation process involving changes in unit organization and training doctrine. The EIS for that ROD proposed construction of new physical facilities to expand support services in an existing cantonment area of about 1660 acres at PCMS to include a brigade support complex, a medical/dental clinic, storage facilities, soldier support facilities (including a chapel, phone center, barbershop, shopping and laundry facilities), a vehicle maintenance facility, motor pools, and upgraded roads and utilities. The FEIS also proposed additional	As we have emphasized consistently throughout this PEIS process, the Army has no intention of pursuing the expansion of Fort Carson or PCMS as part of any of the proposed actions analyzed in this PEIS. As was the case at the time of the 2007 Transformation EIS and the 2009 *Grow the Army* FEIS, despite the extensive study that has been devoted to it, potential expansion remains a proposal that has never matured to the point that NEPA analysis is appropriate. The court decision confirmed this position. Expansion is not part of this proposed action and would require completely independent NEPA analysis. The 2009 *Grow the Army* FEIS at Section 2.1.6 contains a lengthy discussion of why land expansion of PCMS was not included and why it was not necessary for the proposed Grow the Army action (which included CAB stationing and training).

training operations of unspecified duration, frequency and intensity to be conducted on the remainder of the 235,000 acres of the PCMS, requiring the addition of a live hand grenade range, an ammunition holding area, a protective equipment testing facility, and upgrades to an existing small-arms range and communications facilities. Exhibit 1.

On April 23, 2008 N1MA! appealed the 2007 PCMS ROD and FEIS to U.S. District Court in Colorado. On September 8, 2009 U.S. District Judge Richard Matsch issued an order finding that the FEIS did not adequately assess the impact on the environment of the increase in the intensity and duration of training operations necessary to meet the Army's stated purposes for its action in violation of NEPA. Exhibit 1.

In reaching this decision, Judge Matsch made the following factual findings:

* The Proposed Action permits the entire site to be used for training purposes every day of the year. Consequently, the Army's conclusion that there would be no significant environmental impacts is counter-intuitive. It is obvious that such intensive use of the PCMS prevents any meaningful mitigation of the resulting environmental impacts.

* The EIS appears to address mitigation but there is no recognition of the need for scheduling training in a manner that permits rest, recovery and restoration of this fragile land.

* The Administrative Record includes a copy of pages from an Army power point presentation entitled "Maneuver Alternatives Analysis," dated April 20, 2006, summarizing an internal analysis of two scenarios – the "PCMS Maximum Support of Training Alternative" and the "PCMS Sustainable Training Alternative." The Army concluded that "[t]o achieve full sustainability at PCMS allows 4.4 months or 20 weeks of maneuver training per year at PCMS." Id. at 0002816. The Final PCMS Transformation EIS ignores this assessment.

* The EIS states that the Army considered training scenarios of lower intensities but did not consider them to be reasonable alternatives to the Proposed Action. By dismissing those scenarios, the Army rejected the sustainable training alternative described in the Maneuver Alternatives Analysis. The EIS acknowledges that increasing the frequency, duration and intensity of training exercises, and particularly an increase in mechanized training exercises, will cause substantial disturbance to soils, vegetation, wildlife habitat and cultural resources at the PCMS, especially in the maneuver training areas. The EIS represents that the continuation of existing land management and environmental programs would provide adequate means for sustainable land management. That conclusion is inconsistent and irreconcilable with the Army's analysis in April 2006.

* The deficiencies of this EIS are apparent when it is compared to the manner in which intensity of use and mitigation were addressed in the EIS for Training Land Acquisition. The Draft EIS for Training Land Acquisition describes detailed Land Use and Management Plans, developed to assess the potential impacts to each of the two sites then under consideration. The Draft EIS describes three scenarios for each parcel: (1) a Balanced Use / Protection Scenario; (2) an Increased Use Scenario; and (3) an Increased Protection Scenario. Id. Seven major variables were evaluated in connection with each scenario. Of the seven factors, "Training Intensity" and "Time of Use" were considered "the key variables and . . .most indicative of potential impacts." Id. "Each parcel was divided into five Management Units for purposes of training control and rotation." Training intensities for all scenarios were projected, based on determinations of the "carrying capacity" of units of land within each site. The Draft EIS for Training Land Acquisition states that "[c]arrying capacities are practical bases for estimating the intensity of military training operations that can be imposed on a land area," and that when land is to be used for military operations, carrying capacity can be assessed by reference to "the vehicle-day. defined as a four hour period of activity per day for a wheeled vehicle." The Final PCMS Transformation EIS does not include any comparable analysis.

* When the Army decided to acquire the Piñon Canyon site, the Army selected the "increased use" scenario of

the Land Use Management Plans described in the Draft EIS. See A.R. 254 at 0013648 (explaining, in response to public comments, that "[t]he 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 carrying capacity consumption.") Even the Increased Use scenario contemplated that only three of the five management units would be used during any particular year, and that each unit would be allowed to rest for two full years out of every five. In addition, the LUMP designated periods of deferment (i.e., periods of no training exercises) from "15 December – 15 January and 1 April – 30 June," recognizing that these periods of the year are particularly important for the growth of grasses. The LUMP also stated that training should be deferred "whenever excessively wet soil conditions occur to prevent abnormally severe damage to soil and vegetation." Id. * The Final PCMS Transformation EIS states, "Because of the limited quantitative baseline data, not all potential environmental effects resulting from increased training levels can be precisely determined at this time." That representation lacks candor. From 1985 through 2002, the Army prepared After-Action Reports ("AARs"), summarizing training exercises conducted at the PCMS. These reports show that even those limited training exercises have had severe environmental consequences. The Army produced these reports to the Plaintiffs after the close of the period for public comment on the Draft PCMS Transformation Environmental Impact Statement, in response to Freedom of Information requests. The Army argues that this information is irrelevant. To the contrary, it demonstrates the failure of the EIS to give consideration to foreseeable adverse environmental impacts of the expected increase in training exercises and the adequacy of the plans for mitigation. * The ROD permits use of the PCMS for unlimited training twenty-four hours per day, seven days per week, 365 days per year. That intense use precludes any meaningful mitigation of the environmental impact of military operations. * The conclusion that significant environmental impacts of such unlimited use can be avoided through mitigation practices represents a clear error of judgment, and the Army's authorization of the Proposed Action was arbitrary and capricious. Under these facts, the Army cannot rely on representations about the continuation of existing mitigation efforts to limit its impacts analysis or to limit the alternatives analysis as it did. * It is noteworthy that the Army rejected the "sustainable training alternative" on the ground that lower intensity training alternatives would not have satisfied the full range of training requirements of the transformation (aka: Future Combat Systems and Army Brigade Combat Team Modernization) programs, yet the training requirements of Fort Carson cannot be met at the PCMS, even if use of that facility is unrestricted. The obvious conflict between the training needs of the troops at Fort Carson and use of the PCMS in an environmentally sustainable manner makes it apparent that the Army's purposes will not be accomplished without expansion of the PCMS. The decision not to include expansion in the subject EIS does not, in itself, make it deficient. It does expose the inadequacy of the limited effort to plan to mitigate the impact of the ROD. Exhibit 1. Judge Matsch's order prevents implementation of the Proposed Action in the Transformation EIS. Accordingly, the Department of Defense may not now use the PCMS more frequently or intensively than it did prior to Judge Matsch's order.	
In light of Judge Matsch's decision, the Army may not proceed with the current CAB EIS because it has not secured the prerequisite PCMS Transformation EIS. The Army may not commence "transforming" PCMS to meet training requirements until a valid Transformation FEIS and ROD are issued and survive any legal challenges. In addition, as outlined immediately below, proceeding with the CAB EIS is a direct violation of Judge	Fort Carson is currently preparing NEPA analysis to supplement the June 2007 Final Piñon Canyon Site Transformation Environmental Impact Statement. This supplemental transformation analysis will address the deficiencies discussed in Judge Matsch's order, including the issues of frequency and duration of training on PCMS. The 2009 Fort Carson *Grow the Army* FEIS analyzed the impact of stationing and operating

Matsch's order.	a CAB at PCMS. Section 2.2 of the *Grow the Army* FEIS explained that its analysis included the possibility of a CAB stationed at Fort Carson and PCMS. Specifically, Section 2.2 proposed "an overall increase in Soldiers who would work, live, and train at Fort Carson and PCMS. Under the Proposed Action, approximately 3,900 Soldiers (a new IBCT plus support units) or approximately 6,700 Soldiers (the new IBCT and support units plus a CAB)" to be potentially stationed at Fort Carson.
<u>Violation of Federal District Court Order</u> The Army's 2010 Draft CAB PEIS proposes to add approximately 2,800 soldiers to Fort Carson, as well as 120 helicopters—including, 48 AH-64 Apache helicopters, UH-60 Black Hawk helicopters, 12 CH-47 Chinook helicopters and 12 HH-60M Black Hawk helicopters. It is also believed that each CAB will utilize approximately 600 ground vehicles. The draft PEIS admits that the CAB proposal will result in an increase in the duration and intensity of use of PCMS.	As stated in Section 2.11 of this Final PEIS, we would not increase aviation training beyond historically authorized levels until the supplemental transformation NEPA review is completed.
For the reasons stated below, implementation of the Army's draft CAB PEIS would amount to a direct violation of Judge Matsch's order: * Like the invalid PCMS Transformation EIS and ROD, the Proposed Action would permit the entire PCMS site to be used for training purposes every day of the year. Consequently, the Army's conclusion that there would be no significant environmental, cultural or economic impacts is counter-intuitive. It is obvious that any additional duration and intensity or use of PCMS would prevent any meaningful mitigation of the resulting irreparable harm to environmental and cultural resources and the economy of the region.	Fort Carson and PCMS have a long history of aviation training. As explained in the response to comment #20, above, the 1980 draft PCMS acquisition EIS anticipated and included aviation training along with ground training at PCMS. Fort Carson has had varying levels of aviation assets over the last 30 years. From 1980 through 1995, when the 4ID headquarters was moved to Fort Hood, there was an aviation brigade. From 1995 through 2007, the 3rd ACR was assigned to Fort Carson and trained with its assigned aircraft. The transformation EIS analyzed increased levels of training on PCMS. In our opinion, the court order invalidating the transformation Record of Decision did not impact current or historically authorized aviation training levels at PCMS. Again, the proposed action would not increase aviation training beyond these historically authorized levels.
* Like the invalid PCMS Transformation EIS, the draft CAB EIS fails to recognize, or include objective quantitative metrics, of the need for scheduling training in a manner that permits rest, recovery and restoration of the fragile PCMS land.	The need for scheduling training in a manner that permits rest, recovery and restoration of PCMS will be included in Fort Carson's NEPA document that will supplement the 2007 Piñon Canon Maneuver Site Transformation EIS.
* The PCMS Transformation administrative record includes a copy of pages from an Army power point presentation entitled "Maneuver Alternatives Analysis," dated April 20, 2006, summarizing an internal analysis of two scenarios – the "PCMS Maximum Support of Training Alternative" and the "PCMS Sustainable Training Alternative." The Army concluded that "[t]o achieve full sustainability at PCMS allows 4.4 months or 20 weeks of maneuver training per year at PCMS." Id. at 0002816. The Draft CAB PEIS ignores this assessment and fails to incorporate these objective, quantitative metrics into the analysis. Further, the Army's own "after action reports" indicate that PCMS has only used less than two times/year for maneuvers. The intensity of use of PCMS may not exceed this historic use.	Fort Carson's PCMS supplemental transformation analysis will include a discussion of the ways in which PCMS can be sustained. It will also address the after action reports. The after action reports were taken into account in the 2009 *Grow the Army* FEIS, which stated: "The data referred to are the After Action Reports (AARs) from 1985 to 2002 which collected environmental damage information with regard to specific training exercises. The information in these AARs was considered and used as each of them was written. Validated conclusions from these reports have been considered over the years as plans and procedures for managing training and natural resources at PCMS have been developed and updated. Thus, the data from these reports was involved generally and indirectly in the analysis in this EIS. However, the specific data from them was considered to be of limited use, and not appropriate as a specific reference for purposes of this EIS, primarily because this data is dated and largely related to equipment and tactics no longer used." [See page I-227, 2009 *Grow the Army* FEIS, Response to LC6-14, which responds to a similar comment made by N1MA! to that EIS.] Analysis of this issue is more appropriate for PCMS site-specific NEPA documentation that would look at increases over previously-authorized levels of training.
* The draft CAB PEIS did not consider any alternative training scenarios of lower intensities. By failing to examine such alternatives, the Army essentially rejected the sustainable training alternative described in the	Analysis of this issue is more appropriate for PCMS site-specific NEPA documentation that would look at increases over previously-authorized levels of training. It is important to

Maneuver Alternatives Analysis. The draft CAB PEIS acknowledges that increasing the frequency, duration and intensity of training exercises, and particularly an increase in mechanized training exercises, will cause substantial disturbance to soils, vegetation, wildlife habitat and cultural resources at the PCMS, especially in the maneuver training areas. The draft CAB PEIS represents that the continuation of existing land management and environmental programs would provide adequate means for sustainable land management. That conclusion is inconsistent and irreconcilable with the Army's analysis in April 2006. * The deficiencies of this draft CAB PEIS are apparent when it is compared to the manner in which intensity of use and mitigation were addressed in the 1980 PCMS EIS for Training Land Acquisition. The Draft EIS for Training Land Acquisition describes detailed Land Use and Management Plans, developed to assess the potential impacts to each of the two sites then under consideration. The Draft EIS describes three scenarios for each parcel: (1) a Balanced Use/Protection Scenario; (2) an Increased Use Scenario; and (3) an Increased Protection Scenario. Seven major variables were evaluated in connection with each scenario. Of the seven factors, "Training Intensity" and "Time of Use" were considered "the key variables and . . .most indicative of potential impacts." "Each parcel was divided into five Management Units for purposes of training control and rotation." Training intensities for all scenarios were projected, based on determinations of the "carrying capacity" of units of land within each site. The Draft EIS for Training Land Acquisition states that "[c]arrying capacities are practical bases for estimating the intensity of military training operations that can be imposed on a land area," and that when land is to be used for military operations, carrying capacity can be assessed by reference to "the vehicle-day . . . defined as a four hour period of activity per day for a wheeled vehicle." The draft CAB PEIS does not incorporate these standards/metrics, nor does it include any comparable analysis. * When the Army decided to acquire PCMS in 1980, the Army selected the increased use" scenario of the Land Use Management Plans ("LUMP") described in the Draft EIS (explaining, in response to public comments, that "[t]he 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 carrying capacity consumption."). Even the Increased Use scenario contemplated that only three of the five management units would be used during any particular year, and that each unit would be allowed to rest for two full years out of every five. In addition, the LUMP designated periods of deferment (i.e., periods of no training exercises) from "15 December – 15 January and 1 April – 30 June," recognizing that these periods of the year are particularly important for the growth of grasses. The LUMP also stated that training should be deferred "whenever excessively wet soil conditions occur to prevent abnormally severe damage to soil and vegetation." These standards/metrics have not been incorporated into the draft CAB PEIS. * The Final PCMS Transformation EIS states, "Because of the limited quantitative baseline data, not all potential environmental effects resulting from increased training levels can be precisely determined at this time." Judge Matsch rejected that statement because from 1985 through 2002, the Army prepared After-Action Reports, summarizing training exercises conducted at the PCMS. These reports show that even those limited training exercises have had severe environmental consequences. The Army produced these reports to the Plaintiffs after the close of the period for public comment on the Draft PCMS Transformation Environmental Impact Statement, in response to Freedom of Information requests. These AARs demonstrate the failure of the Draft CAB PEIS to give consideration to foreseeable adverse environmental impacts of the expected increase in training exercises and the adequacy of the plans for mitigation. * The Draft CAB PEIS does not preclude use of the PCMS for unlimited training twentyfour hours per day, seven days per week, 365 days per year. That intense use precludes any meaningful mitigation of the environmental and cultural resource impacts of military operations.	remember that this PEIS is a programmatic document to support a decision to be made in at Headquarters, Department of the Army. The decision on future management of PCMS, to include whether or not training would be allowed to increase over currently-authorized levels, will be (and should be) made at Fort Carson. That is the nature of the tiering process. Validated conclusions from these reports have been considered over the years as plans and procedures for managing training and natural resources at PCMS have been developed and updated. Thus, the data from these reports was involved generally and indirectly in the analysis in this PEIS. However, the specific data from them was considered to be of limited use, and not appropriate as a specific reference for purposes of this PEIS, primarily because this data is dated and largely related to equipment and tactics no longer used. See page I-227, 2009 *Grow the Army* FEIS. The Fort Carson analysis of training at PCMS will include more recent reports of training at PCMS that are more accurately keyed to the resources there. The Draft PEIS stated in Section 2.11 "The stationing of a CAB at Fort Carson or JBLM will not result in a significant increase in use or scheduling of PCMS or YTC. A majority of aviation operations at these maneuver sites will be conducted to support ground operations that will have otherwise occurred without aviation support." We have revised Section 2.11 of this Final PEIS to expressly indicate that training by the CAB would not exceed historically authorized levels until and unless new levels are properly analyzed under NEPA, and authorized by the appropriate decision-maker.

* The Draft CAB PEIS conclusion that significant environmental impacts of such unlimited use can be avoided through mitigation practices represents a clear error of judgment, and any such authorization of the Proposed Action would be arbitrary and capricious. Under these facts, the Army cannot rely on representations about the continuation of existing mitigation efforts to limit its impacts analysis or to limit the alternatives analysis as it did.	This PEIS does not state that there would be "unlimited use."
* It is noteworthy that the Draft CAB PEIS does not incorporate the "sustainable training alternative" because presumably the lower intensity training alternatives would not satisfy the full range of training requirements of the transformation programs, yet the training requirements cannot be met at the PCMS, even if use of that facility is unrestricted. Accordingly, the Army may not increase the duration or intensity of use of PCMS without violating a federal court order.	The reason this programmatic EIS does not include specific impacts at PCMS is that it assumes the level of training will be limited to what is currently authorized. It recognizes that site-specific analysis of CAB training at PCMS would be necessary.
<u>Illegal Construction</u>	
The Draft CAB PEIS states, "[n]o construction is planned or required at PCMS as part of this proposed alternative." See, Draft PEIS at p. 5-8. This statement is inconsistent with statements made by the Army to other agencies and with construction activity occurring at PCMS. For example, on April 21, 2010, the Army conducted Section 106 consultation regarding the proposed construction of two Clamshell shelter units for tank and helicopter maintenance within the PCMS cantonment area. See. Exhibit 2 hereto. The April 21, 2010 memo notes "there is no existing facility on the maneuver site capable of providing this type of maintenance, nor are these type of services available in the area to serve this remote location. The current vehicle maintenance facility at the PCMS is small, and maintenance is limited to small wheeled vehicles, it is not large enough to accommodate tanks and other armored vehicles or Army aviation aircraft, i.e. rotary wing." Exhibit 2, pp. 3-4. Further, it was observed during recent tours of PCMS that extensive ground disturbances have occurred at various check dams. See, Exhibit 3 hereto (Memo dated November 3, 2010). This construction is described as dam "enhancement" to allow for training maneuvers.	We believe that the statement that no construction is required at PCMS as part of this proposed action is not inconsistent with construction activity occurring at PCMS. There is an ongoing need for construction at PCMS that is required for its use as a training site. This construction would be necessary regardless of whether a CAB were to be assigned or whether the transformation programs were implemented. When construction is required at PCMS, Fort Carson conducts the necessary NEPA analysis, as appropriate. Both of the examples cited by the commenter fit these criteria. A Record of Environmental Consideration (REC) was completed on the Clamshell project in July 2010, which documents use of the Army's categorical exclusion for minor construction, in accordance with 32 C.F.R. 651(c)(1). Mechanized vehicles and aircraft have been used for training at PCMS from its inception, and these vehicles and aircraft need on-site maintenance. The Clamshell shelters simply provide a better facility in which to provide that maintenance. Similarly, the check dams are a part of the Sustainable Range Program, which has long been in effect at both Fort Carson and PCMS, as mentioned in Section 5.8.1 of this PEIS. Construction of erosion control features were analyzed in the 1998 erosion control environmental assessment, and included dams, which remediate and prevent erosion resulting from training, regardless of what unit is training or how often the training may occur.
These and other construction activities are directly related to the need to train an additional CAB unit at PCMS. This type of increase in the intensity of use of PCMS is specifically prohibited by the federal court's invalidation of the PCMS Transformation ROD and FEIS. See, Exhibit 1 hereto. Not 1 More Acre! requests that the Army immediately cease all construction activities at PCMS until such time as the full environmental impacts are analyzed in a valid Transformation FEIS and ROD.	Judge Matsch's order did not disallow all projects or sustainment activities at PCMS. The 2007 transformation EIS had analyzed several specific construction projects for PCMS. These construction projects have not been built. As discussed above, training intensity changes are not within the scope of the programmatic EIS.
<u>Alternatives</u> As noted above, the Draft CAB PEIS does not include any PCMS training alternatives. The Army must address this issue and the public should be given the opportunity to comment on such alternatives.	
Not 1More Acre! requests that the Army provide a more detailed description of each alternative including what	Section 5.4.2 of this Final PEIS states unequivocally that no construction is planned or

construction activities will take place at each affected location, an estimate of the increase in activity at the PCMS, the levels of growth expected in each affected area, and the impacts expected at each affected location. See Draft PEIS pages F-16 through F-22 (EPA comments). The Draft PEIS is vague or internally inconsistent on what construction activities will occur at PCMS and fails to provide an accurate estimate of the increase in all activity at PCMS.	required at PCMS [as part of the proposed action]. Therefore, no detailed description of construction activities is possible.
For example, the Draft PEIS states that no construction activity will occur at the PCMS. See, Draft CAB PEIS at p. 5-8. This is in contrast with the extensive upgrades needed at the cantonment area identified in the 2007 PCMS transformation EIS which was vacated by the federal district court of Colorado. The draft CAB PEIS should identify any construction or improvements that have occurred at the cantonment area since Judge Matsch's order. If none such activity has occurred, the draft CAB PEIS must analyze how the increase in duration and intensity of use of PCMS can be accommodated without the necessary improvements identified in the PCMS Transformation EIS/ROD.	The upgrades in the 2007 transformation EIS did not support CAB stationing at Fort Carson or CAB training at PCMS. These upgrades were not analyzed until the 2009 *Grow the Army* FEIS. Since no construction at PCMS to support CAB stationing is planned or required, there is no analysis of specific construction projects required associated with the proposed action at PCMS.
Moreover, the Draft PEIS infers that no construction will take place elsewhere on PCMS. However, the Draft PEIS identifies two new proposed Combat Assault Landings Strips that presumably will be constructed on PCMS. See, Draft PEIS at p. B-30. Have these landing strips been constructed? If so, when. Were the environmental impacts evaluated? If so, please identify the NEPA approval evaluating the environmental impacts associated with construction of these landing strips.	The proposed Combat Assault Landing Strips that appear in the noise analysis in Appendix B at page B-18 and B-30 of this PEIS were proposals that were under consideration at the time of the drafting of that analysis. These projects were not, and are not, associated with the proposed action in the CAB PEIS. The Combat Assault Landing Strips would have been utilized by Air Force C-130 fixed wing aircraft. These projects are no longer under consideration. Section 5.6.1of this Final PEIS has been updated to make this clear.
<u>Failure to quantify baseline conditions at PCMS</u> The Draft CAB PEIS fails to adequately quantify baseline conditions for soils, vegetation, wildlife, cultural resources and other conditions at PCMS. This issue was identified by EPA in its October 12, 2010 scoping comment letter. See Draft PEIS pages F-16 through F-22. More specifically, the EPA noted: The Draft EIS should identify a baseline condition which will be used to develop and assess the effectiveness of mitigation measures. If impacts from reasonably foreseeable future actions (RFFAs) are expected, the current condition may not [b]e [sic] the baseline condition best suited to capture the incremental effect of the project. A no-action alternative may be more appropriate. If a baseline other than current conditions will be used, the Draft EIS should clearly explain and support its basis. Regardless of what condition the baseline represents, we encourage the use of quantified resource-specific characterizations when possible. Id.	Chapter 4 of Fort Carson's 2009 *Grow the Army* FEIS includes extensive information about the affected environment at PCMS. This Final PEIS incorporates and updates (as necessary) that information. As explained in the response to EPA (comment #32), we have added information on baseline conditions in Section 3.4 of this PEIS to explain no action impact ratings and how they were derived. Furthermore, a table summarizing impact ratings for baseline conditions of the no action alternative has been added to Section 4.3 of this PEIS.
Despite identification of this issue by EPA during scoping, the Draft CAB PEIS fails to quantify baseline conditions for soils, vegetation, waterways, wildlife and cultural resources on PCMS.	
As noted above, the Army admitted in the PCMS Transformation EIS/ROD that there is a lack of baseline data for PCMS. Not 1More Acre! is aware that from 1985 through 2002, the Army prepared After-Action Reports summarizing training exercises conducted at the PCMS. These reports show that even those limited training exercises have had severe environmental consequences. These AARs demonstrate the failure of the draft PEIS to give consideration to foreseeable adverse environmental impacts of the expected increase in training exercises and the adequacy of the plans for mitigation. Accordingly, we request that the Army disclose all AARs from 1985-the present in an Appendix to the Draft CAB PEIS. Not 1More Acre! also requests that all baseline data and information from the 1980 PCMS EIS for Training Land Acquisition be included in an Appendix to the Draft CAB PEIS. N1MA! requests that the Army re-issue the Draft CAB PEIS and allow the public to comment on the baseline conditions, the impacts of the Army's historic training activities at PCMS, and the effectiveness of its mitigation efforts to date.	The after action reports (AARs) are discussed above. The AARs were discussed in the 2009 *Grow the Army* FEIS, which is incorporated by reference in this analysis. Therefore it will not be necessary for them to be discussed again in this document. We have not received comments that present significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts that would require the PEIS to be reissued for a second comment period.
Finally, we also incorporate by reference all baseline issues raised in our October 8, 2007 comment letter.	
<u>Failure to identify quantitative metrics to judge actions/mitigation</u>	

The Army's Appendix A to the Draft CAB PEIS (Valued Environmental Components (VEC) General) is inadequate because it fails to identify and incorporate quantitative objective criteria governing impacts to land, water, air, cultural resources and other media. For example, Appendix A fails to incorporate such metrics created during the 1980 PCMS EIS for impacts to lands and soils. These metrics were specifically developed to determine whether there were adverse impacts to lands/soils and whether mitigation was effective. Appendix A also ignores important quantitative objective water quality standards developed for surface waters in Colorado. For example, the Draft CAB PEIS fails to identify water quality standards for selenium, e coli, and other important pollutant in Fountain Creek, the Arkansas River, the Purgatoire and Apishapa rivers. The Draft PEIS also fails to evaluate waterbodies that are listed on the State's current 303(d) list that could potentially be affected by the project and whether a water quality restoration plan (Total Maximum Daily Load) has been developed for the waterbodies and the pollutants of concern. See Draft PEIS, page F-16-F22. Section 303(d) prohibits a new point source discharge of impairing pollutants into a segment already impaired for that pollutant. 40 C.F.R. 122(i)(4). Friends of Pinto Creek v. EPA, 504 F.3d 1007 (9th Cir. 2007). Finally, Colorado also has a degradation standard preventing any new or increase discharge from adding 15% or more pollution to the assimilative capacity of each stream segments. See Colorado Basic Standard Regulation 31.8, 5 CCR 31.8. These standards also apply to stormwater.	As stated in Section 4.2.2, both quantitative and qualitative analyses have been used in this PEIS or in supporting EIS analyses to determine whether thresholds of significance are exceeded. Some of these thresholds are based on regulatory requirements, while others reflect discretionary judgment on the part of the Army. The Army has re-categorized some impacts, where necessary, to ensure a consistent comparison of environmental impacts is presented in this PEIS despite use of different impact terminology in past EIS analyses. Section 4.6 of the 2009 *Grow the Army* FEIS includes an extensive discussion of water quality in water bodies on or near PCMS, and includes quantitative water quality data and standards. Specifically, Section 4.6.1.2.2 analyzes impacts to Colorado's 303(d) listed waters. Follow-on site-specific NEPA analysis would address water quality impacts in greater detail, if Fort Carson were selected for CAB stationing.
Appendix A also fails to identify criteria for determining when a "take" of an endangered species has occurred under the federal Endangered Species Act or Migratory Bird Act.	This term is defined in applicable laws. For instance, 16 USC §1532 defines "take" for purposes of the Endangered Species Act.
Appendix A also fails to analyze whether the Proposed Action will cause or contribute to a violation of EPA's proposed regulation for the eight-hour National Ambient Air Quality Standard for ozone. EPA will be adopting the final regulation in July 2011-prior to the implementation of the Proposed Action. The Army must analyze whether it's proposed action will cause or contribute to a violation of the eight-hour ozone NAAQS throughout the range of alternatives being considered by EPA.	As discussed in our response to the EPA's comments on air quality at Fort Carson (comment #32), a complete air emissions and inventory analysis was included in Fort Carson's 2009 *Grow the Army* PEIS. The results of this analysis did not indicate that the proposed action would cause or contribute to a violation of the eight-hour ozone NAAQS.
<u>Illegal Segmentation</u> Not 1 More Acre! has previously informed the Army that it is illegally segmenting major federal actions at Piñon Canyon Maneuver Site and vicinity. More specifically, Not 1 More Acre! submitted a scoping comment letter to the Army on May 20, 2008 regarding the Grow the Army EIS raising illegal segmentation issues and failure to analyze cumulative impacts of its actions. On October 8, 2007, Not 1 More Acre! also submitted a comment letter on a Draft EIS for the Army Growth and Force Structure Realignment raising the illegal segmentation issues and the Army's failure to consider cumulative impacts. All issues raised in the October 8, 2007 and May 20, 2008 comment letters are incorporated herein by reference. The Department of Defense also recently announced that it is also taking comments on proposed Low Altitude Tactical Navigation ("LATN") to conduct low altitude navigation using C-130 air planes and CV-22 Ospreys in the airshed over PCMS, and vicinity. We continue to ask that all federal actions proposed by the military for PCMS and vicinity be incorporated into a single EIS so that the combined and cumulative impacts of these actions can be fully assessed in a single document, rather than segmented among numerous separate EISs and EAs.	We strongly disagree with the assertion that the proposed action constitutes illegal segmentation. The Army must constantly adapt to evolving contingencies overseas, which drive continually changing training and stationing requirements at home. In the face of this constant change, the Army must conduct appropriate NEPA analysis to the best of our ability, in light of the facts known at the time. Please also see page I-10 of the 2009 *Grow the Army* FEIS for our response to similar segmentation comments received in the course of that analysis. The Air Force's LATN proposal is an independent project, with no relation to the proposed action analyzed within this PEIS. The LATN proposal is, however, included in cumulative impacts analysis of this PEIS.
As noted above, the Army also appears to be undertaking construction activities at PCMS (landing strips, clamshell maintenance facilities, check dams) without analyzing the cumulative impacts in a single EIS. The Army is either failing to analyze these construction impacts under NEPA or is illegally segmenting each construction project to avoid a cumulative impact analysis.	Because this action does not require construction at PCMS, it does not represent the point at which the Army would undertake a cumulative analysis of construction projects at PCMS.
<u>Archeological/cultural resources</u> The Army must fully catalog all archeological/cultural resources at Piñon Canyon Maneuver Site. The Army must also identify mitigation measures for preventing any damage to these resources from its proposed action. The archeological and cultural resources at PCMS may require imposition of training restrictions and increased operational delays, as well as associated costs.	Section 5.10.1 of this PEIS has been revised to update this information and Section 4.5 has been revised to include proposed cultural resources mitigation measures.

Tribal consultation is also required for implementation of the proposed action and any additional training, housing or stationing activity at PCMS. In addition, we also incorporate by reference all archeological, cultural and paleontological issues raised in our October 8, 2007 comment letter.	All appropriate tribal consultation for operation of the CAB on PCMS would be conducted as part of Fort Carson's follow-on, site-specific NEPA analysis should Fort Carson be selected for CAB stationing.
<u>Noise</u> EPA's October 12, 2010 scoping comments state, "the Draft PEIS should describe the impacts of noise to human and wildlife health and behavior, as well as measures that will be employed to mitigate those impacts, such as physical controls, operations plans, and flight corridors. Noise analysis methodologies should be explained and the single-event and cumulative noise metrics utilized in the analysis should be defined." There is no indication in the draft CAB PEIS that this analysis was conducted.	See our response to EPA's comments on noise (comment #32). Noise analysis in this PEIS is based on noise analysis from the 2009 Fort Carson *Grow the Army* FEIS. It utilized C-weighted day-night sound level (CDNL) for large caliber weapons and A-weighted day-night sound level (ADNL) for small arms and aircraft activity.
<u>Threatened and Endangered species</u> Additional soldiers and development at Fort Carson might impact threatened and endangered species at PCMS. Mexican spotted owl (federally listed as threatened) habitat, burrowing owl, mountain plover, ferruginous hawk and swift fox are present PCMS. A full inventory of threatened and endangered species must be performed prior to implementation of the proposed action. Moreover, the Army must prevent any "taking" of a threatened or endangered species at PCMS by developing mitigation that precludes any killing of such a species or adverse impacts to their habitat. In addition, we also incorporate by reference all threatened and endangered species issues raised in our October 8, 2007 comment letter.	As stated in Section 4.7.1.3.1 of the 2009 *Grow the Army* FEIS and in Section 5.9.1 of this PEIS, no species currently listed as endangered or threatened under the ESA are known to occur on PCMS. Section 5.9.2 of this PEIS has been revised to state that mitigation for federally protected and sensitive species will be determined in consultation with the FWS if Fort Carson is selected for CAB stationing and will be developed as part of site-specific NEPA following this PEIS and Record of Decision.
<u>Bald and Golden Eagle Protection Act</u> Bald and golden eagle nests and habitat exist at the Piñon Canyon Maneuver Site. The Army must comply with 16 U.S.C. 668-668c.	The Act is discussed at paragraph A.6 in Appendix A. Section 5.9 discusses both bird species.
<u>Wildlife and fish</u> Migratory birds and other wildlife exist on PCMS. The Army must inventory all wildlife species and prepare mitigation measures to protect wildlife and the habitat they depend upon. In addition, we also incorporate by reference all wildlife and migratory bird issues raised in our October 8, 2007 comment letter. EPA's October 12, 2010 scoping comments state, "The Draft PEIS should describe the current quality and potential capacity of habitat, its use by fish, marine mammal, and terrestrial wildlife on and near the proposed project areas, and identify known corridors, migration routes, and areas of seasonal congregation. Habitat descriptions should include habitat type, aquatic and terrestrial species, functional values, and integrity. These resources may experience varying degrees of impacts and alteration of their habitat and hydrologic functions, and project encroachment may degrade habitat for fish, other aquatic biota, and other wildlife (e.g. birds). The Draft PEIS should evaluate effects on these species and populations from habitat removal and alteration, habitat fragmentation caused by infrastructure, land use, and management activities, and human activity. Effects on plant species and populations should be included. Impacts to resources should be evaluated in terms of the acreage to be impacted and by the functions they perform. For any impacts that cannot be avoided through siting and design, the EIS document should, at a minimum, describe the types, location, and estimated effectiveness of best management practices applied to minimize and mitigate impacts to aquatic resources." There is no indication in the Draft CAB PEIS that this analysis was performed for PCMS. <u>Water quality and quantity</u>	Section 5.9 has been extensively revised and proposed mitigation measures added to Section 4.5 of this PEIS. For further details, see responses to EPA comments (comment #32).

The Nationwide Rivers Inventory has identified 117 miles of the Purgatoire River, part of which runs through the PCMS, as having outstanding scenic, geological, fish, wildlife and cultural values and as eligible for special protection. The PEIS must catalog these special features of the Purgatoire River and develop mitigation measures to prevent any adverse impacts that would prevent designation as a wild and scenic river.	Sections 4.6 and 3.6 of the 2009 *Grow the Army* FEIS have extensive discussions of these issues. This 2009 FEIS is incorporated by reference in this PEIS.
Portions of Fort Carson are in the Fountain Creek watershed. Fountain Creek, a tributary of the Arkansas River, is currently impaired for e coil, selenium, and other pollutants. Accordingly, the Army may not take any action that will further exacerbate these water quality impairments. The Army must research all water quality impairments in the Fort Carson and PCMS watersheds, also tributaries to the Arkansas River, and determine whether the proposed actions may exacerbate these impairments or otherwise adversely impact water quality.	See the response to EPA's comments on water quality (comment #32) for further information.
It has been reported that significant mitigation measures will be needed to reduce impacts to water quality and achieve US EPA water quality standards resulting from the proposed action. It has been reported that these water quality environmental costs may exceed $1 million. In addition, we also incorporate by reference all water quantity and quality issues raised in our October 8, 2007 comment letter.	The Army is aware of EPA's stringent water quality standards, and the sensitivity of Fort Carson and PCMS watersheds. The Army's proposed mitigation measures are discussed in the expanded Section 4.5. In addition, Section 5.8.1 explains the techniques used by the Army to control sediment production from PCMS tributaries.
In its October 12, 2010 scoping comment letter EPA states, "The proposed project should be evaluated for its potential to alter stream discharge and degrade riparian and water quality. The introduction of sediments to stream systems can alter thermal processes, consequently degrading water quality, and impacting fish and their habitat. Section 303(d) of the Clean Water Act (CWA) requires the States of Washington and Colorado to identify those waterbodies that are not meeting or not likely to meet State water quality standards. Project planning should evaluate which waterbodies that are listed on the State's current 303(d) list that could potentially be affected by the project and whether a water quality restoration plan (Total Maximum Daily Load) has been developed for the waterbodies and the pollutants of concern. If a Total Maximum Daily Load (TMDL) has not been established for those waterbodies on the 303(d) list, then in the interim until one is established, the project should demonstrate that there will be no net degradation of water quality to these listed waters. In Colorado, the section of the Purgatoire River from I-25 to its confluence with the Arkansas River is identified on the 303(d) list of impaired waters for selenium. This same segment is also identified on Colorado's Monitoring and Evaluation List for sediment. Selenium is naturally occurring within sediments of this region of Colorado. Activities which disturb the soil in the PCMS have the potential to contribute both selenium and sediment to the Purgatoire River. EPA recommends that the Draft PEIS specifically address potential impacts to the Purgatoire River, as well as mitigation for those impacts. The Draft CAB PEIS should furthermore analyze the capacity of the existing waste water treatment facilities to meet limits for effluent discharges given the additional waste load." There is no indication in the Draft CAB PEIS that these analyses were performed.	See response to EPA comment above. These issues were discussed extensively in the 2009 *Grow the Army* FEIS; in particular, see Section 4.6.1.2.2.
<u>Wetlands</u> EPA's October 12, 2010 scoping comment letter states, "[b]ased upon review of the National Wetlands Inventory, areas within and adjacent to Fort Carson and Joint Base Lewis-McChord contain wetlands. Discharge of dredged or fill material into waters of the United States, including wetlands, are regulated under Section 404 of the Clean Water Act (CWA). This permit program is administered jointly by the U.S. Army Corps of Engineers (Corps) and EPA. Please consult with the Corps to determine the applicability of CWA Section 404 permit requirements to this project. Additionally, Executive Order (EO) 11990 directs Federal Agencies to 'take action to minimize the destruction, loss or degradation of wetlands, and to preserve and enhance the natural and beneficial values of wetlands in carrying out the agency's responsibilities.' The Draft EIS should describe how the project would address the wetland protection goals in EO 11990, if applicable. EPA suggests a mitigation commitment that indirect draining of, or direct disturbance of, wetland areas will be avoided if at all possible." There is no indication in the draft CAB PEIS that this analysis was performed for PCMS. A full and complete wetlands baseline delineation must be performed for the draft CAB PEIS in order to document any impacts to wetlands from the Preferred Alternative.	Wetlands are discussed in both the 2009 *Grow the Army* FEIS and this PEIS. This Final PEIS now makes clear that no wetlands occur within the footprint of construction proposed for CAB facilities. The Final PEIS has been revised to include the following: At PCMS, few direct impacts to wetlands occur from ongoing training activities and no construction would occur at PCMS as part of the proposed CAB stationing. Training an additional CAB could result in indirect impacts to wetlands from erosion and sedimentation processes in drainages upstream of man-made erosion control dams. Sediments could silt in these small wetlands, changing their nature or converting them to upland habitats if erosion-control dams are not properly maintained. Wetland and riparian area buffers are generally protected from vehicular and mechanized training on Fort Carson and PCMS due to the surrounding topography, which makes these areas unsuitable for this type of training. Because of avoidance and

	minimization efforts Fort Carson and PCMS currently implements as part of its INRMP and ITAM procedures, direct effects to wetlands would be limited. Erosion control measures are protective of surface water, including wetlands and riparian areas. From 1996 to 1997, a Legacy grant was used to study wetland community constituents and their distribution as well as various physical parameters at 10 sites on Fort Carson and five sites on PCMS. No decline was noted in representative wetlands, and no statistically significant increases in measured constituents were identified. Because training does not seem degrade wetlands quality in any significant way, impacts to wetlands as a result of CAB stationing are predicted to be negligible.
Air Quality The Army must evaluate air pollution impacts resulting from the proposed action. These include air pollution resulting from growth and development, increased traffic, the addition of 120 more helicopters, the addition of 600 more wheeled vehicles, and dust emissions from increased training at both Fort Carson and PCMS. In addition, the cumulative impacts of DOD's proposed LATN must also be analyzed. In addition, we also incorporate by reference all air quality issues raised in our October 8, 2007 comment letter.	This Final PEIS contains a full discussion of air impacts, and Section 5.5.3 has been updated to include the Air Force's proposed LATN project in its cumulative impacts section on air quality. Our understanding is that the LATN project is still in scoping; detailed information on potential cumulative impacts is not possible at this time.
Soils Additional training at PCMS will result in additional disturbance of soils. Loss of topsoil, erosion, sedimentation, and other soil issues must be analyzed in the PEIS. In addition, we also incorporate by reference all soil issues raised in our October 8, 2007 comment letter.	This PEIS and the 2009 *Grow the Army* FEIS have a full discussion of this issue. As appropriate, Fort Carson would provide further site-specific NEPA analysis on CAB stationing implementation impacts on soils, if Fort Carson is selected for CAB stationing.
Vegetation Impacts to vegetation will occur as a result of the proposed activity. The PEIS must evaluate the adverse impacts to vegetation resulting from construction activity at Piñon Canyon Maneuver Site and increased training, housing and other activities at PCMS.	This PEIS and the 2009 *Grow the Army* FEIS have a full discussion of this issue. As appropriate, Fort Carson would provide further site-specific NEPA analysis on CAB stationing implementation impacts on vegetation, if Fort Carson is selected for CAB stationing.
The Army must catalog all threatened and endangered plant species at PCMS. Moreover, the Army must prevent any "taking" of a threatened or endangered species at PCMS by developing mitigation that precludes any killing of such a species or adverse impacts to their habitat.	This PEIS and the 2009 *Grow the Army* FEIS have a full discussion of this issue. Army actions are subject to the requirements for consultation under §7 of the Endangered Species Act.
Helicopters can also have impacts on short grass prairie. It takes less than an 1/8" of dust to kill shortgrass. PCMS abuts the Comanche National Grasslands, which is a recovery unit from the Dust Bowl era. Also, surrounding ranchlands are potentially economically impacted by dust created by destruction of soils on the PCMS. These adverse impacts must be analyzed in the PEIS. In addition, we also incorporate by reference all vegetation issues raised in our October 8, 2007 comment letter.	As described in the 2009 *Grow the Army* FEIS, Fort Carson's fugitive dust control plan is followed as a BMP to minimize dust impacts to air quality. Subject to available funds and how much PCMS is anticipated to be used in a particular year, chemical dust suppression is applied to unpaved areas in the cantonment area and the most highly used tank trails. Other measures to control fugitive dust are also implemented as part of the plan. Fugitive dust impacts are also discussed in Section 5.5.2 of this PEIS.
Airspace The draft CAB PEIS fails to analyze the cumulative impacts to airspace when combined with the Army's LATN proposal.	Section 5.12.3 of the Final PEIS has been updated to include discussion of the Air Force's LATN proposal in its cumulative impacts section on airspace.
Traffic The increase in traffic must be analyzed in the Piñon Canyon area resulting from the sudden addition of up to 2,800 new soldiers. Traffic infrastructure near Piñon Canyon Maneuver Site must be studied and any deficiencies remedies prior to relocation of a CAB at Fort Carson.	Traffic impacts are discussed at Section 5.1.2.2.
Socioeconomic The CAB is temporarily being housed at Fort Hood. Realignment of the CAB from Fort Hood would result in a	A realigned CAB would consist of elements of various existing aviation units currently not

loss of personnel due to the relocation of approximately 4,100 soldiers based on 2005 data. The local Fort Hood community has embraced the CAB and did not consider this unit as temporarily stationed at Fort Hood. Soldiers have already purchased homes and integrated into the community at Fort Hood. The Fort Hood community fears housing prices will drop and soldiers forced to sell homes will experience significant financial losses. Also, the Fort Hood community responded to the so-called temporary increase in soldiers with increased housing, police, fire and municipal services. They argued that realigning Fort Hood, leaving only five Brigade Combat Teams (BCTs) permanently stationed there, would forego important existing training facilities and create 15 percent excess capacity. Fort Hood has requested retention of 6 BCTs at Fort Hood, believing the base has the capacity to train and support up to 50,000 soldiers and their families. Finally, we also incorporate by reference all socioeconomic issues raised in our October 8, 2007 comment letter.	assigned to CABs, as explained in Section 3.4 of this PEIS. These units would come from various installations across the Army. The proposed consolidated CAB is not temporarily stationed at Fort Hood, as suggested in the comment; in fact, it does not currently exist. It is true that some of the existing aviation elements that may be considered for realignment are currently stationed at Fort Hood.
<u>Hazardous materials</u> The risks posed by the additional use of hazardous materials at PCMS must be analyzed in the PEIS. This includes the additional fuel needed for 120 helicopters and ground vehicles, hazardous material used to maintain these vehicles, and addition weaponry, ordinances, and other hazardous materials in training exercises at Fort Carson and PCMS. Finally, we also incorporate by reference all hazardous materials issues raised in our October 8, 2007 comment letter.	This PEIS states that CAB operations and training at Fort Carson and PCMS will result in an increase in the use of hazardous materials, use of petroleum-based products, and disposal of hazardous waste, therefore the increased potential for spills. Due to extensive outreach and training efforts on spill prevention, major site contamination and cleanup or other special hazards resulting from increases in personnel, construction activities, and training activities will not be anticipated. This combined with Fort Carson's (and PCMS's) comprehensive program to address the management of hazardous waste, hazardous materials, and toxic substances, effects from a CAB stationing related to hazardous waste, hazardous materials, and toxic substances is anticipated to be less than significant.
<u>Greenhouse Gas Emissions and Climate</u> The Army's proposed action will result in an increase of emission of greenhouse gases ("GHG"). The source of electrical power to serve an addition 2,800 soldiers and the corresponding GHG emissions must be analyzed. In addition, the emission of GHG from 120 additional helicopters and 300 additional ground vehicles must be analyzed. The emissions from new construction at Piñon Canyon Maneuver Site must be analyzed. In addition, it is predicted that climate change will increase drought in the PCMS region. An increase in drought will make PCMS more vulnerable to impacts. The impacts of climate change and the proposed action on PCMS must be analyzed in the Draft CAB PEIS.	We have revised Section 5.5.2 of this PEIS to include discussion of GHG emissions, as well as the possibility of increased drought to recognize that PCMS could end up drier than its current state due to changing patterns of precipitation that could accompany climate change.
<u>Public Lands</u> PCMS is bordered by the Comanche National Grasslands, Apishapa State Wildlife Area, Picket Wire Canyonlands, State School Board lands and county roads are adjacent to PCMS. The National Grasslands were created to remediate dust bowl era impacts. Impacts to surface waters, groundwaters, vegetation, soils, cultural resources, wildlife, and other resources in these public lands must be analyzed in the draft CAB PEIS. For example, increased training maneuvers at PCMS will cause destruction of habitat and corresponding displacement of wildlife. This wildlife will be displaced to adjacent public lands. The Draft CAB PEIS should analyze how the habitat destruction and wildlife displacement will alter wildlife carrying capacities and the ecoystems of neighboring public lands. For example, during oral argument in the Colorado U.S. District Court lawsuit, Judge Matsch stated: "but I'm concerned as to whether there's an adequate assessment of what the impact is on not only the flora and fauna, but everything else, including adjacent property when you're talking about being out there all the time." See, Oral Hearing Transcript, Page 30. When the After Action Reports are reviewed, the validity of Judge Match's concerns are realized. The 14-January-16 February 1991 AAR states:	This PEIS has been updated to include discussion of disturbance effects to wildlife. Section 4.5 includes additional proposed mitigation measures to reduce these disturbance effects. In addition, Fort Carson would implement measures contained in the installation's fugitive dust control plan. These mitigations would help to reduce wildlife displacement and other impacts to PCMS and adjacent public lands.

"Cumulative impacts from areas of significant disturbance could result in significantly negative alterations of the hydrology of the PCMS and surrounding lands. These impacted areas, when considered cumulatively will act to increase sediment yield into the Purgatoire River. If disturbance such as this continues on a large scale, the potential impacts are very substantial. Once these effects are carried to the Purgatoire, downstream users may become more vocal (once again seek legal compensation) as to the impact of military training on their decreed use of water from the River." These public lands impacts must be analyzed in the CAB PEIS.	Since no construction is anticipated under the proposed action, we do not anticipate any significant disturbance or alternations to the hydrology of PCMS and surrounding lands. As noted in Section 5.8.2 of this PEIS, the USGS found that the largest correlation to sedimentation of the waters of the Purgatoire River is the number of large storm events received in the in the vicinity of PCMS, not the frequency of use of PCMS by the military. Furthermore, Fort Carson implements an aggressive erosion and sediment control program and utilizes the ITAM program to reduce erosion and sedimentation impacts to water bodies on and surrounding PCMS.
<u>Coordination with Tribal Governments</u> As EPA noted in its October 12, 2010 scoping comment letter, "the Draft PEIS should describe the process and outcomes of government-to-government consultation between the Department of Defense and each of the tribal governments that would be affected by the project, issues that were raised, if any, and how those issues were addressed. EO 13175, Consultation and Coordination with Indian Tribal Governments (November 6, 2000), was issued in order to establish regular and meaningful consultation and collaboration with tribal officials in the development of federal policies that have tribal implications, and to strengthen the U.S. government-to-government relationships with Indian tribes." There is no indication in the draft CAB PEIS that this consultation was performed.	No new construction or training beyond what has been historically analyzed will occur as a result of the proposed action in this programmatic analysis, such that tribal consultation is required. If selected for CAB stationing, Fort Carson would conduct all appropriate tribal consultation as part of its follow-on, site specific NEPA analysis.
<u>Environmental Justice:</u> As EPA noted in its October 12, 2010 scoping comment letter, "[s]ince the proposed action is in an area that has potential Environmental Justice (EJ) populations, the Draft PEIS should determine whether any EJ communities are present within the area and, if so, analyze the impacts this action will have on these communities. According to the Council on Environmental Quality NEPA/Environmental Justice Guidance, Federal agencies are to make the achievement of environmental justice part of their mission by identifying and addressing as appropriate, disproportionately high and adverse human health or environmental effects of their programs, policies, and activities on minority populations and low-income populations, and allowing all portions of the population a meaningful opportunity to participate in the development of, compliance with, enforcement of Federal laws, regulations, and policies affecting human health or the environment regardless of race, color, national origin or income. In the memorandum to heads of departments and agencies that accompanied EO 12898, the President specifically recognized the importance of procedures under NEPA for identifying and addressing environmental justice concerns. The memorandum states "each Federal agency shall analyze the environmental effects, including human health, economic and social effects, of Federal actions, including effects on minority communities and low-income communities, when such analysis is required by NEPA." There is no indication in the draft CAB PEIS that this analysis was adequately performed.	See response to EPA comment on environmental justice (comment #32).
<u>Cumulative Impacts</u> As EPA noted in its October 12, 2010 scoping comment letter, "[i]n order to assess cumulative impacts, the Draft PEIS should characterize the current and post-project conditions, including reasonably foreseeable future actions (RFFAs), and identify a baseline. EPA recommends the Draft PEIS analyze effects on air impacts, water quality, wetlands with quantitative measures when possible and qualitative measures otherwise." There is no indication in the draft CAB PEIS that this analysis was performed for PCMS. Moreover, it is believed that military organizations other than the Army utilize PCMS. For example, it is believed that the Colorado National Guard performs training at PCMS. The cumulative impacts of all uses of PCMS must be analyzed in the draft CAB PEIS.	We have responded to the EPA's comments (comment #32) and revised the PEIS accordingly. As discussed in Section 4.1 of this PEIS, the 2009 *Grow the Army* FEIS provides additional context and more detailed discussions of the current conditions of the affected environment, from which impact ratings for implementation of this proposed action were derived.
<u>Adaptive Management and Mitigation</u> N1MA! opposes the use of adaptive management as a purported method of mitigating impacts. Adaptive	This issue is more appropriate for analysis in follow-on site-specific NEPA analysis, which

management is a reactive methodology that only attempts to addresses impacts after they have occurred. Rather, N1MA! advocates that proactive methodologies be employed that prevents impacts before they occur. However, in the event the Army intends to rely on adaptive management, we request that you address EPA's scoping comments which state, "The Draft PEIS should identify the features of an effective adaptive management plan, including: A decision tree with clear objectives to guide future decisions; Specific decision thresholds with identified indicators for each impacted resource; Targets that specify a desired future condition; Trends specifying a desired change relative to the baseline condition; A monitoring plan with protocols to assess whether thresholds are being met; and, Firm commitment to use monitoring results to modify management actions if necessary." The Draft PEIS should describe how and with what resources the Army will conduct monitoring necessary under an adaptive management plan to ensure the project is meeting objectives and mitigating impacts as predicted." There is no indication in the Draft CAB PEIS addresses these comments. <u>Sikes Act</u> The Sikes Act states, "the Secretary of each military department shall prepare and implement an integrated natural resources management plan for each military installation in the United States under the jurisdiction of the Secretary…" 16 U.S.C. §670a(a)(B). The Sikes Act further states that, "each integrated natural resources management plan prepared under subsection (a)-- (1) shall, where appropriate and applicable, provide for-- (A) fish and wildlife management, land management, forest management, and fish and wildlife-oriented recreation; (B) fish and wildlife habitat enhancement or modifications; (C) wetland protection, enhancement, and restoration, where necessary for support of fish or wildlife; (D) integration of, and consistency among, the various activities conducted under the plan; (E) establishment of specific natural resource management objectives and time frames for proposed action; (F) sustained use by the public of natural resources to the extent such use is not inconsistent with the needs of fish and wildlife resources management; (G) public access to the military installation that is necessary or appropriate for the use described in subparagraph (F), subject to requirements necessary to ensure safety and military security; (H) enforcement of natural resource laws and regulations; (I) no net loss in the capability of military installation lands to support the military mission of the installation; and (J) such other activities as the Secretary of the military department considers appropriate; U.S.C. §670a(b)(1). The Draft CAB PEIS references a Fort Carson Integrated Natural Resource Management Plan (INRMP) 2007a. See, Draft CAB PEIS at p. 5-24. The Draft CAB PEIS also appears to indicate that the Fort Carson INRMP includes information on PCMS. See, Draft CAB PEIS at p. 5-27. However, the Draft CAB PEIS fails to include a link to the Fort Carson INRMP 2007a. Not 1 More Acre! conducted a thorough internet search for the Fort Carson INRMP 2007a and was unable to locate the document. Not 1 More Acre! requests that the Army produce a copy of the Fort Carson INRMP 2007a and allow the public an opportunity to comment on whether the INRMP adequately addresses PCMS and whether the Draft CAB PEIS is consistent with the INRMP.	will be prepared by Fort Carson if it is selected as a CAB stationing location under this programmatic decision. Fort Carson's INRMP contains analysis of PCMS. Fort Carson's INRMP can be obtained by contacting their Directorate of Public Works (DPW), Environmental Division, contact information for which appears on their website: http://www.carson.army.mil/DPW/ .

Failure to establish compliance with range management guidelines The Army has established range management guidelines for protecting range resources. http://aec.army.mil/usaec/range/sustainment00.html. The Draft CAB PEIS fails to demonstrate that the proposed alternative would comply with range standards and guidelines at PCMS. Please amend and reissue a Draft CAB PEIS demonstrating compliance with such standards and guidelines. Thank you for the opportunity to submit comments on the Draft CAB PEIS. Please incorporate these comments into your decision-making. If you have any questions, don't hesitate to contact me.	In accordance with Army Regulation 350-19, the Army implements its Sustainable Range Program (SRP) through various mechanisms, in particular, the Integrated Training Area Management (ITAM) program. ITAM is referenced several times throughout this PEIS. For example, use of ITAM to reduce impacts to soils is discussed in Section 5.7.2. The SRP has long been in effect at Fort Carson and PCMS. Section 3.13 of Fort Carson' 2009 *Grow the Army* FEIS provides additional information on Fort Carson's implementation of the SRP program. This comment does not present significant new circumstances or information relevant to environmental concerns and bearing on the proposed action or its impacts that would require the Draft PEIS to be reissued for a second comment period. We appreciate your continued interest in this important project.

IN THE UNITED STATES DISTRICT COURT
FOR THE DISTRICT OF COLORADO
Senior District Judge Richard P. Matsch

Civil Action No. 08-CV-00828-RPM

NOT 1 MORE ACRE!, a Colorado non-profit corporation,
JEAN AGUERRE,
MACK LOUDON, and
JAMES E. HERRELL,

Plaintiffs,
v.

UNITED STATES DEPARTMENT OF THE ARMY,
ROBERT M. GATES, United States Secretary of Defense,
PETER GEREN, Secretary of the United States Department of the Army, and
CRAIG E. COLLEGE, United States Army Deputy Assistant Chief of Staff for Installation Management,

Defendants.

MEMORANDUM OPINION AND ORDER

On August 2, 2007, the United States Department of the Army ("Army") issued a Record of Decision ("ROD") to increase the use of its Pinon Canyon Maneuver Site ("PCMS") in southeastern Colorado to conduct training of an increased troop population stationed at Fort Carson, Colorado in conformity with a transformation process involving changes in unit organization and training doctrine. As required by the National Environmental Policy Act of 1969 ("NEPA"), 42 U.S.C. § 4321, et seq., the Army's decision was made after consideration of the matters addressed in the Final Pinon Canyon Site Transformation Environmental Impact Statement, dated June 2007 ("EIS"). There are two aspects to that document. First, it describes proposed construction of new physical facilities to expand support services in an existing

cantonment area of about 1660 acres to include a brigade support complex, a medical/dental clinic, storage facilities, soldier support facilities (including a chapel, phone center, barbershop, shopping and laundry facilities), a vehicle maintenance facility, motor pools, and upgraded roads and utilities.

Second, it refers to training operations of unspecified duration, frequency and intensity to be conducted on the remainder of the 235,000 acres of the PCMS, requiring the addition of a live hand grenade range, an ammunition holding area, a protective equipment testing facility, and upgrades to an existing small-arms range and communications facilities.

Because the EIS does not adequately assess the impact on the environment of the increase in the intensity and duration of training operations necessary to meet the Army's stated purposes for its action, the Army's reliance on it makes the ROD an arbitrary and capricious action, an abuse of discretion and a decision not in accordance with NEPA, requiring the intervention of this Court under the Administrative Procedure Act ("APA"), 5 U.S.C. §§ 701-706.

The PCMS is a Department of Defense ("DOD") installation located in southeastern Colorado in Las Animas County, approximately 150 miles southeast of Fort Carson and Colorado Springs, Colorado. A.R. 10 at 0000036.[1] No soldiers are permanently stationed at the PCMS. Its primary mission is to support maneuver training exercises for soldiers stationed at Fort Carson. *Id.* at 0000037.

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[1]The Final PCMS Transformation Environmental Impact Statement is found in the Administrative Record at Document Number 10, pages 0000032-0000932. References to the Administrative Record (A.R.) are designated by document number and bate stamp page number(s), i.e. A.R. 1 at 0000001.

The Army acquired the PCMS in the early 1980s. Previously the land had been used mainly for large grazing operations. *Id.* at 0000191. The PCMS is located along the western margin of the Great Plains. Adjacent private land is zoned for agricultural uses and used for dryland grazing. *Id.* at 0000102 & 0000117. The terrain includes wooded hills, volcanic formations, grassy plains, mesas, dissected plateaus and deep canyons. *Id.* The climate is moderate and dry, with average precipitation of approximately 13 inches per year. *Id.* at 0000099.

When the Army proposed to acquire land in southeastern Colorado for combat maneuver training, it prepared an EIS for Training Land Acquisition to assess the environmental impacts associated with such use. *See* A.R. 254 & 282. The Army selected the Pinon Canyon site even though it was "slightly more fragile" that the alternative Huerfano River site. A.R. 254 at 0013593. The Draft EIS for Training Land Acquisition recognized that land in semi-arid southeastern Colorado cannot accommodate perpetual use for maneuver training. A.R. 282 at 0019768. Accordingly, the amount of land to be acquired must be large enough "to allow for rest and recovery of the land on a rotating basis." *Id.* In assessing the variables to be considered in a Land Use and Management Plan (LUMP), the Army identified Training Intensity and Time of Use as the key variables. *Id.* at 0019769.

Military training operations began at the PCMS in 1985. Since then, the PCMS has been used for training exercises, on average, approximately 4 months per year. A.R. 10 at 0000191.

The Army is undergoing a restructuring process, referred to as "Transformation," to respond to the challenges of the 21st century. *Id.* at 0000057. Three programs are relevant to the Proposed Action addressed in the Final PCMS Transformation EIS:

(1) Army Modular Force ("AMF") is a program for changing the size of Army units by reorganizing forces into Brigade Combat Teams. All Fort Carson soldiers are being organized into Brigade Combat Teams. *Id.* at 0000059-60. The AMF initiative changes Army training doctrine. *Id.*

(2) Base Realignment and Closure ("BRAC"), governed by the Base Realignment and Closure Act of 1990 as amended, is "a process by which military installations are closed or realigned to meet the infrastructure, training and force structure requirements of the military and save taxpayers' money." *Id.* at 0000058. Recommendations of the 2005 Base Closure and Realignment Commission became law in November 2005. One of those recommendations was to relocate a Division Headquarters and a Heavy Brigade Combat Team and other support units from Fort Hood, Texas to Fort Carson. *Id.*

(3) Integrated Global Presence and Basing Strategy ("IGPBS") is a program for assessing the size, character, and location of the military's overseas presence. *Id.* at 0000058-59. As part of that effort, some forces currently based overseas are being returned to the United States over a period of years. The Army has determined that an Infantry Brigade Combat Team from Korea will be stationed at Fort Carson. *Id*.

The combined effect of these programs increases the troop population of Fort Carson to approximately 23,000 soldiers. *Id.* at 0000088. The increased population and the changes in training doctrine compel a corresponding increase in the need for combat training facilities and the environmental impact on the PCMS to meet that need is the subject of the EIS.

The Army's projections of the total maneuver training requirements of the Brigade Combat Teams to be stationed at Fort Carson exceed the capacity of the PCMS. *Id.* at 0000093-94 & Table 2-2. An area expansion has been under consideration for several years.

A moratorium on major land acquisitions by military departments has been in effect since 1990. A waiver of the moratorium for any land acquisition involving more than 1,000 acres or costing more than $1.0 million requires approval by the Office of the Secretary of Defense.

An Analysis of Alternatives Study, dated May 6, 2004, concluded that the PCMS has a maneuver area shortfall and recommended the acquisition of additional training land adjacent to the PCMS. A.R. 172 at 0007295. The "Piñon Vision Operations Order 05-09," dated December 22, 2004, describes a plan for implementing "the long-term expansion of [PCMS] in order to obtain adequate training areas and ranges to support current and future Army and Joint force mobilization, mission rehearsal and training requirements." AR 276 at 0019157.[2] A second Analysis of Alternatives Study and a Land Use Requirements Study, both dated April 12, 2005, addressed expansion. *See* A.R. 153 & A.R. 154.

In November 2005, the Army published in the Federal Register a notice of intent to prepare an environmental impact statement for the purpose of examining the impacts to the PCMS resulting from the recommendations of the 2005 Base Closure and Realignment Commission. A.R. 142. In April, 2006, the Army conducted public hearings regarding the issues to be addressed in the PCMS Transformation EIS.

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[2]A revised version of the Piñon Vision 05-09, was published in January 2006, entitled "Piñon Vision OPLAN 05-18." A.R. 275.

In July 2006, the Army submitted a formal request to the Deputy Under Secretary of Defense, seeking approval to acquire up to 418,577 acres of land in and around the PCMS. A.R. 274.

In apparent recognition of the legal and political complexity of acquiring more land to increase the size of the PCMS, the Army decided to proceed with an assessment of the environmental impacts of increased use of the present facility. Accordingly, on October 13, 2006, the Army published a Draft PCMS Transformation Environmental Impact Statement, identifying the proposed action as (1) increased frequency, duration and intensity of training exercises at the PCMS; (2) construction of new facilities in the cantonment, and (3) construction of new facilities in the training areas ("the Proposed Action"). A.R. 38 at 0001244.

The Army held public hearings in November 2006 on the Draft PCMS Transformation Environmental Impact Statement. Those hearings were followed by another public comment period, which ended on February 16, 2007.

On February 8, 2007 – eight days before the close of the public comment period, the Office of the Secretary of Defense approved the Army's request for a waiver of the moratorium on land acquisition. A.R. 13. Despite that approval, the Army issued the Final PCMS Transformation Environmental Impact Statement in June, 2007. On August 2, 2007, the Army issued the ROD, authorizing construction of new facilities in the cantonment area, construction of new facilities in the training areas, and an increased use of training areas at the PCMS. A.R. 3.

On April 23, 2008, Plaintiffs Not 1 More Acre!, Jean Aguerre, Mack Louden, and James E. Herrell initiated this action under the APA and NEPA, challenging the sufficiency of the Final

PCMS Transformation EIS. Not 1 More Acre! is a Colorado non-profit corporation formed to promote the ecological and economic welfare of southeastern Colorado. The individual Plaintiffs are residents of southeastern Colorado who are interested in preserving the agricultural, scientific, cultural, and economic resources of the region and protecting the land within and surrounding the PCMS. The Plaintiffs' standing to pursue this action is not challenged.

NEPA requires federal agencies to prepare an environmental impact statement before taking any "major Federal actions significantly affecting the quality of the human environment . . . ." 42 U.S.C. § 4332(2)(C); 40 C.F.R. pt. 1501. An environmental impact statement must discuss the purpose and need for the proposed action, environmental impacts resulting from the action, unavoidable adverse environmental impacts, alternatives to the proposed action, the relationship between short-term uses and long-term productivity, and the amount of resources that must be devoted to the proposed action. 42 U.S.C. § 4332(2)(C)(i)-(v); 40 C.F.R. § 1502.10.

The judicial review provisions of the APA govern this suit. *Utah Shared Access Alliance v. Carpenter*, 463 F.3d 1125, 1134 (10th Cir. 2006), *cert. denied*, 127 S. Ct. 2100 (2007). The question is whether the challenged agency action is "arbitrary, capricious, an abuse of discretion, or otherwise not in accordance with law" or "without observance of procedure required by law." 5 U.S.C. § 706(2)(A), (D). "Because NEPA imposes procedural rather than substantive requirements, the role of the courts in reviewing compliance with NEPA is simply to ensure that the agency has adequately considered and disclosed the environmental impact of its actions and that its decision is not arbitrary and capricious." *Lee v. U.S. Air Force*, 354 F.3d 1229, 1237 (10th Cir. 2004)(quotation marks and citation omitted). "Under this standard, [the reviewing court] must consider whether 'the [agency's] decision was based on a consideration of the

relevant factors and whether there has been a clear error of judgment.'" *Utah Envtl. Cong. v. Richmond*, 483 F.3d 1127, 1134 (10th Cir. 2007) (quoting *Citizens to Preserve Overton Park, Inc. v. Volpe*, 401 U.S. 402, 416 (1971)). "An agency action is arbitrary and capricious 'if the agency . . . entirely failed to consider an important aspect of the problem, offered an explanation for its decision that runs counter to the evidence before the agency, or [if the decision] is so implausible that it could not be ascribed to a difference in view or the product of agency expertise.'" *Utah Envtl. Congress*, 483 F.3d at 1134 (quoting *Motor Vehicle Mfrs. Ass'n v. State Farm Mut. Auto. Ins. Co.*, 463 U.S. 29, 43 (1983)).

The focus of review in an APA action is the administrative record. *Camp v. Pitts*, 411 U.S. 138, 142 (1973).

In the first claim for relief, the Plaintiffs allege that the EIS is deficient because it does not address the Army's plan to acquire more land to expand the PCMS. The Plaintiffs contend that the Final PCMS Transformation EIS is improperly narrow in scope, arguing that the proposed territorial expansion must be considered as a cumulative impact, a connected action, or other similar action.

"Scope consists of the range of actions, alternatives, and impacts to be considered in an environmental impact statement." 40 C.F.R § 1508.25. Proposals or parts of proposals that are "related to each other closely enough to be, in effect, a single course of action" must be evaluated in a single environmental impact statement. 40 C.F.R. § 1502.4(a). An agency must consider "connected actions," "cumulative actions," and "similar actions." 40 C.F.R §§ 1502.4(a) & 1508.25.

Actions are considered connected if they: "(i) Automatically trigger other actions which may require environmental impact statements; (ii) Cannot or will not proceed unless other actions are taken previously or simultaneously; or (iii) Are interdependent parts of a larger action and depend on the larger action for their justification." 40 C.F.R. § 1508.25(a)(1)(i)-(iii). The Tenth Circuit Court of Appeals has recognized that projects that have independent utility are not connected actions under 40 C.F.R. § 1508.25(a)(1)(iii). *See Custer County Action Ass'n v. Garvey*, 256 F.3d 1024, 1037(10th Cir. 2001).

Cumulative actions are those which have cumulatively significant impacts when viewed with other proposed actions. 40 C.F.R. § 1508.25(a)(2). A cumulative impact is "the impact on the environment which results from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions." 40 C.F.R. § 1508.7. The test for whether particular actions should be considered cumulative impacts of the proposed action is "whether the actions are 'so interdependent that it would be unwise or irrational to complete one without the others.'" *Airport Neighbors Alliance, Inc. v. United States*, 90 F.3d 426, 430 (10th Cir. 1996) (quoting *Park County Res. Council, Inc. v. U. S. Dep't of Agric.*, 817 F.2d 609, 623 (10th Cir. 1987)).

Similar actions are ones "which when viewed with other reasonably foreseeable or proposed agency actions, have similarities that provide a basis for evaluating their environmental consequences together, such as common timing or geography." 40 C.F.R. § 1508.25(a)(3).

"To determine the appropriate scope for an EIS, courts have considered factors such as whether the proposed segment (1) has logical termini, (2) has substantial independent utility,

(3) does not foreclose the opportunity to consider alternatives, and (4) does not irretrievably commit federal funds for closely related projects." *Utahns for Better Transp. v. U.S. Dep't of Transp.*, 305 F.3d 1152, 1183 (10th Cir. 2002), *modified,* 319 F.3d 1207 (10th Cir. 2003). An environmental impact statement does not need to include an assessment of future action that is uncertain or speculative. *See, e.g.*, *Airport Neighbors Alliance, Inc. v. United States,* 90 F.3d 426, 431 (10th Cir. 1996) ("[R]equiring a cumulative EIS analyzing possible future actions postulated in a twenty-year Master Plan that are far from certain would result in a gross misallocation of resources, would trivialize NEPA and would diminish its utility in providing useful environmental analysis for major federal actions that truly affect the environment." (quotation marks and citation omitted)).

The Final PCMS Transformation EIS addresses the relationship between the Proposed Action and potential future expansion. The EIS states:

> The transformation Proposed Action incorporates modifications to training requirements in ways that best meet training needs (see Section 2.2.4.2) and can be implemented as a stand-alone action (i.e., troop realignment, training, and construction) that does not require expanding the PCMS boundaries. That is, land acquisition is not necessary or proposed to implement the Proposed Action in the PCMS Transformation [Final] EIS.

Id. at 0000077. The EIS explains:

> The Army has not made any irretrievable commitment of resources for expansion; transformation can and should occur independent of expansion (i.e., it has independent utility and, as noted previously, the needs for transformation are immediate), expansion is not dependent on transformation, and approval of transformation will not force expansion to occur.

Id. at 0000453. *See also* Section 1.3.3, "Potential Future Expansion of the PCMS" (*id.* at 0000065-67).

The Plaintiffs' first claim for relief fails. In November 2005, when the Army moved forward with that NEPA process for the Proposed Action, there were no developed plans for territorial expansion that would permit assessment or evaluation under NEPA.[3]

In the second claim for relief, the Plaintiffs claim that the Final PCMS Transformation EIS is deficient for failing to consider an adequate range of alternatives. The focus of this claim is that aspect of the Proposed Action relating to increased frequency, duration and intensity of training exercises at the PCMS.

The Defendants argue that the Plaintiffs waived any argument with respect to whether the EIS should have considered different training intensities at the PCMS, asserting that the Plaintiffs failed to address the issue in their comments on the Draft EIS. That objection is without merit. When the Plaintiffs submitted comments on the Draft EIS, they faulted the Army for failing to provide sufficient details about the expected level of use and for limiting the range of alternatives considered. *See* A.R. 271 at 0018485 – 502. Among other comments, the Plaintiffs stated:

> In the absence of reliable information about anticipated use, agency officials and the public lack a sound basis for distinguishing among the various alternatives and thereby making a reasoned choice of action. The failure to disclose expected use

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[3]Documents in the court record indicate that the Army's plans to expand the territorial boundaries of the PCMS have not progressed as originally planned, due to political opposition and budgetary restraints. A GAO report dated January 13, 2009 states, "After reassessing its initial plans, the Army reported that it now identifies a potential acquisition of 100,000 acres rather than the previously identified 418,577 acres for a variety of reasons including budgetary restraints, concerns about historic and culturally sensitive sites, and that a smaller expansion would affect a fewer number of landowners." (Pl.'s reply, Ex. 12.) Congress enacted budgetary restrictions in 2008 and 2009 that preclude the Army from expending military construction appropriations on the expansion of the PCMS and require the Army to submit reports to the congressional defense committees on the need for additional training land and related issues. (Defs.' surreply at 12-13.)

> levels in the DEIS is a critical flaw that prevents the public from understanding the extent of potential significant environmental impacts. As a result, the Army relies upon vague or generalized assertions describing the expected impacts to resource values.

Id. at 0018496. The Army was fairly informed of the Plaintiffs' challenge to the EIS.[4]

At the hearing on June 3, 2008, the Court questioned the sufficiency of the EIS's impacts analysis. The Defendants objected to consideration of this issue, arguing that it was outside the scope of the pleadings. At the Defendants' request, supplemental briefing was permitted.

There is no prejudice to the Defendants in analyzing this issue.

The Tenth Circuit Court of Appeals has instructed that when an agency makes an informed decision that the environmental impacts will be small, a less extensive search for reasonable alternatives is required. *See Greater Yellowstone Coal. v. Flowers*, 359 F.3d 1257, 1278-79 (10th Cir. 2004) (referring to "the sliding scale by which we must measure an agency's obligations"). Conversely, when the environmental impacts would be significant, a more rigorous alternatives analysis is required. Accordingly, the Plaintiff's challenge to the EIS's alternatives analysis necessarily requires review of the Army's conclusions about the anticipated environmental impacts associated with the Proposed Action and the plan for mitigation.

The EIS evaluated two alternatives – the Preferred Alternative and the No Action Alternative. The Army determined that other alternatives, such as training troops at other locales or varying training schedules, were not reasonable alternatives because such alternatives would unduly restrict the Army's ability to implement transformation. Only the Preferred Alternative and the No Action Alternative were carried forward for detailed analysis in the EIS. The Army

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[4]Others, such as the Colorado Department of Wildlife and the Sierra Club, made similar comments. *See* A.R. 10 at 0000832 & 0000930-931.

concluded that the No Action alternative was not feasible because troop realignment at Fort Carson has been mandated by Congress. The Army also concluded that "with implementation of mitigation and best management practices . . . there would be no significant environmental impacts associated with the selected action." A.R. 3 at 0000007; A.R. 10 at 0000200.

A major flaw of the EIS is that it contains only vague descriptions of the anticipated increase in use. The EIS states, "training under the Proposed Action may or may not be conducted 52 weeks per year." *Id.* at 0000156. The Proposed Action "includes the potential that an intensive level of training could occur over broad geographic areas or not at all." *Id.* at 0000456. The EIS states that "the Transformation Proposed Action was developed to accommodate maximum flexibility for implementation, even if installation commanders do not adopt the most intensive mission training strategy available to them." *Id.* at 0000455. The Army asserts that "[a]ctual use will be scheduled according to varying training needs and land condition, and is projected to be greater than the historical use and less than the total need." *Id.* at 0000725. These statements fail to provide any meaningful description of the anticipated intensity and frequency of the additional training activities to be conducted on this land and the consequences to the environment.

The Proposed Action permits the entire site to be used for training purposes every day of the year. *See* A.R. 10 at 0000156. Consequently, the Army's conclusion that there would be no significant environmental impacts is counter-intuitive. It is obvious that such intensive use of the PCMS prevents any meaningful mitigation of the resulting environmental impacts.

NEPA requires the agency to provide a detailed statement of "any adverse environmental effects which cannot be avoided should the proposal be implemented." 42 U.S.C. § 4332(C)(ii).

Accordingly, an EIS must address appropriate means for mitigating adverse environmental effects. Mitigation measures are relevant to the scope of the EIS, 40 C.F.R. § 1508.25(b); the alternatives to the proposed action, 40 C.F.R. § 1502.14(f), and the consequences of the proposed action, 40 C.F.R. 1502.16(h). The record of decision must address "whether all practicable means to avoid or minimize environmental harm from the alternative selected have been adopted, and if not, why they were not." 40 C.F.R. 1505.2(c). The Final PCMS Transformation EIS addresses mitigation in Section 3.0, along with the discussion of impacts on specific resource areas. Table 3-24 of the EIS (included in Section 3.14) summarizes anticipated environmental impacts and means for mitigation. A.R. 10 at 0000193-200. Section 6.0 of the ROD addresses mitigation. A.R. 3 at 0000009-12.

The EIS appears to address mitigation but there is no recognition of the need for scheduling training in a manner that permits rest, recovery and restoration of this fragile land.

The Administrative Record includes a copy of pages from an Army power point presentation entitled "Maneuver Alternatives Analysis," dated April 20, 2006, summarizing an internal analysis of two scenarios – the "PCMS Maximum Support of Training Alternative" and the "PCMS Sustainable Training Alternative." A.R. 108. The Army concluded that "[t]o achieve full sustainability at PCMS allows 4.4 months or 20 weeks of maneuver training per year at PCMS." *Id.* at 0002816. The Final PCMS Transformation EIS ignores this assessment.

The EIS states that the Army considered training scenarios of lower intensities but did not consider them to be reasonable alternatives to the Proposed Action. A.R. 10 at 0000096. By dismissing those scenarios, the Army rejected the sustainable training alternative described in the Maneuver Alternatives Analysis. The EIS acknowledges that increasing the frequency, duration

and intensity of training exercises, and particularly an increase in mechanized training exercises, will cause substantial disturbance to soils, vegetation, wildlife habitat and cultural resources at the PCMS, especially in the maneuver training areas. *Id.* at 0000201. The EIS represents that the continuation of existing land management and environmental programs would provide adequate means for sustainable land management. *Id.* at 0000193. That conclusion is inconsistent and irreconcilable with the Army's analysis in April 2006.

The deficiencies of this EIS are apparent when it is compared to the manner in which intensity of use and mitigation were addressed in the EIS for Training Land Acquisition. The Draft EIS for Training Land Acquisition describes detailed Land Use and Management Plans, developed to assess the potential impacts to each of the two sites then under consideration. A.R. 282 at 0019769. The Draft EIS describes three scenarios for each parcel: (1) a Balanced Use/Protection Scenario; (2) an Increased Use Scenario; and (3) an Increased Protection Scenario. *Id*. Seven major variables were evaluated in connection with each scenario. Of the seven factors, "Training Intensity" and "Time of Use" were considered "the key variables and . . . most indicative of potential impacts." *Id.* "Each parcel was divided into five Management Units for purposes of training control and rotation." *Id.* at 0019770. Training intensities for all scenarios were projected, based on determinations of the "carrying capacity" of units of land within each site. *Id.* The Draft EIS for Training Land Acquisition states that "[c]arrying capacities are practical bases for estimating the intensity of military training operations that can be imposed on a land area," and that when land is to be used for military operations, carrying capacity can be assessed by reference to "the vehicle-day . . . defined as a four hour period of

activity per day for a wheeled vehicle." *Id.* 0019807. The Final PCMS Transformation EIS does not include any comparable analysis.

When the Army decided to acquire the Pinon Canyon site, the Army selected the "increased use" scenario of the Land Use Management Plans ("LUMP") described in the Draft EIS. *See* A.R. 254 at 0013648 (explaining, in response to public comments, that "[t]he 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 carrying capacity consumption.") Even the Increased Use scenario contemplated that only three of the five management units would be used during any particular year, and that each unit would be allowed to rest for two full years out of every five. *See* Figure 2-9, A.R. 282 at 0019827. In addition, the LUMP designated periods of deferment (i.e., periods of no training exercises) from "15 December – 15 January and 1 April – 30 June," recognizing that these periods of the year are particularly important for the growth of grasses. *Id.* at 0019770. The LUMP also stated that training should be deferred "whenever excessively wet soil conditions occur to prevent abnormally severe damage to soil and vegetation." *Id.*

The Final PCMS Transformation EIS states, "Because of the limited quantitative baseline data, not all potential environmental effects resulting from increased training levels can be precisely determined at this time." A.R. 10 at 0000156. That representation lacks candor. From 1985 through 2002, the Army prepared After-Action Reports ("AARs"), summarizing training exercises conducted at the PCMS. These reports show that even those limited training exercises have had severe environmental consequences. The Army produced these reports to the Plaintiffs after the close of the period for public comment on the Draft PCMS Transformation

Environmental Impact Statement, in response to Freedom of Information requests. The Army argues that this information is irrelevant. To the contrary, it demonstrates the failure of the EIS to give consideration to foreseeable adverse environmental impacts of the expected increase in training exercises and the adequacy of the plans for mitigation.

The ROD permits use of the PCMS for unlimited training twenty-four hours per day, seven days per week, 365 days per year. That intense use precludes any meaningful mitigation of the environmental impact of military operations.

The conclusion that significant environmental impacts of such unlimited use can be avoided through mitigation practices represents a clear error of judgment, and the Army's authorization of the Proposed Action was arbitrary and capricious. Under these facts, the Army cannot rely on representations about the continuation of existing mitigation efforts to limit its impacts analysis or to limit the alternatives analysis as it did.

It is noteworthy that the Army rejected the "sustainable training alternative" on the ground that lower intensity training alternatives would not have satisfied the full range of training requirements of the transformation programs, yet the training requirements of Fort Carson cannot be met at the PCMS, even if use of that facility is unrestricted. The obvious conflict between the training needs of the troops at Fort Carson and use of the PCMS in an environmentally sustainable manner makes it apparent that the Army's purposes will not be accomplished without expansion of the PCMS. The decision not to include expansion in the subject EIS does not, in itself, make it deficient. It does expose the inadequacy of the limited effort to plan to mitigate the impact of the ROD.

"[I]t is well established that NEPA does not mandate particular results, . . . nor does it require agencies to elevate environmental concerns over other valid concerns." *Lee,* 354 F.3d at 1237 (quotation marks and citations omitted). The standard for judicial review under the APA is a "deferential one," *Lee*, 354 F.3d at 1236, particularly in matters involving military affairs. *See also Custer County Action Ass'n*, 256 F.3d at 1031 ("[C]ourts afford . . . a high degree of deference in the area of military affairs . . . ."). An agency's alternatives analysis is subject to review under the "rule of reason." *Custer County Action Ass'n*, 256 F.3d at 1040. While NEPA does not guarantee a particular outcome, NEPA does require the Army to give more careful consideration to the consequences of its proposed action than what appears in this EIS.

Accordingly, it is

ORDERED that judgment will enter vacating the Record of Decision dated August 2, 2007, authorizing the Proposed Action described in the Final Pinon Canyon Maneuver Site Transformation Environmental Impact Statement dated June 2007.

Dated: September 8, 2009

BY THE COURT:

s/Richard P. Matsch

Richard P. Matsch, Senior District Judge

DEPARTMENT OF THE ARMY
US ARMY INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, UNITED STATES ARMY GARRISON, FORT CARSON
1626 ELLIS STREET, SUITE 200
FORT CARSON, CO 80913

REPLY TO
ATTENTION OF

[Please note that your return correspondence should be addressed to the undersigned at 1626 O'Connell Street, Building 813, Fort Carson, Colorado, 80913.]

April 21, 2010

RECEIVED
APR 26 2010
BY:----------

Directorate of Public Works

Subject: Section 106 Consultation on a Proposed Plan to Construct Two Clamshell Shelters On or Adjacent to the Cantonment Area on the Pinon Canyon Maneuver Site (PCMS)

Ms. Jean Hinkle
Otero County Commissioners
P.O. Box 511
La Junta, Colorado 81050

Certified Mail Receipt No.:
7009 1410 0001 7922 6836

Dear Commissioners:

The purpose of this letter is to initiate Section 106 consultation for the proposed action to construct two clamshell shelters for use as maintenance facilities on or adjacent to the Cantonment area of the Pinon Canyon Maneuver Site (PCMS). The Fort Carson Cultural Resources Manager (CRM) has determined that this proposed action constitutes an undertaking in accordance with Section 106 (36 CFR 800.16[y]) of the National Historic Preservation Act (NHPA).

The attached report contains background information regarding this undertaking and subsequent review of the Area of Potential Effect (APE) by Fort Carson Cultural Resources personnel, as well as maps of the proposed location. As a result of our internal review and evaluation, the Fort Carson CRM proposes a determination of "*no historic properties affected*" in accordance with Section 106 (36 CFR 800.4(d)(1)) of the NHPA for the actions encompassed by this undertaking.

Should potential impacts to historic properties be identified in the future due to a change in the submitted scope of work and/or proposed location, or should activities be proposed beyond the scope of this undertaking, additional Section 106 consultation will be initiated as required. In the event that subsurface cultural materials are encountered during the construction monitoring phase of the project, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials Standard Operating Procedures will be implemented and Section 106 consultation initiated.

Enclosure 3. Photographs of proposed and alternate clamshell locations.

Primary Tracked Vehicle Clamshell Location (1)

Primary Tracked Vehicle Clamshell Location (2)

Alternate Tracked Vehicle Clamshell Location

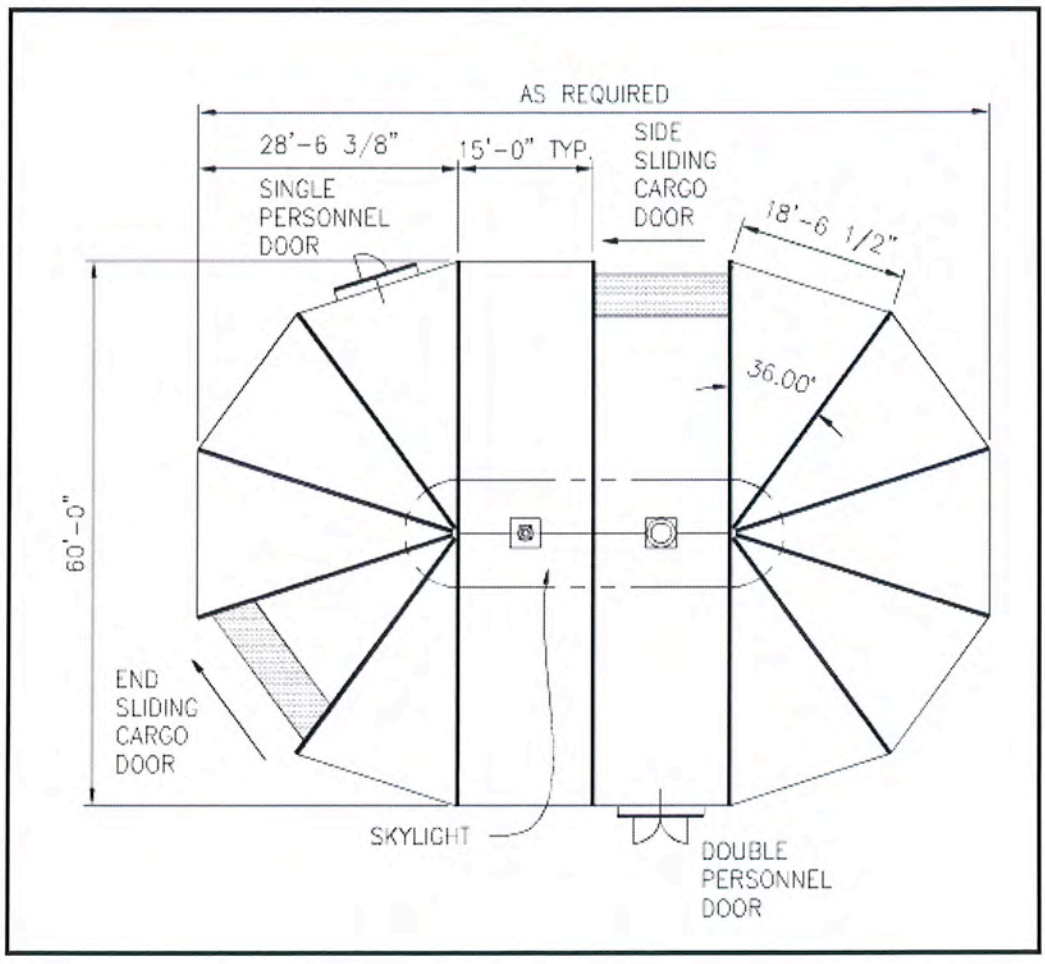
Primary Aircraft Clamshell Location

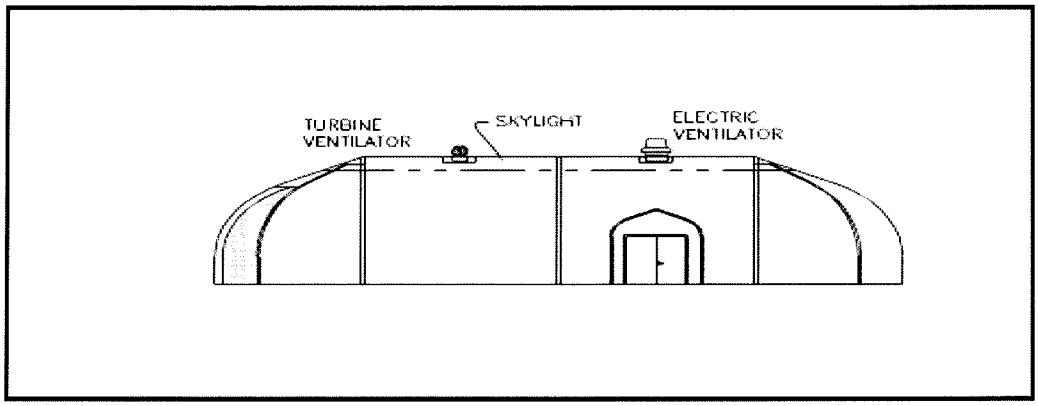
Alternate Aircraft Clamshell Location

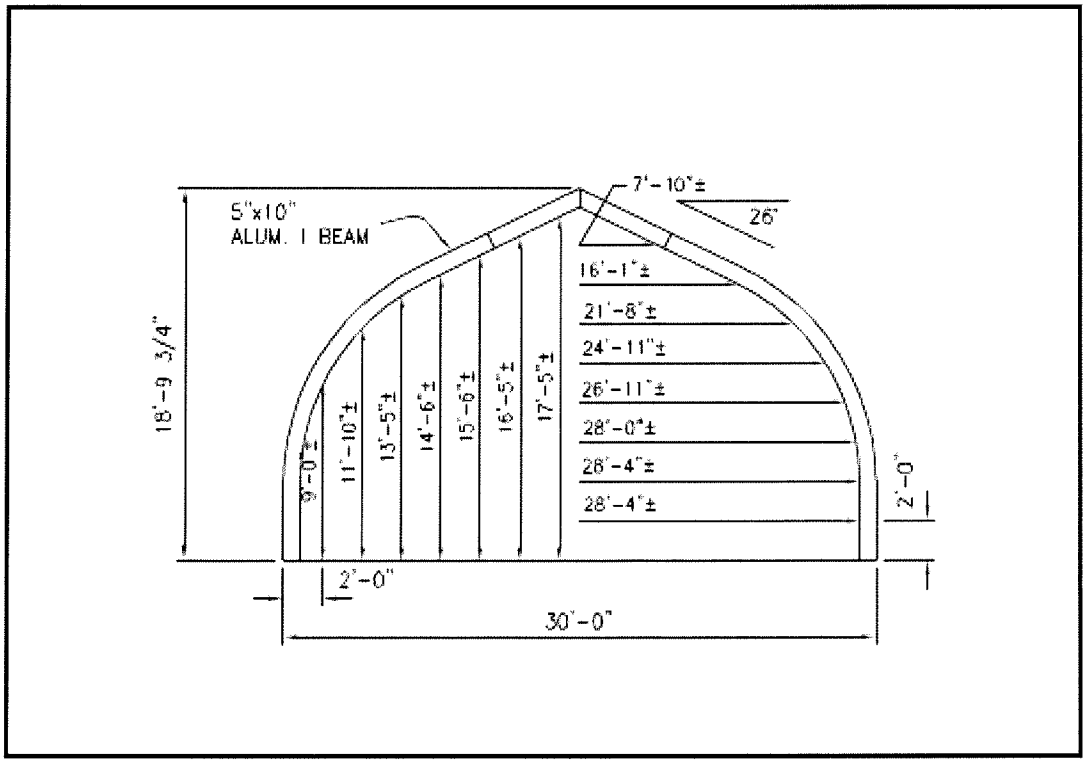
Enclosure 4. Photographs of proposed clamshell units and schematic drawings.

Photo of the clamshell membranes for this project showing the tan color of each unit.

(Schematic drawings below are intended as visual examples only – the actual measurements of the PCMS shelters will be as indicated in the "Description of Proposed Undertaking.")




TURBINE VENTILATOR
SKYLIGHT
ELECTRIC VENTILATOR


5"x10" ALUM. I BEAM
7'-10"±
26°
16'-1"±
21'-8"±
24'-11"±
26'-11"±
28'-0"±
28'-4"±
28'-4"±
18'-9 3/4"
9'-0"±
11'-10"±
13'-5"±
14'-6"±
15'-6"±
16'-5"±
17'-5"±
2'-0"
2'-0"
30'-0"

Enclosure 5. References.

Andrefsky, William.

1990 *An Introduction to the Archaeology of Pinon Canyon, Southeastern Colorado.* 6 vols. Prepared for National Park Service, Rocky Mountain Regional Office, Denver, Colorado, by Larson-Tibesar Associates, Inc., Laramie, Wyoming, and Centennial Archaeology, Inc., Fort Collins, Colorado.

Haynes, Robin A. and Beverly E. Bastian

1987 *Historical Architectural Evaluation of 49 Sites in the Pinon Canyon Maneuver Site (PCMS) for National Register of Historic Places Eligibility, Las Animas County, Colorado.* Prepared for United States Department of Interior, National Park Service, Rocky Mountain Regional Office, Denver, Colorado by Gilbert/Commonwealth Inc., Jackson, Michigan.

Owens, Mark

2010 Memorandum for Record: 2010 Resurvey of PCMS Cantonment Area (CF2010-010). Fort Carson Cultural Resources Management Program Document.

Fort Carson Cultural Resources Management Program
Review and Evaluation of the Proposed 2011-026 Land Rehabilitation and Management (LRAM) Projects on the Pinon Canyon Maneuver Site (PCMS)

November 3, 2010

List of Supplemental Enclosures:

1. Map showing the location of the LRAM projects on the PCMS.
2. LRAM Project Location Photographs.
3. Maps showing previously recorded archaeological sites/isolates and surveyed areas around PCMS LRAM project APEs.
4. Table listing isolated finds/sites near the LRAM APEs.
5. References.

Description of Undertaking:
The proposed undertaking consists of 3 LRAM (Land Rehabilitation and Management) projects (Enclosure 1) that are as follows:

1. Task 11-101 – PCMS Dam 442 Enhancement.
2. Task 11-108 – PCMS Dam Spillway Reductions (Dams 230, 235, 264, 447, and 467).
3. Task 11-117 – PCMS Dam 432 Enhancement.

Project 1: Task 11-101 – PCMS Dam 442 Enhancement:
An erosion control dam at the PCMS has lost much of its capacity, thus creating a safety hazard as it will blow out soon (Enclosure 2). In order to remediate this hazard, the erosion control dam will be widened to 25 feet using material excavated from its basin. A culvert will also be installed in the profile of the dam.

UTM Grid Location (WGS 1984)

Description	Easting	Northing
Center Point	580566	4149533

Area of Potential Effects (APE) for Project 1 and Determination of Affect:
Fort Carson's Cultural Resources Management Program (CRMP) personnel have completed review of this undertaking. The Area of Potential Effects (APE) for Project 1 was established in accordance with 36 CFR 800.16[d], and incorporates a 50 meter buffer to allow for the equipment necessary for all enhancement activities. Previously recorded cultural materials are located in close proximity but outside of the project APE (Enclosure 3).

5LA3499: Evaluated as "Eligible" in the field: This prehistoric camp and historic trash scatter locale is 240 meters outside of the Project 1 APE. The resource has also been fenced for protection during training. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA3499.

5LA5685: Evaluated as "Needs Data" in the field: This prehistoric camp is 25 meters west of, and outside, the Project 1 APE. Although evaluated as "Needs Data" the CRMP continues to manage "Needs Data" sites as being "Eligible" for the NRHP. The resource is also located 50 meters north of the western access road to the dam, providing sufficient maneuverability for heavy machinery to access the work location. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA5685.

5LA5686: Evaluated as "Not Eligible" in the field: This prehistoric open lithic scatter is located 15 meters to the north and outside of the Project 1 APE. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA5686.

5LA5687: Evaluated as "Not Eligible" in the field: This prehistoric camp is 200 meters south of the Project 1 APE. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA5687.

As a result of this internal review, the Fort Carson CRM proposes a determination of "*no adverse effect to historic properties*" in accordance with Section 106 (36 CFR 800.5[b]) of the National Historic Preservation Act (NHPA) for the actions proposed for Project 1.

Should potential impacts to historic properties be identified in the future due to a change in the submitted scope of work, proposed location, or due to activities proposed beyond the scope of this undertaking, additional Section 106 consultation will be initiated as required. In the event that subsurface cultural materials are encountered during construction activities, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials Standard Operating Procedures will be implemented and Section 106 consultation initiated.

Project 2: Task 11-108 – PCMS Dam Spillway Reductions:
The LRAM program is proposing the rehabilitation of several dams whose final capacity is larger than it should be. The proposed project work consists of retrofitting erosion control dams with lower spillways to assure that each dam retains no more than 2 acre feet of water. Spillways will be excavated using heavy equipment, and each will be covered with erosion control fabric and 5-12 inch rip rap. Specific dams and their locations are as follows:

UTM Grid Location (WGS 1984)

Description	Easting	Northing
Dam 230	580281	4147755
Dam 235	580731	4147225
Dam 264	584061	4146205
Dam 447	579701	4147185
Dam 467	583011	4143555

Area of Potential Effects (APE) for Project 2 and Determination of Affect:
Fort Carson's Cultural Resources Management Program (CRMP) personnel have completed review of this undertaking. The Area of Potential Effects (APE) for Project 2 was established in accordance with 36 CFR 800.16[d], and incorporates a 50 meter buffer to allow for the equipment necessary for all activities to occur at each dam. Previously recorded cultural materials exist in or near many APEs (Enclosure 3).

5LA3437: Evaluated as "Not Eligible" in the field: This multicomponent site consisting of a small prehistoric lithic scatter and historic trash scatter is 300 meters outside of the 11-108 Dam 235

APE. The site was also reevaluated by current CRMP personnel in 2003. Required reevaluation forms are attached as Enclosure 6. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA3437.

5LA3439: Evaluated as "Not Eligible" in the field: This small prehistoric lithic scatter is within the western edge of the 11-108 Dam 235 APE. The site will be monitored by CRMP personnel during the project in the unlikely event that the inadvertent discovery of cultural materials occurs. As such, Fort Carson's Cultural Resources Manager has determined that the subject undertaking poses no immediate or future adverse threat to Site 5LA3439.

5LA4061: "Not Eligible" (Isolated Find): This rock cairn is located 105 meters outside of the 11-108 Dam 230 APE to the east. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA4061.

5LA4358: "Not Eligible" (Isolated Find): This single chalcedony flake is located 169 meters outside of the 11-108 Dam 235 APE. As such, Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA43580.

5LA8154: "Not Eligible" (Isolated Find): This lone argillite flake is located 270 meters north of the Task 11-108 Dam 467 APE. As such. Fort Carson's CRM has determined that the subject undertaking poses no immediate or future adverse threat to the location of 5LA8154.

5LA8282: Officially "Not Eligible": This multicomponent prehistoric lithic scatter and historic trash scatter is 80 meters outside of the Task 11-108 Dam 447 APE. As such, Fort Carson's Cultural Resources Manager has determined that the subject undertaking poses no immediate or future adverse threat to Site 5LA8282.

5LA8627: "Not Eligible" (Isolated Find): This single sandstone mano fragment is located within the 11-108 Dam 447 APE on its northern edge. The site will be monitored by CRMP personnel during the project in the unlikely event that the inadvertent discovery of cultural materials occurs. As such, Fort Carson's Cultural Resources Manager has determined that the subject undertaking poses no immediate or future adverse threat to Site 5LA8627.

As a result of this internal review, the Fort Carson Cultural Resources Manager proposes a determination of *"no adverse effect to historic properties"* in accordance with Section 106 (36 CFR 800.5[b]) of the National Historic Preservation Act (NHPA) for the actions proposed for Project 6.

Should potential impacts to historic properties be identified in the future due to a change in the submitted scope of work, proposed location, or due to activities proposed beyond the scope of this undertaking, additional Section 106 consultation will be initiated as required. In the event that subsurface cultural materials are encountered during the proposed project work, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials Standard Operating Procedures will be implemented and Section 106 consultation initiated.

Project 3: Task 11-117 – Dam 432 Enhancement:
PCMS TA 7 Dam 432 (Enclosure 2) has become a safety hazard for training maneuvers. In order to remediate the hazard, the proposed work will entail expansion of the top of the erosion control dam to 25 feet wide and bank sloping, not to exceed 25%.

UTM Grid Location (WGS 1984)

Description	Easting	Northing
Center Point	591890	4139139

Area of Potential Effects (APE) for Project 3 and Determination of Affect:

Fort Carson's Cultural Resources Management Program (CRMP) personnel have completed review of this undertaking. The Area of Potential Effects (APE) for Project 3 was established in accordance with 36 CFR 800.16[d], and incorporates a 50 meter buffer to allow for the equipment necessary for all dam enhancement activities. The APE falls within a 2007 Fort Carson Cultural Resources Management Program survey area (Walkenhorst, report in progress). No cultural materials exist within or near the APE (Enclosure 3).

As a result of this internal review, the Fort Carson CRM proposes a determination of *"no historic properties affected"* in accordance with Section 106 (36 CFR 800.4[d][1]) of the National Historic Preservation Act (NHPA) for the actions proposed for Project 3.

Should potential impacts to historic properties be identified in the future due to a change in the submitted scope of work, proposed location, or due to activities proposed beyond the scope of this undertaking, additional Section 106 consultation will be initiated as required. In the event that subsurface cultural materials are encountered during construction activities, Fort Carson's Inadvertent Discovery of Archaeological Resources or Burials Standard Operating Procedures will be implemented and Section 106 consultation initiated.

Direct, Indirect, and Cumulative Effects of the Proposed Undertaking:

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

It is anticipated that this proposed undertaking would not result in significant adverse cumulative impacts due to the historic use of this area and the continued cultural resource management program and policies in place. Procedures and processes that Fort Carson implements to protect cultural resources are discussed in further detail below.

As mandated by federal law, it is current Fort Carson practice to conduct archaeological and historic building inventories and evaluations on resource areas prior to use by impact-generating activities, whether those activities be military training, construction, or other land management actions, such as erosion control and re-seeding efforts. For archaeological sites, once identified, each site is recorded, evaluated for eligibility on the National Register, and the cultural landscape is analyzed. If applicable, significant sites are set apart using a variety of site protection methods. In this way, the information gained ensures that the cultural characteristics and lifeways of those who have come before us is not lost to history, but rather contributes to it.

The information acquired is used for future land management, and is also made available to qualified researchers for professional purposes and used in the Cultural Resources Management Program's considerable educational outreach efforts.