Finding of No Significant Impact:
MQ-1C Gray Eagle Unmanned Aerial System (UAS) at Fort Carson, Colorado

Fort Carson has prepared an Environmental Assessment (EA) that evaluates potential environmental impacts of the Army's proposal to construct a UAS training complex and operate the unmanned aerial systems (MQ-1C Gray Eagle), at Fort Carson, CO.

Description of the Proposed Action

Fort Carson is proposing to operate and maintain the Gray Eagle unmanned aerial system (UAS) at Fort Carson. This will require construction and maintenance of appropriate facilities at Butts Army Airfield (BAAF) to be used for deployment and operation of the Army Gray Eagle (MQ-1C). The proposed construction would include an operations and maintenance hangar with shops, storage, supply, company administration, etc. for a total disturbance of approximately 8 acres, at BAAF on Fort Carson. Operation of the Gray Eagle would be conducted at Fort Carson, CO within the existing restricted airspace and adjacent airfield.

Purpose and Need

The purpose of the Proposed Action is to implement the UAS equipment, assignment and stationing decision described in the *2014 Aviation Force Structure Realignment* Record of Environmental Consideration by the Department of the Army for the stationing of an Aviation Regiment Gray Eagle Unit at Fort Carson, CO in Fiscal Year 17. The need for the Proposed Action is to provide adequate facilities, training and flight operations capability, and support for the new equipment and for assigned Soldiers and their Families.

Alternatives

The following criteria were utilized for selecting potential airfield facilities locations and evaluating their suitability for the Proposed Action. A suitable location would:

- meet mission and safety requirements
- avoid impacts on airspace safety zones
- avoid impacts on sensitive resources or allow environmentally sound mitigation to be accomplished within fiscal feasibility
- avoid the need for design measures exceeding fiscal feasibility
- be located in a compatible use area within travel distance for Aviation Units
- be located within or near Fort Carson's existing airfield
- be situated such that UAS operations would not impact civilian populations in the region

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

No Action Alternative

The No Action Alternative provides a basis of comparison for the Proposed Action and also addresses issues of concern by avoiding or minimizing effects associated with the Proposed Action. Under this alternative, the installation would not construct a new UAS training complex for Gray Eagle UAS operations. Since there are no existing facilities suitable for Gray Eagle operations on the installation, deployment of the Gray Eagle to

Fort Carson could not occur. Consequently, Soldiers training at Fort Carson would not receive the required Gray Eagle operations training at Fort Carson and would not be trained to operate the Gray Eagle in theater operations. This could impair the deployment and combat readiness of soldiers and their units.

Environmental Consequences
Potential direct, indirect, and cumulative impacts of the Proposed Action and No Action Alternative were identified in the analysis of the EA, which is attached and incorporated by reference in this Draft FNSI

Findings indicate that implementation of the Proposed Action would result in no significant adverse environmental consequences. The construction activity will have short term negative effects. Minor cumulative impacts are anticipated from airspace congestion on Fort Carson and increased production of hazardous waste associated with air operations and maintenance. Such impacts are mitigable through reasonable and attainable airspace management options and safeguards already in place for hazardous waste management which are subject to internal and external compliance controls and in accordance with appropriate federal, state, and local regulations. During flight operations, the Proposed Action may disturb wildlife such as bats and migratory birds, but that would not be significant. Fort Carson will continue to mitigate potential conflicts through implementation of the Butts Army Airfield Wildlife Aircraft Strike Hazard (WASH) Management Plan, and will continue to issue a seasonal one-half mile off limits buffer via Notice to Airman (NOTAM) to protect active Golden Eagle nests. Overall, the environment would not be significantly or adversely affected by proceeding with the Proposed Action or the alternative. No significant cumulative effects are expected.

Conclusion
The attached EA was prepared pursuant to Title 32 of the Code of Federal Regulations (CFR) Part 651 and U.S. Council on Environmental Quality (CEQ) regulations (Title 40 of the CFR, Parts 1500-1508) for implementing the procedural requirements of the National Environmental Policy Act (NEPA). The analysis contained in this EA indicates that neither the Proposed Action nor the Alternative, with minor mitigation, would have any significant adverse effects on the human or natural environment. Therefore, based on review of the EA, I conclude that the Proposed Action, the Army's preferred alternative, is not a major federal action that would significantly affect the quality of the environment within the meaning of Section 102(2)(c) of NEPA. Accordingly, no Environmental Impact Statement (EIS) is required. With this finding, I approve selection of the proposed action.

Date: 1 APR 15

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

ENVIRONMENTAL ASSESSMENT FOR THE MQ-1C GRAY EAGLE UNMANNED AERIAL SYSTEM (UAS) AT FORT CARSON, COLORADO

Fort Carson, CO
November 2014

ENVIRONMENTAL ASSESSMENT FOR THE MQ-1C GRAY EAGLE UNMANNED AERIAL SYSTEM (UAS) AT FORT CARSON, COLORADO

Fort Carson, CO
November 2014

Prepared By:

Deb Benford
Directorate of Public Works, Environmental Division
1626 Evans Street, Bldg 1219
Fort Carson, Colorado 80913-4362

Reviewed By:
William Hennessy
Environmental Law Specialist, Fort Carson
Fort Carson
Army Environmental Command

Submitted By:

Hal Alguire
Director
Public Works
Fort Carson, Colorado

26 March 2015
Date

Approved By:

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

1 APR 15
Date

Table of Contents

List of Figures

List of Tables

ENVIRONMENTAL ASSESSMENT
for the MQ-1C Gray Eagle Unmanned Aircraft System (UAS), Fort Carson, CO

1.0 PROPOSED ACTION PURPOSE, NEED, AND SCOPE

This chapter presents the purpose and need for the Proposed Action; defines the scope of the environmental analysis and issues to be considered; identifies decisions to be made; and identifies other relevant documents and actions.

1.1 Introduction

Fort Carson is home to the 4th Infantry Division and is one of the premier training facilities in the Army and a power projection platform (PPP). A PPP is an Army installation that strategically deploys one or more high priority active component brigades or larger units and/or mobilizes and deploys high priority Army reserve component units. Currently, the military population on Fort Carson is approximately 26,500. A reduction of about 2,500 is anticipated by the end of the Fiscal Year (FY) 15. Fort Carson trains, mobilizes, deploys, and sustains combat-ready forces. Fort Carson can accommodate a wide variety of training including extensive maneuver training (both mounted and dismounted), airborne training, and weapons training. The Butts Army Airfield on Fort Carson is an active airfield used primarily by Army rotary-wing aircraft.

Fort Carson is located south of Colorado Springs, Colorado, east of the Rocky Mountain Front Range, and occupies portions of El Paso, Pueblo, and Fremont counties. Fort Carson is generally bounded by State Highway 115 on the west and by Interstate 25 and mixed development on the east. The City of Pueblo lies approximately 10 miles south of Fort Carson's southern boundary. The City of Fountain is located east of Fort Carson. Fort Carson comprises approximately 137,000 acres and ranges from 2 to 15 miles from east to west and up to 24 miles from north to south (Figure 1-1).

The Piñon Canyon Maneuver Site (PCMS) is located in southeastern Colorado in Las Animas County, approximately 150 miles southeast of Fort Carson. PCMS is bounded by United States Highway 350 (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 includes a small cantonment area at the entrance gate on US 350, containing austere facilities to support training (Figure 1-2).

Fort Carson proposes to operate and maintain the Gray Eagle unmanned aerial system (UAS) at Fort Carson. This will require construction and maintenance of appropriate facilities at Butts Army Airfield (BAAF) to be used for deployment and operation of the Army Gray Eagle (MQ-1C)(See Figure 1-3). Operation of the Gray Eagle would be conducted at Fort Carson, CO within the existing restricted airspace (RA), launched from the adjacent Butts Army Airfield, and then transit the area between the RA and airfield identified in a Certificate of Authorization.

The Gray Eagle UAS program was assessed in the *Final Life Cycle Environmental Assessment (LCEA) for the Extended Range/Multi-Purpose (ER/MP) Unmanned Aerial Vehicle System*, for which a Finding of No Significant Impact (FNSI) was signed in December 2004 (Army 2004). In 2013, an Army Structure Memorandum that

outlines the FY 2014 to FY 2019 force structure approved by the Secretary of the Army was issued. A stationing action for the UAS personnel at Fort Carson was documented in a *Record of Environmental Consideration (REC) for the MQ-1C Gray Eagle UAS Stationing*, which was signed 31 July, 2014 (Army 2014) and is included at Attachment J. This Environmental Assessment (EA) incorporates the aforementioned documents by reference, and will assess the environmental impacts associated with implementing those decisions and requirements on a local level to comply with the directives and provide training support for Soldiers in UAS operations.

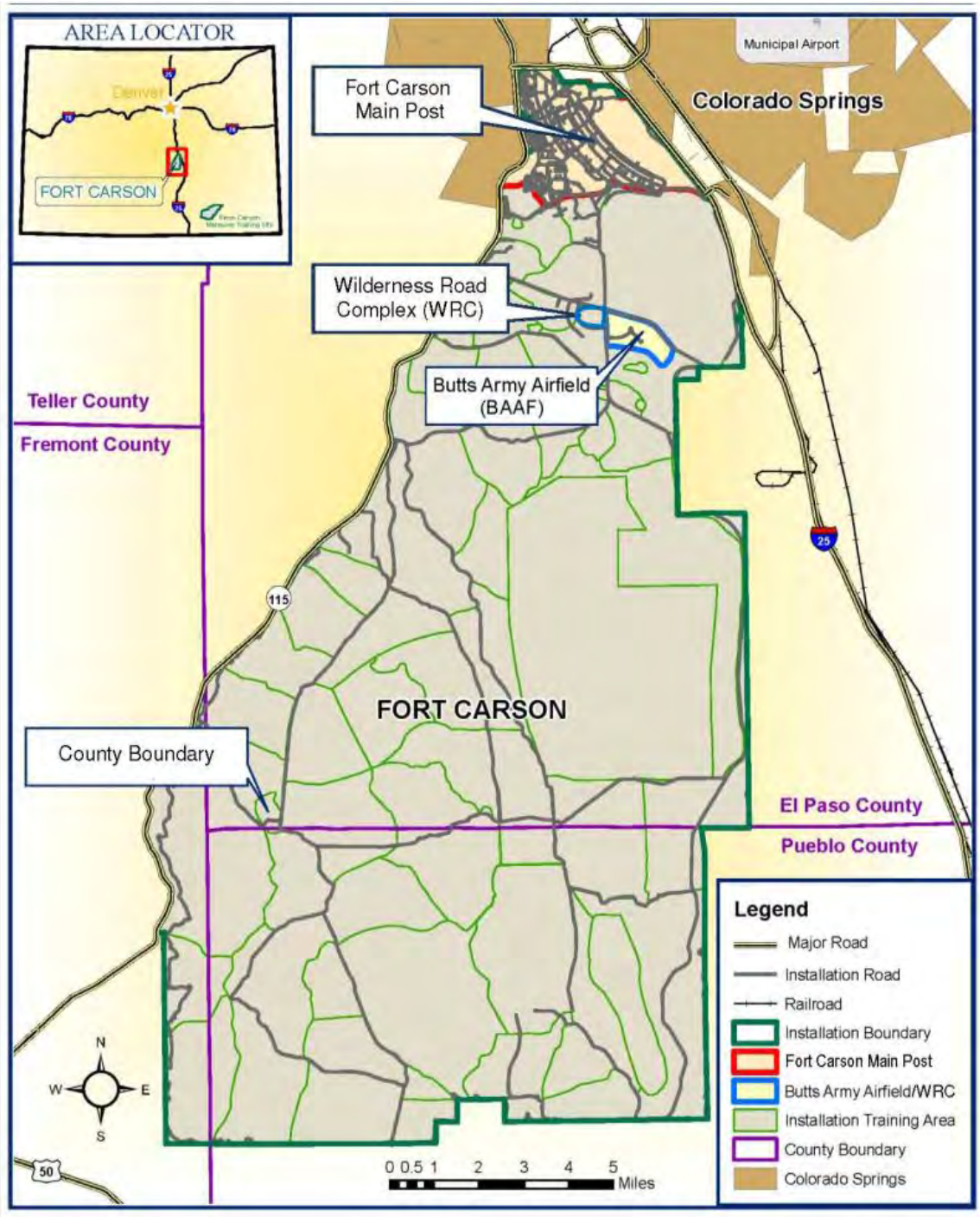


Figure 1-1. Fort Carson, Colorado

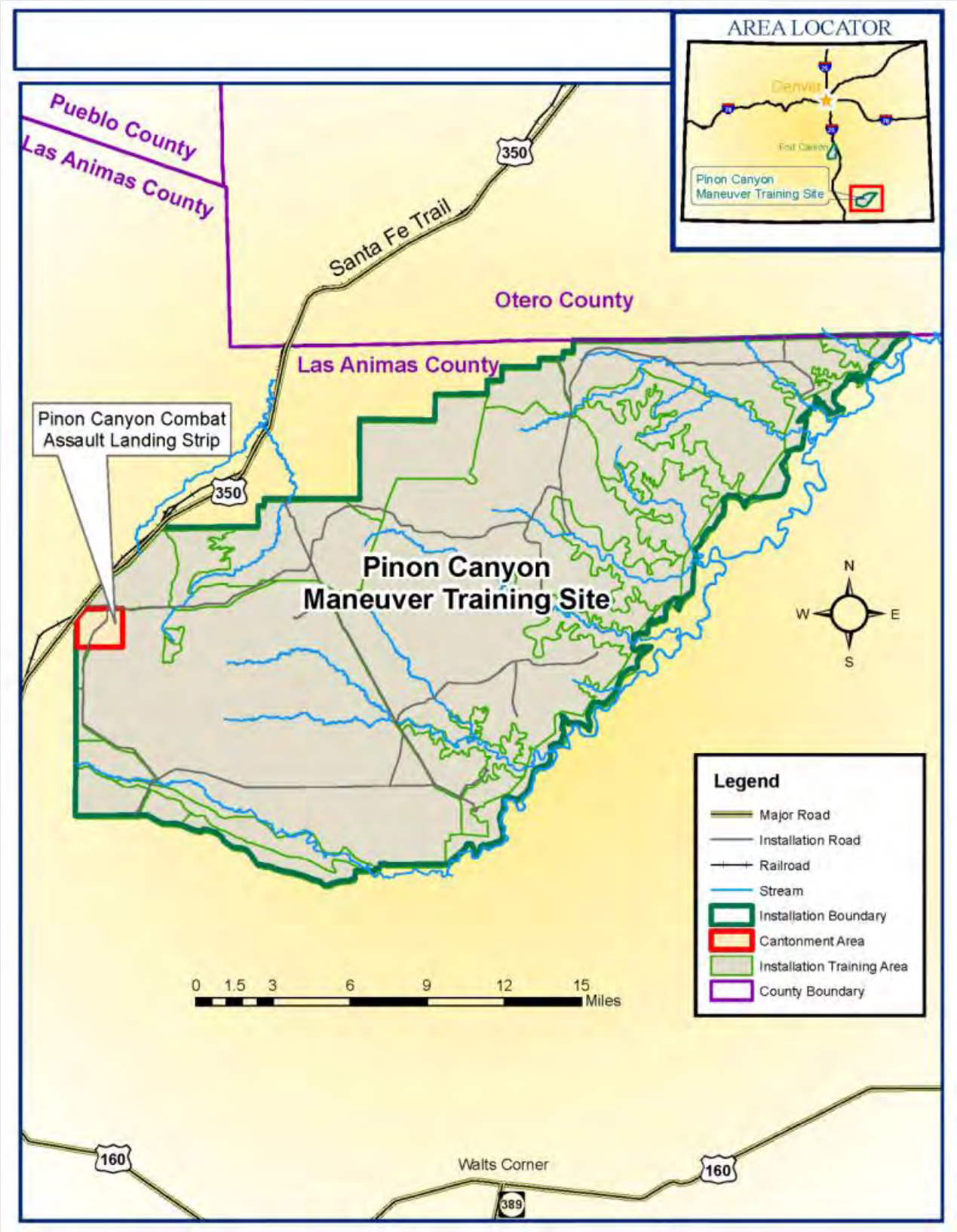


Figure 1-2. Piñon Canyon Maneuver Site, Colorado

Figure 1-3. MQ-1C Gray Eagle

The Gray Eagle is a weapons-capable UAS primarily used in Reconnaissance, Surveillance, and Target Acquisition (RSTA), Command, Control, Communications, Computers, and Intelligence (C4I) roles in support of the Corps/Unit of Employment (UE) and below (Army 2004). The Gray Eagle is medium-sized aircraft powered by a heavy fuel (diesel), turbocharged piston engine (see Figure 1-3). It has a wingspan of 56.3 feet (ft) and a length of 29 ft, with a maximum speed of 170 miles per hour and a flight endurance of 36 hours. Maximum takeoff weight is 3,600 pounds with full fuel and a payload of reconnaissance equipment and/or four Hellfire missiles, and it can operate up to an altitude of 29,000 ft.

Fort Carson presently has only one airfield (BAAF) that would meet the operational requirements for the Gray Eagle. BAAF is located on Fort Carson within Class D controlled airspace. BAAF is adjacent to but not within Fort Carson's military restricted airspace (R2601). The Gray Eagle would land and take off from BAAF and then transit to the military restricted airspace for operations and training. Therefore, a Federal Aviation Administration (FAA) Certificate of Authorization (COA) would be required for UAS flights as they transit between BAAF and the restricted airspace (Figure 1-4). A COA is a permit issued by the FAA for operation of aircraft in controlled airspace at a specified location with controls in place to prevent conflicts with other aircraft and to preserve the safety of persons and facilities on the ground. If the COA is granted, the Gray Eagle would use the airfield to take off and land, then transit to the restricted airspace, but all other flight training operations would occur in the existing military restricted airspace R2601. R2601 follows the installation boundary from Wilderness Road south. It does not include the northern portion (main post area) of the installation.

Support for the proposed action will include some construction. Currently, there are no facilities on Fort Carson which are suitable to house and support the proposed Gray Eagle Company. To meet these requirements, a Gray Eagle Hangar complex would need to be constructed on Fort Carson's BAAF. To that end, the proposed action will support the stationing of an Aviation Regiment Gray Eagle Unit at Fort Carson, CO. The unit will be assigned to Fort Carson in Fiscal Year (FY) 17.

The assignment and operation of the Gray Eagle would enhance the Combat Aviation Brigade (CAB) training at Fort Carson by integrating a key reconnaissance and support asset of the modern battle space. This will meet an important training requirement and enable combat units to integrate UAS resources to support Overseas Contingency Operations. The UAS would provide real-time battlefield intelligence gathering and unmanned aerial attack capabilities to ground units at the Division level.

If the Proposed Action is not implemented, Gray Eagle training at Fort Carson would not be available to CAB units to support the Army mission. Support to Soldiers on the battlefield would be compromised because Fort Carson ground combat units would lack the collective training integration opportunities, and reconnaissance and critical real-time intelligence capability of these unmanned aircraft.

1.2 Purpose and Need

The purpose of the Proposed Action is to implement the Gray Eagle equipment, assignment and stationing decisions made by the Department of the Army for the stationing of an Aviation Regiment Gray Eagle Unit at Fort Carson, CO in FY 17. The need for the Proposed Action is to provide adequate facilities, training and flight operations capability, and support for the new equipment and for assigned Soldiers and their Families.

1.3 Scope of Analysis

This EA has been developed in accordance with the National Environmental Policy Act (NEPA) of 1969 and implementing regulations issued by the President's Council on Environmental Quality (CEQ) at 40 Code of Federal Regulations (CFR) Parts 1500-1508 and the Army's NEPA-implementing regulations at 32 CFR Part 651. Its purpose is to inform decision-makers and the public of the likely environmental consequences of the Proposed Action and Alternatives.

This EA describes the potential environmental consequences resulting from the Proposed Action and the Alternatives on the following resource areas: Air Quality, Airspace, Biological Resources, Water Resources, Soils, Cultural Resources, Noise, Hazardous Materials/Waste, Traffic and Transportation, and Utilities.

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

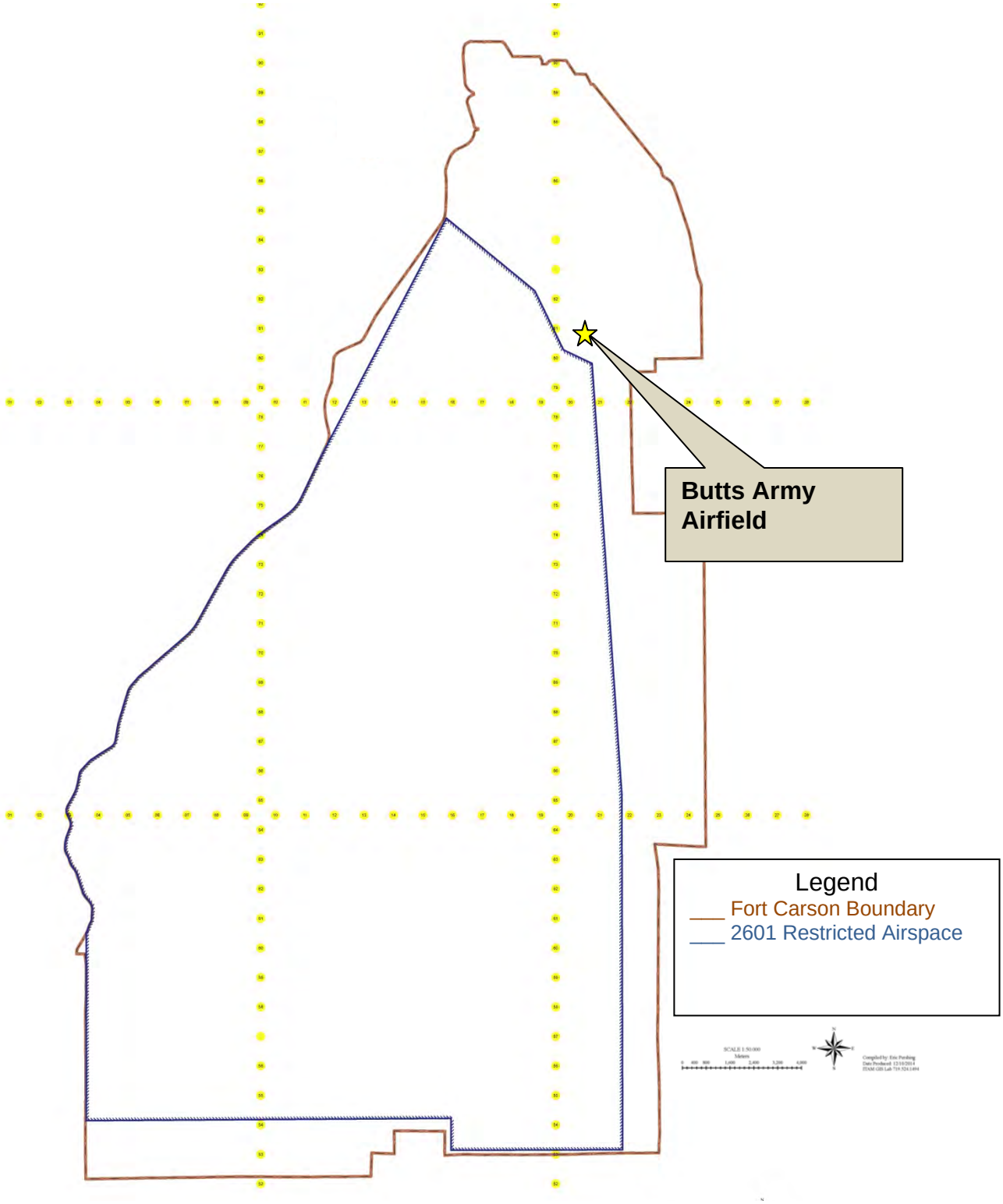


Figure 1-4. Fort Carson Restricted Airspace

1.4 Decision(s) To Be Made

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

1.5 Agency and Public Participation

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

Upon completion, the proposed action and the entire record will be reviewed and the Army will determine the foreseeable impacts and the need for mitigation. If the proposed action remains within the assessment parameters described in this document, the EA along with a Draft FNSI, with mitigation measures if applicable, will be available to the public for 45 days, starting from the last day of publication of the Notice of Availability (NOA) in the local media. The documents will be available at: http://www.carson.army.mil/DPW/nepa.html

At the end of the 45-day public review period, the Army will consider all comments submitted by individuals, agencies, or organizations on the Proposed Action, EA, and Draft FNSI. Copies of individual comment letters and the associated responses received during this period will be included in the final documentation in Appendix A.
Anyone wishing to comment on the Proposed Action or request additional information should contact the Fort Carson NEPA Coordinator, Directorate of Public Works; Environmental Division at: usarmy.carson.imcom-central.list.dpw-ed-nepa@mail.mil

1.6 Legal Framework

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

- Clean Air Act;
- Clean Water Act;
- Noise Control Act;
- Endangered Species Act;
- Migratory Bird Treaty Act;
- National Historic Preservation Act;

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

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This section describes alternatives to the Proposed Action. 32 CFR Part 651 (AR 200-2) and Council on Environmental Quality regulations (40 CFR Parts 1500 -1508) require the identification of reasonable alternatives to the Proposed Action, including the No Action Alternative. The Proposed Action is identified as the Army's preferred alternative.

2.1 Criteria for Evaluating Alternative Sites

The following criteria were utilized for selecting potential airfield facilities locations and evaluating their suitability for the Proposed Action. A suitable location would:

- meet mission and safety requirements
- avoid impacts on airspace safety zones
- avoid impacts on sensitive resources or allow environmentally sound mitigation to be accomplished within fiscal feasibility
- avoid the need for design measures exceeding fiscal feasibility
- be located in a compatible use area within travel distance for Aviation Units
- be located within or near Fort Carson's existing airfield
- be situated such that UAS operations would not impact civilian populations in the region

2.2 No Action Alternative

The No Action Alternative provides a basis of comparison for the Proposed Action and also addresses issues of concern by avoiding or minimizing effects associated with the Proposed Action.

Under this alternative, the installation would not construct a new UAS hangar complex for Gray Eagle operations. Since there are no existing facilities suitable for Gray Eagle operations on the installation, deployment of the Gray Eagle Company to Fort Carson could not occur. Consequently, the CAB Soldiers training at Fort Carson would not receive the required Gray Eagle operations training at Fort Carson and would not be

trained to operate the Gray Eagle in theater operations. This could impair the deployment and combat readiness of Soldiers and their units.

2.3 Proposed Action

2.3.1 Hangar Construction

Fort Carson proposes to construct, operate, and maintain a UAS hangar complex for the Gray Eagle Company. The new complex and equipment would be used for training of Soldiers for deployment.

Construction would include an operations and maintenance hangar with shops, storage and supply, company administration, tool and parts storage, petroleum, oil and lubricant storage, hazardous waste storage, aircraft container storage, organizational equipment storage, organizational vehicle parking, fire protection and alarm systems, Intrusion Detection System (IDS) installation, Energy Monitoring Control Systems (EMCS) connection and building information systems. The proposed hangar would be an approximately 52,000 square feet (ft^2) two-story building located at the east end of Son Tay Road at BAAF on Fort Carson (see Figures 2-3a and 2-3b).

Work would also include a hangar access/maintenance apron, runway extension and overrun, and taxiways. Supporting facilities include site development, site improvements, utilities and connections, lighting, paving, parking, walks, storm drainage, information systems, landscaping and signage. The estimated area of disturbance is as follows:

- 52,100 ft^2 UAV Maintenance Hangar
- 2,100 ft^2 Organizational Equip. Storage
- 2,250 ft^2 Container Storage Shed
- 180 ft^2 POL Storage Building
- 120 ft^2 Hazardous Waste Storage
- 63,000 ft^2 Fixed Wing Runway Extension
- 20,313 ft^2 Runway Overrun
- 22,500 ft^2 Fixed Wing Taxiway
- 67,050 ft^2 Overrun & Taxiway Upgrades
- 16,650 ft^2 Hangar Access Apron
- 104,895 ft^2 Organizational Vehicle Parking
- For a total of 351,158 ft^2. The total area anticipated to be disturbed is just over 8 acres.

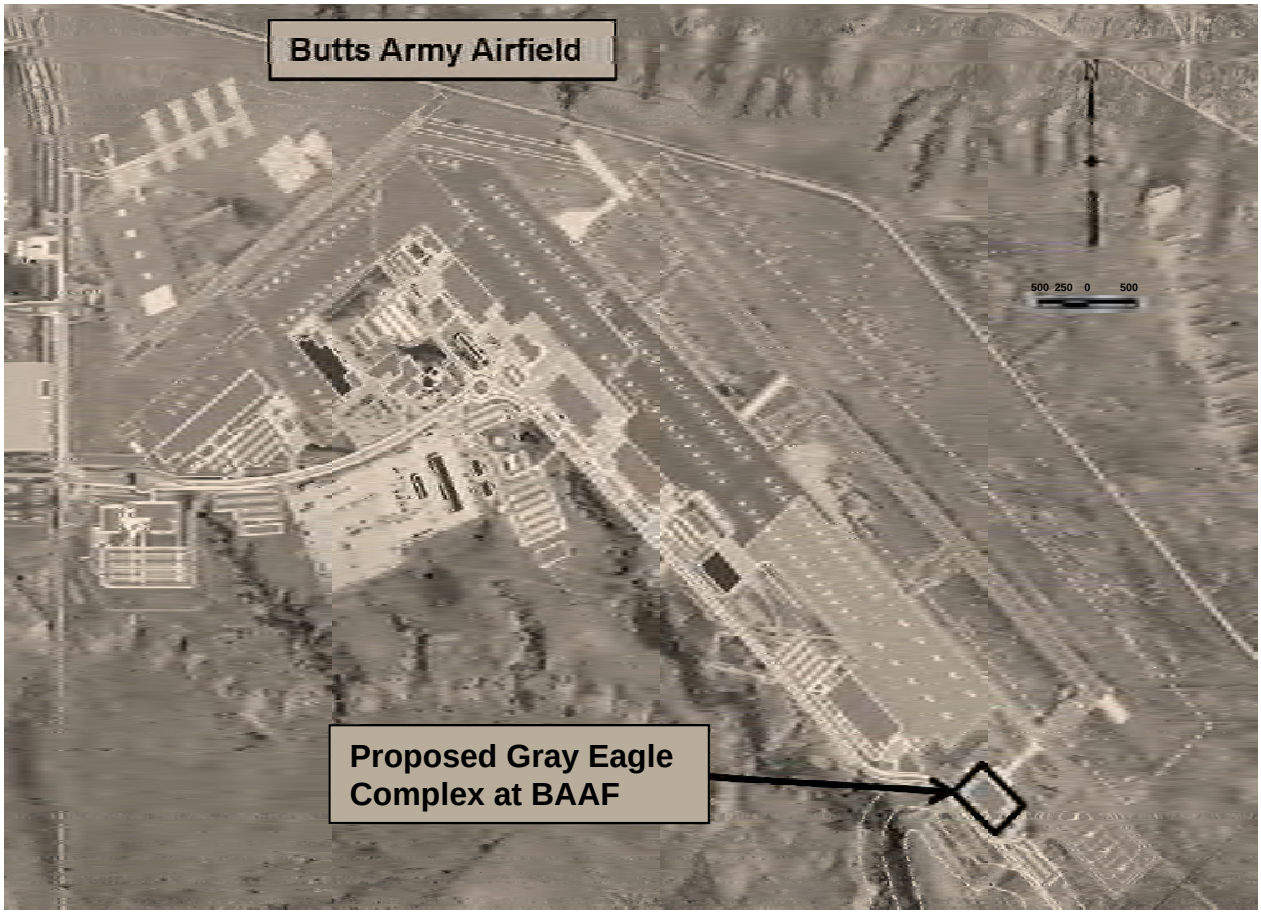


Figure 2-3a. Proposed location for the Gray Eagle Hangar Complex at Butts Army Airfield, Fort Carson, CO.

Heating and air conditioning for the Gray Eagle hangar would be provided by a self-contained system with the air conditioning requirement estimated at 65 tons. The facility would be constructed in accordance with Department of the Army Technical Letter 1110-3-506, *Aviation Complex Planning and Design Criteria for Army Unmanned Aircraft Systems* (Army 2011) and would be constructed to meet Leadership in Engineering and Environmental Design (LEED) Silver rating.

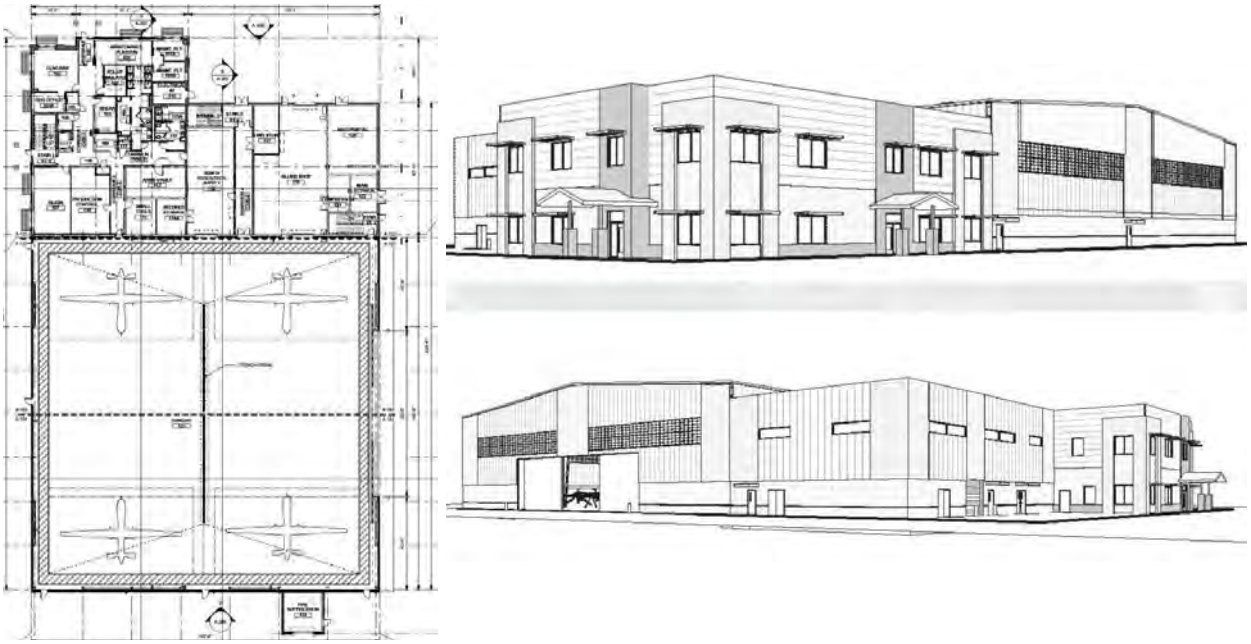


Figure 2-3b. Proposed layout and perspectives for the Gray Eagle Hangar Complex at Butts Army Airfield, Fort Carson, CO.

There is approximately 1120 ft of existing 8-inch water distribution line and 165 ft of 20-inch fire water service that was built in support of the Combat Aviation Brigade (CAB) facilities that would be removed or abandoned and replaced under the Proposed Action, due significant grading change to the site.

The Gray Eagle hangar would accommodate four fully assembled aircraft. All other aircraft would normally be in storage boxes. Billeting for the Gray Eagle company personnel would occur at existing facilities; no new construction for personnel is anticipated at this time.

Other locations on and off of Fort Carson were considered, but did not sufficiently meet the project criteria and/or requirements (see Sections 2.1 and 2.4).

2.3.2 Gray Eagle Operations at Fort Carson

A comprehensive description of the MQ-1C ER/MP UAS (Gray Eagle) and its capabilities are in the LCEA (included in Appendix B). The Gray Eagle Company consists of 128 Soldiers, 12 Gray Eagles, five Universal Ground Control Stations (UGCS), five Ground Data Terminals, one Satellite Communication Ground Data Terminal, four Tactical Automatic Landing systems, two Portable Ground Control Stations, and two Portable Ground Data Terminals. All Gray Eagle flight operations would take place within existing military restricted airspace R2601, other than for the launch/landing at BAAF and the short transit through BAAF Class D airspace to the R2601 restricted airspace utilizing a COA, yet to be established. UAS training missions would include day and night operations (with approval of the appropriate COAs). Night operations occurring on Fridays through Sundays would also require coordination with the Air Traffic Control (ATC). Fort Carson would not be able to support live Hellfire missile training due to inadequate Surface Danger Zones (SDZs). Also, according to the 2014 REC for Aviation

force Structure Realignment (Army 2014), the Gray Eagle will not be armed with weapons outside of restricted airspace. Therefore, only “dummy” Hellfire missiles could be used for training, since BAAF is adjacent to but outside of restricted airspace. These missiles do not have firing capability, but only add the appropriate weight to the UAS to simulate an armed aircraft. Approximately four to seven Gray Eagle training missions would be conducted daily for 5 days per week, with a surge to 7 days per week if needed.

The COA would include lost link procedures (should the communications link between the ground station and UAS be lost) and designate a holding area for the aircraft in restricted airspace until communications are recovered. The UAS lost link point would not transit or orbit over populated areas.

In the case of lost-link with a Gray Eagle by the controlling authority, the UAS would utilize pre-programmed contingency procedures until the link is re-established or the UAS ends the flight in a safe manner. The UAS would automatically orbit in restricted airspace at designated safe locations until communications control is reestablished or the aircraft runs out of fuel and descends to the ground. Lost link programmed procedures would avoid unexpected turn-around and/or altitude changes and would provide sufficient time to communicate and coordinate with Air Traffic Control. If the link is not reestablished within a predetermined time the aircraft may do one of the following: 1. Auto land; however, the aircraft will not exit the Restricted Area or Warning Area 2. Proceed to another Lost-Link Point in an attempt to regain control link. 3. Proceed to a Flight Termination Point or the location specified in other contingency planning measures for flight termination.

2.4 Alternatives Eliminated From Further Consideration.

The following alternatives have been considered, but have been excluded from further analysis in this EA due to funding limitations and failure to meet the site criteria (see Sec. 2.1).

2.4.1 Use of Alternative Sites on Fort Carson

Other locations on BAAF

Other locations on BAAF were considered for the construction of the Gray Eagle hangar complex; however BAAF is highly developed, with limited space available around the airfield. The UAS complex should remain an appropriate distance away from helicopter operations to meet mission and safety requirements and avoid impacts on airspace safety zones, thus the proposed location is the best available option for this area.

Camp Red Devil

Other sites on Fort Carson were initially evaluated for the construction, operation, and maintenance of the Gray Eagle Hangar complex. One potential site considered was Camp Red Devil, but further analyses indicate that it is too far from the airfield, has no ready access to utilities, and construction in this area would have more resource impacts than at the existing airfield. It would also conflict with other military training activities as Camp Red Devil is a heavily used urban training facility.

PCMS

PCMS was considered as an alternative location for the construction and operation of the Gray Eagle, but was dismissed due to the following: The FAA has restrictions on UAS flight, where UAS operations are currently not authorized in Class B airspace. Class B airspace exists over major urban areas and contains the highest density of manned aircraft in the National Airspace System (NAS). Thus restricted airspace is required to fly and operate the Gray Eagle. The PCMS would not be able to support Gray Eagle

operations. Although restricted airspace is currently being proposed and evaluated at PCMS for other military aviation and training purposes, the existing airstrip is not within the proposed restricted airspace request (thus requires obtaining a COA through the FAA) and the restricted airspace proposal is for 10,000 MSL only, which would limit the operations capability of the Gray Eagle, because it is a medium-altitude long-endurance UAS (flies at an altitude window of 10,000 to 30,000 feet MSL for extended durations). Also, the Gray Eagle requires a paved runway. The existing airstrip at PCMS is unpaved and would require funding and infrastructure improvements. These limiting factors plus the distance required to travel the 150 miles from Fort Carson to PCMS (which would take extensive precautionary safety measures, civil coordination and authorization from the FAA), is not anticipated or assessed here. If the proposal to utilize PCMS for Gray Eagle training becomes reasonably foreseeable, the appropriate NEPA analysis will be conducted at that time.

3.0 AFFECTED ENVIRONMENT, ENVIRONMENTAL CONSEQUENCES, AND MITIGATION

This section presents a description of the environmental resources and baseline conditions that could be affected from implementing the Proposed Action. In addition, this section presents an analysis of the potential environmental consequences of implementing the Proposed Action and the Alternatives, and any mitigation measures identified to reduce potential adverse impacts.

All potentially relevant environmental resource areas initially were considered for analysis in this EA. In compliance with NEPA, CEQ, and 32 CFR Part 651 guidelines, the discussion of the affected environment focuses only on those resource areas potentially subject to impacts, and those with potentially significant environmental issues.

This environmental assessment focuses on resources and issues of concern identified during initial issue analysis and on differences in effects between the Proposed Action and the Alternatives. Areas with no discernible concerns or known effects, as identified in the issue elimination process (Section 3.1, *Issues Not Addressed*), are not included in this analysis.

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

3.1 Valued Environmental Components (VECs) Not Addressed

The entire Gray Eagle UAS program was assessed in the *Final Life Cycle Environmental Assessment for the Extended Range/Multi-Purpose Unmanned Aerial Vehicle System*, for which a FNSI was signed in December 2004. The stationing action for the UAS personnel at Fort Carson was documented in *a Record of Environmental Consideration for the MQ-*

1C Gray Eagle UAS Stationing, which was signed in July 2014. This EA incorporates these previous documents by reference.

The Proposed Action would not differ materially from the analyses in these documents. Initial analyses resulted in the elimination of some potential issues because they were not of concern or were not relevant to the Proposed Action and Alternatives. Brief discussions of the rationale for these decisions are below.

Climate
Neither the Proposed Action nor its Alternatives would have measurable effects on climate. No cumulative impacts to the environment were identified and no mitigative measures are necessary for the ER/MP UAS.

Geology and Topography
Because the Proposed Action involves limited excavation that will change the underlying strata or the slope of the land, geology and/or topography is not anticipated to be impacted as a result of the Proposed Action and will be eliminated from further study in this EA.

Land Use
Neither the Proposed Action nor its Alternatives would have a measureable effect on land use. The proposed hangar would be constructed in an existing airfield (BAAF) and operations of the UAS would not require a change in land use at Fort Carson.

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

Neither the Proposed Action nor its Alternatives would change environmental health or safety risks to children since the construction area is within the boundaries of an existing airfield and operations occur within the installation restricted airspace boundary. There are no Soldier or civilian family members residing within the areas. The BAAF is located interior to the installation and is approximately three and one half miles from the nearest Fort Carson residence; therefore neither the Proposed Action nor its Alternatives would have a significant or disproportionate adverse effect on children or pose health or safety risks.

Environmental Justice
EO No. 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations* (59 Federal Regulation No. 32), issued in February 1994, provides that "*each Federal agency shall make achieving environmental justice part of its mission by identifying and addressing, as appropriate, disproportionately high and*

adverse human health or environmental effects of its programs, policies, and activities on minority populations and low-income populations".

Neither the Proposed Action nor its Alternatives would change existing impacts with regard to minority and low-income populations as none are located near the proposed UAS hangar. All UAS operations would take place within existing military restricted airspace and on military maneuver areas, thus there would be no impacts on civilian populations in the event of a UAS malfunction.

Socioeconomics

Neither the Proposed Action nor the Alternatives would have an impact to socioeconomics. The proposed construction would have minor benefits, but this would be temporary. In the Region of Interest (ROI) for Fort Carson, which includes the cities of Pueblo, Colorado Springs, Fountain, Widefield and Security, the population is over 600,000. The additional personnel (approximately 128) would have negligible beneficial impacts within the ROI.

Visual and Aesthetics

Neither the Proposed Action nor the Alternatives would have an impact to visual or aesthetic resources. The proposed hangar and the addition of flight operations for training would be interior to Fort Carson and would not change the existing viewscape.

3.2 Air Quality

3.2.1 Affected Environment

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. The Colorado Springs Urbanized Area in El Paso County is in attainment (meeting air quality standards) for all National Ambient Air Quality Standards (NAAQS) criteria pollutants. However, it was classified as a maintenance area for carbon monoxide (CO) in 1999 due to a 1988 violation of the 8-hour CO standard. This CO maintenance area includes the majority of Fort Carson's Main Post area (north of Titus Boulevard and Specker Avenue). The BAAF and restricted airspace is outside of the attainment/maintenance area. This designation is currently set to run through 2019 (CDPHE, 2009).

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, road dust, military munitions, and smokes/obscurants. Fort Carson's air pollutant emissions 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 Green House Gases (GHG), predominantly carbon dioxide (CO2); CO; nitrogen oxide (NOx); sulfur dioxide (SO2); and particulate matter (PM), both as inhalable coarse particles (PM10) and fine particles (PM2.5), which is PM whose diameter is less than or equal to 10 and 2.5 micrometers (μm), respectively. Road dust is predominantly a source of PM10.

The Installation manages its air emissions per regulatory requirements, management plans, and Best Management Practices (BMPs) for Fort Carson and PCMS. Key among these is its Clean Air Act (CAA) Title V operating permit (No. 95OPEP110). Fort Carson's BMPs include the Fugitive Dust Control Plan (Fort Carson, 2012), Integrated Wildland Fire Management Plan (Fort Carson, 2011), Title V Paint Booth Operating Standards, and Ozone Depleting Compound Management Plan. BMPs support the Installation in ensuring environmental compliance, stewardship, and sustainability.

The Installation's predominant stationary Scope 1 GHG emission sources are on-post boilers at Fort Carson. They are predominantly boiler emissions, but also include emissions from: generators, Waste Water Treatment Plants, landfills, on-post vehicles (other than tactical), and leaking refrigerant. Scope 2 includes emissions from utilities in providing power to Fort Carson and PCMS. These emissions are emitted from power and steam plants in producing power and steam consumed at the Installation. The Installation reports GHG emissions from Fort Carson and PCMS, as required, on an annual basis per 40 CFR 98 Subpart C. In 2008, the Army estimated these emissions (Scope 1 + Scope 2) to be about 100,000 tons (90,700 tonnes) CO2 equivalent per year. These represent circa 0.000015 percent of total U.S. emissions.

3.2.2 Environmental Consequences

3.2.2.1 No Action

There would be no impacts on air quality or GHG under the No Action Alternative.

3.2.2.2 Proposed Action

Temporary and minor increases in air pollution would occur from the use of construction equipment (combustion emissions) and the disturbance of soils (fugitive dust) during construction of the UAS hangar. The air emissions from the proposed operational activities do not exceed Federal *de minimis* thresholds. These thresholds are determined in the Federal General Conformity guidelines. Fort Carson is in a maintenance area so the *de minimis* thresholds for CO, NOx, PM, and SOx are < 100 tons per year of each individual pollutant and 50 tons per year for volatile organic compounds. The impacts on air quality and GHG from the implementation of this alternative would be minor.

3.2.3 Cumulative Effects

Environmental effects from past and current Army actions, when added to the anticipated environmental effects of the Proposed Action, would not result in any significant long-term effects to air quality because operations are within construction permit and fugitive dust permit requirements. These requirements are designed to ensure that emissions do not significantly affect air quality. Therefore, there would be no significant cumulative effect from the combined environmental effects of the Proposed Action and those of past, present and reasonable foreseeable future actions. Temporary and minor increases in air pollution would occur from the use of construction equipment (combustion emissions) and the disturbance of soils (fugitive dust) during construction. The air emissions from the proposed operational activities do not exceed Federal *de minimis* thresholds. The impacts on air quality and GHG from the implementation of this alternative would be minor.

3.2.4 Mitigation Measures

An Air Pollutant Emissions Notice (APEN) would be required to be submitted for a Fugitive Dust Permit. All equipment that has the possibility to emit air emissions would be reviewed for compliance and permit requirements with Fort Carson's Title V Air Permit. If the air pollutant emissions are not a significant amount to require a permit to construct, the air pollutant emissions would be added to Fort Carson's Title V Air Permit's Yearly Inventory.

3.3 Airspace

3.3.1 Affected Environment

Army aviation assets are stationed at and flight operations are conducted out of BAAF. The Fort Carson airspace conditions are generally described in the 2011 *CAB Stationing Programmatic EIS (PEIS)* (HQDA, 2011). The types of aircraft that use the airspace are helicopters, fixed-wing aircraft, UASs, and transient aircraft.

As described in the 2011 *CAB Stationing PEIS,* Fort Carson implements all applicable regulations and policies on flying to maximize safety and minimize noise complaints. This EA incorporates the 2011 *CAB Stationing PEIS* by reference, including the general description of airspace that appears in Appendix A of that document.

Fort Carson has 152 square miles (394 square km) of Federal Aviation Administration (FAA) designated permanent restricted use and special use airspace (SUA), with no limit in altitude. The airspace is controlled by the FAA of Denver, Colorado (Figure 1-4). Military operations areas (MOAs) (a type of SUA) are located around Fort Carson and are higher altitude MOAs.

Further airspace details may be obtained from the 2011 *CAB Stationing PEIS* and from the 2012 *Environmental Assessment for Fort Carson Combat Aviation Brigade Stationing Implementation* (USAEC, 2012).

3.3.2 Environmental Consequences

3.3.2.1 No Action

No impacts on airspace operations would occur.

3.3.2.2 Proposed Action

The potential to impact airspace due to construction of the proposed hangar on or near BAAF would be minimal as the hangar would be sited so as to ensure it appropriately enables the functionality of a UAS hangar but does not negatively impact flight operations. It would be coordinated, as appropriate, with the FAA and be in accordance with the Unified Facilities Criteria (UFC) 3-260-01, *Airfield and Heliport Planning and Design* (DoD, 2008).

The operations of the Gray Eagle would increase the use of Fort Carson's restricted airspace. The increase in UAS training associated with the Gray Eagle would increase congestion at Fort Carson and would require submission of a request to the FAA to modify existing controlled SUAs, or create new SUAs. The existing restricted airspace would allow flight operations to occur safely throughout the Fort Carson restricted areas without potential interference from nonparticipating or incompatible aircraft.

3.3.3 Cumulative Effects

The installation already experiences airspace congestion. Fort Carson not only supports its resident units, but other units and entities. Other units that utilize BAAF are the U.S. Air Force Academy, 306th Flying Training Group; a unit of the US Air Force, assigned to Air Education and Training Command, US Air Force Flight Pre-Screening, Doss Aviation Air Force Contract, Peterson Air Force Base Aero Club, Air Force 413 Fight Test Squadron Osprey, Corps of Engineers, and Army units from other installations coming to Fort Carson for high-altitude training. The Proposed Action would contribute to this congestion and increase the competition for this airspace.

3.3.4 Mitigation Measures

4th Infantry Division G-3 and Range Operations Division schedule and coordinate aviation training to reduce congestion.

If necessary, seek alternative locations to perform some of the aviation training that can be conducted elsewhere and/or reduce non-resident users at BAAF. A few examples include, but not limited to, individual helicopter training at the US Air Force Academy's Bullseye Auxiliary Airfield, reduction of high altitude training by external military installations, and reduction of Air Force aviation training at Fort Carson.

3.4 Biological Resources

Additional information regarding flora and fauna on Fort Carson is in the INRMP (Fort Carson 2013a). Unless stated otherwise, below information is from this source.

3.4.1 Affected Environment

3.4.1.1 Vegetation

The *Fort Carson Integrated Natural Resource Management Plan* (INRMP) (Fort Carson, 2013a) contains detailed descriptions of the vegetative communities on Fort Carson and a listing of common and scientific names of plant species known to occur. Integrated Pest Management is used to manage invasive plant populations, such as the exotic invasive tamarisk (*Tamarix ramosissima*), as mandated by DoD. Integrated Pest Management includes biological, chemical, mechanical, and cultural management techniques. The myrtle spurge (*Euphorbia myrsinites*) is a List A (high priority) weed species requiring control known to have occurred on Fort Carson. It has been eradicated from the Installation but monitoring for regrowth continues. Bohemian knotweed (*Ploygonium x bohemicum*) was found on Fort Carson in 2011. The plant has been treated and the site will be monitored for the foreseeable future. This plant has been added to the State "A" list as a result of this finding. As reported in the 2011 *CAB Stationing PEIS*, the Main Post area and BAAF consist primarily of non-native ornamentals and large trees. Within flight pattern zones of BAAF, non-native ornamentals and large trees are removed for aircraft operational needs and to reduce the occurrence of bird air strike hazard (BASH). The Wilderness Road Complex area, with vegetation considered to be in fair condition, consists primarily of a mix of disturbed land, western wheatgrass/blue grama, small soapweed/blue grama, and big bluestem/little bluestem. Further details on vegetation, including noxious weeds, are available in the 2009 *Fort Carson Grow the Army FEIS* (Fort Carson, 2009).

3.4.1.2 Wildlife, including Threatened and Endangered Species

Federally Listed Species

The Endangered Species Act defines an endangered species as any species in danger of extinction throughout all or a major portion of its range. A threatened species is one that is likely to become endangered in the foreseeable future. Candidate species are those for which the U.S. Fish and Wildlife Service (USFWS) has sufficient information on their biological status and threats to propose them as endangered or threatened, but listing is precluded by other higher priority species. Table 3.4 presents federally-listed endangered, threatened, and candidate species found on Fort Carson. No critical habitat for these species has been designated on Fort Carson.

Table 3.4. Federally-Listed Endangered, Threatened, and Candidate Species Known to Occur at Fort Carson

Species	Scientific Name	Species Type	Status	Distribution on Fort Carson
Mexican spotted owl	*Strix occidentalis*	Bird	T	Rare winter resident
Arkansas Darter[1]	*Etheostoma cragini*	Fish	C	Introduced to multiple sites on Fort Carson
Black-footed ferret	*Mustela nigripes*	Mammal	E	Migrated onto Fort Carson from reintroduction area

Source: Fort Carson, 2013a

[1]Species is also identified as state-listed.

C- Candidate

T- Threatened

E- Endangered

Mexican Spotted Owl –Threatened Species

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

Arkansas Darter- Candidate Species

The Arkansas darter is a federal candidate for listing as a threatened species. The darter is found at a few sites on the installation. A small introduced population is known to occur within 300 meters of the project area.

Black-footed ferret – Endangered Species

The Black-footed ferret was reintroduced on adjacent private landowner property in October of 2013. The USFWS manages the responsibilities of the ferret under a Programmatic Safe Harbor Agreement as well as the associated Biological Opinion. No land use restrictions are anticipated as result of the ferret reintroduction action. The only area the ferret is known to occur on Fort Carson is in close proximity to the southern boundary.

3.4.1.3 Wetlands

Wetlands and activities within them are regulated by Section 404 of the Clean Water Act administered by the US Army Corps of Engineers (USACE). Wetlands at BAAF are located in the bottom and along the eastern bank edge of the incised canyon beginning about 500 ft to the west of the proposed hangar site and continuing southeast for approximately one half mile.

3.4.2 Environmental Consequences

3.4.2.1 No Action

No impacts on biological resources would occur under the No Action Alternative.

3.4.2.2 Proposed Action

3.4.2.2.1 Vegetation

Construction and deconstruction (removal or abandonment of utility lines and replacement) activities at BAAF would disturb soil and vegetation within construction footprint, however BAAF is a built up (developed) area and the proposed site for the construction is mostly disturbed. There would be short-term impacts to natural vegetation during construction, but the proposed location is mostly developed therefore impacts would be minor.

There would be negligible impacts to vegetation from the operations of the Gray Eagle.

3.4.2.2.2 Wildlife, including Threatened and Endangered Species

No Federally listed threatened or endangered species would be affected by the Proposed Action due to construction because the proposed site is located at an already built environment that is mostly utilized by common urban-adapted wildlife species. However, the small number of individuals expected to be displaced would not appreciably reduce the overall population of any species found at Fort Carson.

During flight operations, the Gray Eagle may disturb wildlife such as bats and migratory birds, but would not significantly impact wildlife, including threatened and endangered species. Johnson et al (2002) suggests the behavioral responses by the Mexican Spotted Owl to aircraft on Fort Carson do not appear to be significant. Fort Carson issues a seasonal one half mile off limits buffer via Notice to Airman (NOTAM) to protect active Golden Eagle nests.

3.4.2.2.3 Wetlands

There would be negligible and temporary impacts to wetlands from the proposed hangar construction. No wetlands would be lost or degraded

3.4.3 Cumulative Effects

The continued development of infrastructure on Fort Carson and in surrounding areas could have cumulative impacts on nearby non-military land uses. 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, and increased surface water runoff with accelerated erosion and sedimentation. This disturbance could allow for the introduction and expansion of invasive species. Although the construction and operation of the new Gray Eagle Hangar complex would contribute to these adverse effects, the

cumulative effects of the Proposed Action Alternative would be minimal. Much of the undeveloped land on Fort Carson and surrounding areas is already partially degraded as a result of past and current uses (e.g., grazing, urban development, military training activities).

3.4.4 Mitigation Measures

To prevent the spread of noxious weeds from construction activities, all soil will be obtained from Fort Carson-approved borrow pits, and the noxious weed monitoring and treatment program established by Fort Carson in the INRMP and the Integrated Pest Management Plan will be followed.

Stormwater basins and retention ponds should not be located within 5,000 feet (1,524 m) of the airfield perimeter fence due to their attractiveness to waterfowl and waders, etc.

The proposed hangar should be designed to prevent colonial nesting birds like swallows to build nests under roof overhangs or other sorts of ledges or metal spike strips should be installed if the hangar was to have an overhanging roof; building design with flush junctions between wall and roof are best to discourage swallow nesting attempts.

As hangar doors must remain open to move aircraft in and out of the hangar and as ceilings and walls provide excellent perching and roosting opportunities for pigeons, starlings, and other bird species, hexagonal wire mesh (chicken wire) should be installed as a false ceiling below the I-beams of the typical hangar ceiling. Walls may need the same treatment, but this wire mesh should include trap doors for removing small falcons and other protected species. The opening could consist of a wood frame.

Update the Fort Carson BAAF Wildlife Aircraft Strike Hazard (WASH) Plan to include the Gray Eagle operations (Fort Carson, 2013b).

3.5 Water Resources

3.5.1 Affected Environment

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

3.5.1.1 Surface Water and Watersheds

The primarily undeveloped southern and western portions of Fort Carson drain into the Arkansas River to the south. The highly developed and industrialized portion of Fort Carson (the Main Post area) consists of four tributaries within the Fountain Creek watershed that provide local surface drainage: B Ditch, Clover Ditch, Infantry Creek (formerly Central Unnamed Ditch), and Rock Creek. Ongoing BAAF-related construction

and associated impacts are expected to be within Segment 4 of the Fountain Creek watershed. The constituent of concern in Fort Carson's portion of the Fountain Creek watershed is *E. coli* (5 Code of Colorado Regulation [CCR] 1002-93, Colorado Regulation #93).

The main document that currently guides surface water and watershed management at Fort Carson is the Fort Carson Stormwater Management Plan (SWMP) (Fort Carson, 2011). Further information about stormwater management and the SWMP is contained in Section 3.11.1. This SWMP is designed to reduce the discharge of pollutants from Fort Carson to the maximum extent practicable and to protect water quality.

Fort Carson is also considered an industrial facility, and as such, has coverage under the EPA's Multi-Sector General Permit for Industrial Activities. Activities such as hazardous waste facilities, landfills, scrap recycling facilities, land transportation, air transportation, and treatment works are required to have individual Stormwater Pollution Prevention Plans (SWPPPs), water quality monitoring, and inspections based off of the permit in order to protect water quality.

3.5.1.2 Ground Water

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

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

3.5.1.3 Floodplains

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

protection, wherever practicable, through elevation of structures above the base flood level rather than filling in land.

3.5.2 Environmental Consequences

3.5.2.1 No Action

No impacts on surface water and no direct impacts on groundwater would occur under the No Action Alternative.

3.5.2.2 Proposed Action

3.5.2.2.1 Surface Water and Watersheds

Temporary negative impacts to surface water and watersheds during the construction of the hangar could potentially occur if best management practices are not implemented correctly.

Maintenance activities associated with the Gray Eagle would be covered under the Fort Carson Multi-Sector General Permit (MSGP) and would be added to the SWPPP for the Air Transportation Facilities Sector, which includes all other operations at BAAF. Minor impacts could potentially occur in the event of a spill or a failure of a BMP that is prescribed by the SWPPP; however, these would be less than significant due to regular inspections and training provided by Fort Carson to the maintainers of the Gray Eagle.

No impacts to surface water or watersheds would occur during operation of the Gray Eagle

3.5.2.2.2 Ground Water

With the implementation of proper BMPs (identified in the SWPPP), no negative impacts to groundwater are expected during construction of the hangar.

3.5.2.2.3 Floodplains

No negative impacts to floodplains are expected during construction of the hangar with proper BMPs implementation.

3.5.3 Cumulative Effects

The continued development of infrastructure on Fort Carson and in surrounding areas could have cumulative impacts on nearby non-military land uses. Development of infrastructure on Fort Carson and in surrounding areas would continue to result in increased surface water runoff with accelerated erosion and sedimentation. Although the construction and operation of the new Gray Eagle Hangar complex would contribute to these adverse effects, the cumulative effects of the Proposed Action Alternative would be minimal. Much of the undeveloped land on Fort Carson and surrounding areas is already partially degraded as a result of past and current uses (e.g., grazing, urban development, military training activities).

3.5.4 Mitigation Measures

Construction of the hangar would require registration with the EPA for a Construction General Permit (CGP). This includes the development of a SWPPP which outlines BMPs that must be followed to ensure that only uncontaminated, sediment free stormwater runoff is allowed to discharge to local drainages or storm drains. Fort Carson must

review and approve the SWPPP prior to the construction firm requesting permit coverage through the EPA. Fort Carson conducts quarterly inspections of all CGP sites in addition to the weekly inspections required of the construction firm in order to ensure effectiveness of existing BMPs. Areas disturbed during the construction of the project are required to be stabilized prior to filing a Notice of Termination (NOT) with the EPA to close out permit coverage. Fort Carson must approve the site for NOT prior to the construction firm filing with the EPA. In addition, the Proponent will be required to follow the State of Colorado's Water Quality regulations for Land Application should it be necessary, even though the operation is on a Federal Facility.

The MSGP for Fort Carson would be modified to include this new facility under the appropriate sector. The SWPPP would be modified and inspections would commence once the facility is operational. Analytical monitoring of discharge would be done in accordance with the permit in order to monitor the effectiveness of the BMPs as outlined in the SWPPP. Soldiers would also be trained on the requirements of the permit to ensure maximum protection of water quality.

3.6 Soils

3.6.1 Affected Environment

The soil compositions and soil descriptions within the Area of Interest (AOI) of the proposed construction were collected from the NRCS, U.S. Department of Agriculture (USDA) (NRCS 2014). The AOI encompasses approximately 50 acres. There are three predominant soil types potentially impacted within this AOI. These soil types are Fort loam, Schamber-Razor complex, and Satanta loam. Fort loam makes up almost 79 percent of the AOI, with Schamber-Razor complex second (approximately 14 percent) and Satanta loam the remaining 7 percent (Appendix C).

Fort loam is a well drained soil, has a 1 to 5 percent slope and depth to restrictive feature is more than 80 inches. The typical profile is 0 to 4 inches loam, 4 to 12 inches clay loam, 12 to 33 inches clay loam, 33 to 47 inches loam, and 47 to 79 inches sandy loam. Available water capacity is moderate (about 8.52 inches).

Schamber-Razor complex is a well drained soil, has an 8 to 50 percent slope and depth to restrictive feature is more than 80 inches. The typical profile is 0 to 5 inches gravelly loam, 5 to 15 inches very gravelly loam, and 15 to 60 inches very gravelly sand. Available water capacity is low (about 3.0 inches).

Satanta loam is a well drained soil, has a 0 to 3 percent slope and depth to restrictive feature is more than 80 inches. The typical profile is 0 to 10 inches loam, 10 to 47 inches clay loam, and 47 to 60 inches silt loam. Available water capacity is high (about 10.7 inches).

3.6.2 Environmental Consequences

3.6.2.1 No Action

Under the No Action Alternative, there would be no change to soils from construction of the hangar or operation of the Gray Eagle.

3.6.2.2 Proposed Action

There would be temporary negative impacts to soils during construction of the proposed hangar.

There would be no impacts to soils from the operations of the Gray Eagle.

3.6.3 Cumulative Effects

The proposed action along with past, present, and reasonably foreseeable future projects has the potential to increase paved or otherwise impervious surface area on Butts Mesa, decreasing infiltration of water into soils and increasing water runoff. This could potentially cause erosion of slopes and sedimentation of the Cottonwood Springs drainage. However, appropriate design and implementation of BMPs would lessen potential impacts.

3.6.4 Mitigation Measures

During design of the proposed construction project, permanent BMPs (such as rock check dams and lined ditches) or Low Impact Development (LID) features (permeable pavement or bio-swales) will be included to handle any increased runoff without causing erosion or sediment transport.

During construction, employ the usual BMPs to prevent erosion and sediment transport.

3.7 Cultural Resources

3.7.1 Affected Environment

Cultural resources includes sites, areas, and properties as defined by the National Historic Preservation Act (NHPA), cultural items as defined by the Native American Graves and Repatriation Act (NAGPRA), archaeological resources as defined by the Archaeological Resources Protection Act, sacred sites as defined in EO 13007, to which access is afforded under American Indian Religious Freedom Act, and collections and associated records as defined in 36 CFR Part 79, *Curation of Federally-owned and Administered Archaeological Collections*.

Fort Carson manages cultural resources associated with all major prehistoric and historic cultural periods recognized on the southern Great Plains and Rocky Mountains at both Fort Carson and PCMS. Cultural resources management on Fort Carson encompasses conservation and preservation of historic properties, as well as Properties of Religious, Traditional, and Cultural Importance (PRTCI) to American Indians, which include sites and areas designated as Traditional Cultural Properties (TCPs) and sacred sites. Fort Carson partners with 13 Federally-recognized Indian Tribes who have an affiliation with Fort Carson lands. 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 11th tribe was signed in 2005.

Through consultation with the Colorado State Historic Preservation Officer, Native American Tribes, other consulting/interested parties, and the public, Fort Carson developed two Programmatic Agreements (PA) for compliance with Section 106 of the National Historic Preservation Act (NHPA): 1) Regarding Construction, Maintenance, and Operational Activities for Areas on Fort Carson, Colorado (FCPA-1. 27March2013); and

2) Regarding Military Training and Operational Activities Down Range Fort Carson, Colorado (FCPA-2, 31March2014)

3.7.2 Environmental Consequences

3.7.2.1 No Action

There would be no change in the existing conditions to cultural resources under the No Action Alternative.

3.7.2.2 Proposed Action

The construction aspect of the Proposed Action is an exempted activity in accordance with Appendix C.I.A.1 of FCPA-1, and the military training aspect of the Proposed Action is exempted in accordance with Appendix 1.B of FCPA-2. No further Section 106 consultation is required for this action for either the construction of the hanger or the use of the Gray Eagle for training. Past surveys (Jepson 1992) show that the footprint of the BAAF does not contain any archaeological sites.

3.7.3 Cumulative Effects

It is anticipated that no significant adverse cumulative impacts to cultural resources would be caused as a result of this Proposed Action.

3.7.4 Mitigation Measures

There are no mitigation measures necessary for either the No Action or Proposed Action regarding this activity. Fort Carson's Inadvertent Discovery of Archaeological, Cultural, or Paleontological Materials Standard Operating Procedure (SOP) applies.

3.8 Noise

3.8.1 Affected Environment

AR 200-1 lists housing, schools, and medical facilities as examples of noise-sensitive land uses. The zone designations are used to determine if the noise environment is compatible with noise-sensitive land uses, as illustrated in Table 3.8. AR 200-1 delineates noise generated by military operations into four zones, each representing an area of increasing decibel (dB) level.

Table 3.8. Noise Zone Descriptions

Noise Zone	Aviation (ADNL)	Small Arms (PK15(met))	Large Arms, Demolitions, Etc. (CDNL)	Noise-sensitive Land Use Compatibility
Land Use Planning Zone (LUPZ)	60-65	N/A	57 – 62	Acceptable
Zone I	<65	<87	<62	Acceptable
Zone II	65-75	87 – 104	62 – 70	Normally Not Recommended
Zone III	>75	>104	>70	Never Recommended

Recognizing there are noise sensitive land uses near the installation, Fort Carson has established a "Fly Neighborly" policy that seeks to reduce noise through Army helicopter pilot training. The policy is described in the Installation Environmental Noise Management Plan (Fort Carson, 2012c).

Noise-sensitive areas adjacent to Fort Carson include Cheyenne Mountain State Park to the west; Colorado Springs to the north and west; and the Towns of Security, Widefield, and the City of Fountain to the east. Other noise sensitive areas include Turkey Canyon Ranch and Red Rock Valley Estates along the installation's 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. Noise-sensitive areas within Fort Carson are primarily located within the Main Post area which encompasses the majority of family housing, schools, office space, and child development centers.

The primary sources of noise at Fort Carson are the firing of weapons, specifically large-caliber weapons such as artillery and tank main guns, as well as the operations of military aircraft at Butts Army Airfield (Fort Carson, 2012c).

The noise impact on the community may be translated into noise zones to determine land use planning and buffer zones (LUPZ) for noise-sensitive land uses. The LUPZ extends beyond the eastern boundary of Fort Carson, past Interstate-25 encompassing El Rancho, Midway Ranches, and the City of Fountain. The LUPZ represents an intermediate annual noise average that separates Noise Zone I and Noise Zone II. The LUPZ provides land use planners a modeled intermediate daily noise contour. The LUPZ extends into an undeveloped area to the south and beyond the western boundary encompassing Turkey Canyon Ranch. Zone II (62 CDNL) extends into El Rancho and Midway Ranches; and slightly into the Turkey Canyon Ranch. Zone III (70 CDNL) extends slightly into undeveloped areas of Fountain, El Rancho, and Turkey Canyon Creek (Fig. 3.8).

3.8.2 Environmental Consequences

3.8.2.1 No Action

No change in the noise environment would occur.

3.8.2.2 Proposed Action

No noise generated by either construction or operational activities of the Proposed Action would be heard beyond Fort Carson boundaries; therefore, no noise impact as it relates to the general public would occur. Noise generated by the construction and operational activities would be intermittent and temporary; however, there would be negligible impacts on the noise environment within Fort Carson as there are no sensitive noise receptors near the proposed Gray Eagle hangar or within the restricted airspace. Noise generated by the operation of the Gray Eagle is low when the UAS reaches an altitude of 2,000 feet above ground level (AGL). Based on the operational noise signature for the Gray Eagle and the locations of the operational areas, Gray Eagle activity is unlikely to cause annoyance outside of Fort Carson (Army 2014).

3.8.3 Cumulative Effects

Development of infrastructure on Fort Carson and in surrounding areas would continue to result in increased noise; however the increased noise from the Proposed Action would be minimal and temporary. Operational noise would be minimal.

3.8.4 Mitigation Measures
None identified.

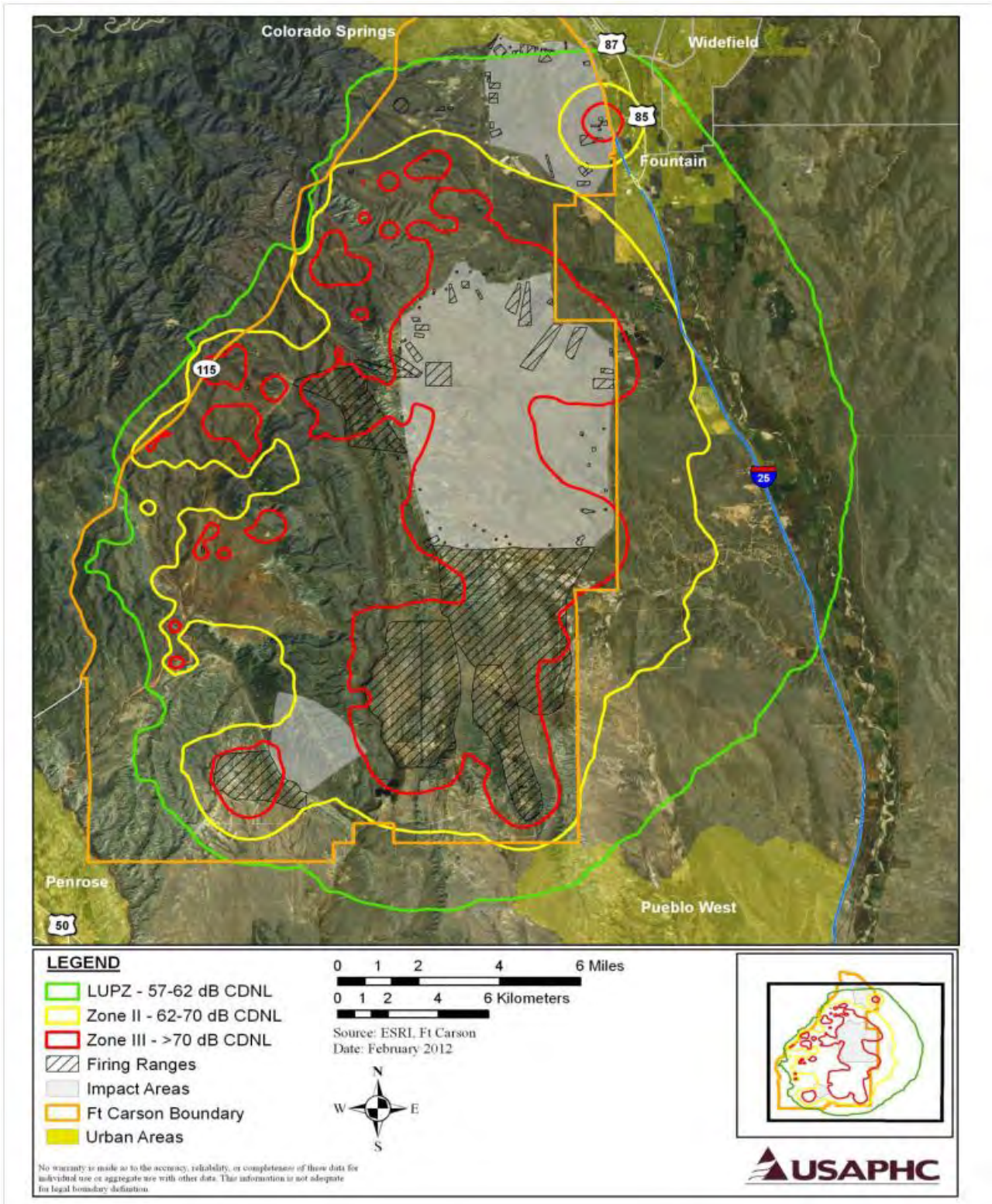


Figure 3-8. Fort Carson Demolition and Large Caliber Land Use Compatibility Noise Contours

3.9 Hazardous Materials/Waste

3.9.1 Affected Environment

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 such as painting, repair, and maintenance of vehicle and aircraft.

Fort Carson has a comprehensive program to address the management of hazardous waste, hazardous materials, and toxic substances. The program includes the proper handling and disposal of hazardous waste, as well as appropriate procurement, use, storage, and abatement (if necessary) of toxic substances. Several plans are in place to assist with the management of hazardous materials and waste including a Pollution Prevention (P2) Plan (also known as the Waste Minimization Plan), Polychlorinated Biphenyl (PCB) Management Plan, Facility Response Plan, Hazardous Waste Management Plan (HWMP), and the Spill Prevention, Control, and Countermeasures Plan (SPCCP).

3.9.2 Environmental Consequences

3.9.2.1 No Action

There would be no increase in the use and generation of hazardous materials and wastes on Fort Carson.

3.9.2.2 Proposed Action

A limited amount of potentially hazardous materials and waste and fuel would be used or generated at the proposed UAS hangar from construction, maintenance, and operational activities, including petroleum, oil, and lubricants (POL). Any hazardous wastes generated as part of this action would be disposed of or recycled according to the installation HWMP (Fort Carson, 2012d); therefore, impacts from hazardous materials and waste would be minor. No fuel storage is planned for the UAS hangar. Fuel (JP-8) would be delivered by truck as needed from the existing bulk fuel facility on Fort Carson.

There are no open Solid Waste Management Units (SWMUs) in the footprint of the proposed hangar however; there are several SWMUs at the BAAF. Should inadvertent discovery of contaminated soil or hazardous material(s); that may be hazardous to human health upon disturbance during construction operations be encountered, work must stop immediately.

There are two aboveground storage tanks (ASTs) requiring removal for the deconstruction (removal or abandonment of utility lines and replacement) portion of the proposed action. Any additional ASTs in the area of the proposed hangar construction that may be impacted would require approximately a 60-day State of Colorado notification before removal/relocation could begin.

3.9.3 Cumulative Effects

Only minor cumulative impacts are predicted from the increased hazardous waste and petroleum, oils, and lubricants product generation as the installation has the capacity to handle the increased quantities. The Installation is currently considering a variety of proposed initiatives under Net Zero to minimize hazardous waste (Fort Carson, 2012b).

3.9.4 Mitigation Measures

Fuel for construction equipment will be transported and stored on-site in designated areas. All handling of hazardous materials and wastes will follow procedures specified in the Installation Hazardous Waste Management Plan.

All vehicles would have drip pans during storage to contain minor spills and drips.

In the event that buried pipe and/or structures were discovered during tank removal, preparation and submission of an Asbestos Hazard and Abatement Plan would be required.

If Polychlorinated Biphenyl (PCB)-Containing light ballasts and/or fluorescent light tubes are identified by the required hazardous materials survey; they must be removed from buildings and either recycled or disposed of as hazardous, in adherence to EPA regulations (40 CFR 761) for handling.

Personal Protective Equipment (PPE), such as gloves, safety glasses and shoes, earplugs or muffs, hard hats, respirators, etc., should be used.

Exposure control methods and disposal selections shall be based on existing conditions, laboratory analysis, and shall continually be evaluated and reassessed for best practice compliance in accordance with appropriate federal, state, and local regulations.

3.10 Traffic and Transportation

3.10.1 Affected Environment

Traffic congestion leading into Fort Carson continues to exist at Gates 3, 4, and 20 during peak access hours. Increasing traffic throughput at each of the three gates has been proposed and plans to implement the proposals are in development.

Following increases in Fort Carson's population as a result of BRAC and Grow the Army stationing actions, internal traffic congestion within the post became problematic. A number of actions were taken to mitigate the negative impacts of increased internal traffic including the opening of Gate 19 and the associated improvement of Essayons Road. Currently a project is under design to alleviate internal traffic congestion leading to and from the Wilderness Road Complex and BAAF, which includes increasing traffic lanes in the affected area and the construction of a bridge leading to the complex.

3.10.2 Environmental Consequences

3.10.2.1 No Action

No changes for traffic and transportation resources would change from the existing conditions under the No Action Alternative.

3.10.2.2 Proposed Action
Traffic would increase slightly on roads around Fort Carson and BAAF during construction of the UAS hangar. Maintenance and ongoing operations of the UAS facility would have minor negative impacts on traffic or transportation within Fort Carson because Butts Road, the primary access road is already used for ongoing construction at the airfield and access to downrange training activities.

3.10.3 Cumulative Effects
Although the addition of 128 personnel associated with the Gray Eagle increases the traffic congestion, this impact would not be significant. Ongoing and identified peak hour traffic congestion around Gates 3, 4, and 20 will continue to be a concern until planned efforts to alleviate congestion are complete.

3.10.4 Mitigation Measures
Continue implementation of current and/or previously identified road improvement requirements. There are no new mitigation measures identified under the proposed action.

3.11 Utilities
3.11.1 Affected Environment
Fort Carson's Directorate of Public Works (DPW) manages utilities and infrastructure on Fort Carson. This includes drinking water, waste water, natural gas, electricity and solid waste disposal as well as road and building construction.

Water management includes wells that provide downrange industrial use water, and surface water that provides military training, downrange fire protection, recreational waters, wildlife habitat, and irrigation. Fort Carson purchases its drinking water from Colorado Springs Utilities. In 2013, Fort Carson used approximately 750 million gallons of water. Even with all the growth on Fort Carson, water use since 2001 has been reduced by more than 30 percent through proactive garrison and housing watering policies and initiatives.

The Waste Water Treatment Plant (WWTP) on Fort Carson treats sanitary sewage and Industrial Wastewater Treatment Plant effluent. The WWTP is adequate in size and capacity based upon the projected development.

Stormwater management, solid waste removal, and energy supplies are all adequate for the current community size. Three stormwater permits are utilized at Fort Carson as part of the storm water program: the National Pollutant Discharge Elimination System (NPDES) General Permit for Discharges from Construction Activities in Colorado (COR12000F), Municipal Separate Storm Sewer Systems (MS4) Permit (COR042001), and the EPA's MSGP for Industrial Activities (COR05A11F). Currently, all solid waste from Fort Carson, including waste from housing units, is shipped to offsite landfills by a licensed contractor. Fort Carson has an extensive recycle program.

Fort Carson purchases natural gas and electricity from Colorado Springs Utilities. The installation obtains over 3 percent of its energy needs from solar panels and is currently researching other sources of renewable energy for future use. Power for maneuvers and

target training within the downrange area is supplied locally by battery or generator. The peak historical electrical demand at Fort Carson is 38.5 megavolt amperes (MVA) and the peak historical daily consumption of natural gas at Fort Carson is 9,329 million cubic feet (mcf)/day (261.2 million cubic meters [m_3]/day).

Fort Carson has adequate building space and living quarters for Soldiers and Families currently living on post. The Final Fort Carson GTA EIS covered the construction of facilities to support the installation.

Fort Carson has long been at the forefront of implementing sustainability practices within the Army. In April, 2011, Fort was selected as a pilot installation for "Net Zero" waste, water, and energy reduction. Net Zero efforts at Fort Carson include three main efforts: 1) produce as much renewable energy on the Installation as it uses annually; 2) limit the consumption of freshwater resources and return water back to the region so as not to deplete the groundwater and surface water resources of that region in quantity or quality; and 3) reduce, reuse and recover waste streams by converting them to resource value with zero solid waste land filling. For specific information about the environmental impacts of Fort Carson's Net Zero initiatives refer to the *Fort Carson Net Zero Waste, Water and Energy Implementation EA* (Fort Carson, 2012b).

3.11.2 Environmental Consequences

3.11.2.1 No Action

No construction, maintenance, or operation of a new hangar would occur; therefore, there would be no impacts.

3.11.2.2 Proposed Action

The construction and operation associated with the Proposed Action would have a negligible impact on utilities on Fort Carson.

3.11.2.3 Stormwater

Impervious surface area would increase due to construction, which would result in a less than significant increase in stormwater runoff.

3.11.3 Cumulative Effects

The increase of 128 Soldiers on Fort Carson would have an insignificant impact on Fort Carson and the surrounding community utilities. The existing population of Fort Carson is estimated at 26,500; however a reduction of about 2,500 is anticipated by the end of the Fiscal Year (FY) 15.

3.11.4 Mitigation Measures

Designs for the parking area associated with this project will need to incorporate a way for the stormwater to discharge without causing further erosion at the outfall areas where the headwalls are located.

Optimal erosion control BMPs during construction will be required. The final rehabilitation and permanent soil cover will need to meet standards or better, and be maintained permanently.

4.0 SUMMARY OF EFFECTS AND CONCLUSIONS

4.1 Unavoidable Adverse Effects

Table 4.1 summarizes potential effects for each alternative. Environmental effects would not be significant within the larger geographic and temporal context in which they would take place. The No Action Alternative is not included in the table as implementation of the No Action would have no effect in all resource areas.

Table 4.1. Summary of Potential Environmental Consequences

Resource Area	Environmental Consequence*	
	Proposed Action Construction	Proposed Action Operation
Air Quality	Negative (ST)	No effect
Airspace	No effect	Negative (LT)
Biological Resources	Negative (ST)	Negative (ST)
Water Resources	Negative (ST)	No effect
Soils	Negative (ST)	No effect
Cultural Resources	No effect	No effect
Noise	Negative (ST)	No effect
Hazardous Waste	Negative (ST)	Negative (LT)
Traffic/Transportation	Negative (ST)	No effect
Utilities	Negative (ST)	No effect

*No effect: Actions have no known demonstrated or perceptible effects
Negative: Actions have minor but apparent negative effects; either long term (LT), short term (ST),

4.2 Irreversible and Irretrievable Commitments of Resources

The Proposed Action would have minor irretrievable commitments of resources due to the consumption of various expendable materials, supplies, and equipment associated with construction.

4.3 Conclusions

The Proposed Action to construct and operate facilities for the Gray Eagle unmanned aerial systems and conduct associated aviation training, was analyzed by comparing potential environmental consequences against existing conditions. Findings indicate that implementation of the Proposed Action would result in no significant adverse environmental consequences. The environment would not be significantly or adversely affected by proceeding with the Proposed Action. No significant cumulative effects would be expected.

Based on this environmental assessment, implementation of the Proposed Action, construction of a Gray Eagle hangar and the associated operations of this UAS, would have no significant negative environmental or socioeconomic effects. Satisfaction of the Army's significant need to meet the requirements for military mission is considered to outweigh the relatively minor environmental impacts, and every effort would be made to mitigate those impacts. The Proposed Action does not constitute a major federal action significantly affecting the quality of the human environment. Therefore, preparation of an EIS is not required, and preparation of a Finding of No Significant Impact is appropriate.

5.0 PERSONS CONTACTED

Name	Installation/ Affiliation	Role
Altepeter, Lana	Fort Carson/ Environmental (ENV)	Air Program Manager (PM)
Allen, Rebekah	Fort Carson/ENV	IRP Assistant
Benford, James	Fort Carson/ DPTMS	Plans, Training, Mobilization, and Security (PTMS), Director
Brothers, Heidi	Army Environmental Command	Oak Ridge Institute for Science and Education Participant
Clark, Scott	Fort Carson/DPW	Energy Program Coordinator
Davis, Bert	Fort Carson/DPTMS	Range Control Officer
Dunker, Eric	Fort Carson/ENV	Water Program Support Specialist
Gallegos, Joseph	Fort Carson/ENV	Compliance Branch Chief
Goss, Brian	Fort Carson/ENV	Natural Resource Specialist
Gray, Danny	Fort Carson/ENV	Forestry
Guthrie, Vincent	Fort Carson/DPW	Utility PM
Harbison, Jerry	FORSCOM G3-5-7	Operations Research/Systems Analyst
Hennessy, William	Fort Carson/SJA	Environmental Law Specialist
Hooper, William	Fort Carson/ DPTMS	Chief of Training
Kelley, David	Fort Carson/ENV	HazWaste/Mat PM
Klinger, Pamela	Army Environmental Command	NEPA Project Officer
Kulbeth, James	Fort Carson/ENV	Sec 404/Watershed PM
Linn, Jeff	Fort Carson/ENV	Natural Resources Branch Chief
Martin, David	Fort Carson/ENV	Asbestos/Lead/Radon PM
Martuscelli, Jeffrey LTC	4ID/G-3 Aviation	JTF Carson G-3 Aviation
McNutt, Doraine	Fort Carson/USAG	Public Affairs Office
Miller, Pamela	Fort Carson/ENV	Cultural Resources PM
Noonan, Harold	Fort Carson/ENV	Wastewater PM
Peyton, Roger	Fort Carson/ENV	Forestry/Nat Res Sec Chief
Rohrs, Suzanne	Fort Carson/ENV	Stormwater PM
Smith, Stephanie	Fort Carson/ENV	Wildlife Biologist
Spain, Keith	Fort Carson/MSE 4ID	Force Integration
Taijeron, Fredrick	Fort Carson/DPTMS	Air Traffic & Airspace
Thomas, Wayne	Fort Carson/ENV	NEPA/Cultural Branch Chief
Tumey, James CW3	Fort Carson/4ID G3 Air	UAS Operations Officer
Whiting, Betty	Fort Carson/ENV	Archaeologist
Wiersma, Thomas	Fort Carson/DPW	Community Planner

6.0 REFERENCES

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

14 Code of Federal Regulations (CFR) 91.155 *Basic Visual Flight Rules (VFR) weather minimums.*

32 CFR Part 651, *Environmental Analysis of Army Actions* (AR 200-2).

40 CFR Part 761. *Protection of Environment*

40 CFR Parts 1500-1508. *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act*.

Advisory Circular 91-36D *Visual Flight Rules (VFR) Flight Near Noise-Sensitive Areas.*

Colorado Department of Public Health and Environment (CDPHE). 2009. Revised Carbon Monoxide Attainment/Maintenance Plan, Colorado Springs Attainment / Maintenance Area.

Council on Environmental Quality (CEQ). 1978. Regulations for Implementing the National Environmental Policy Act (40 CFR Parts 1500-1508)

Department of Defense (DoD) 2008. *Airfield and Heliport Planning and Design*. Unified Facilities Criteria (UFC) 3-260-01. November 2008 supersedes UFC 3-260-01 (2001).

Fort Carson. 2009. February 2009 Final Environmental Impact Statement for Implementation of Fort Carson Grow the Army Stationing Decisions. Prepared by Fort Carson and U.S. Army Environmental Command with assistance by Potomac-Hudson Engineering, Inc. Available on the Web at: http://www.carson.army.mil/DPW/nepa.html

_____. 2011. *Integrated Wildland Fire Management Plan*, Fort Carson and Piñon Canyon Maneuver Site. Department of the Army. 2011. Fort Carson, Colorado.

_____. 2012. *Fort Carson Fugitive Dust Control Plan*, March 2012. Prepared and approved by Fort Carson, CO. 2011.

_____. 2012b. *Fort Carson Net Zero Waster, Water, and Energy Implementation Final Environmental Assessment*. Prepared by Fort Carson and U.S. Army Environmental Command with assistance by Potomac-Hudson Engineering, Inc.

_____. 2012c. *U.S. Army Fort Carson Installation Operational Noise Management Plan*, July 2012. Prepared by Operational Noise Program Environmental Health Engineering, Army Institute of Public Health, U.S. Army Public Health Command for Fort Carson, Colorado.

_____. 2012d. Hazardous Waste Management Plan. (2014 revision in progress). Prepared and approved by Fort Carson, Colorado. 2012.

_____. 2013a. *Fort Carson and Piñon Canyon Maneuver Site Integrated Natural Resources Management Plan*, 2013-2017, September 2013. Fort Carson, Colorado.

_____. 2013b. *Butts Army Airfield Wildlife Aircraft Strike Hazard (WASH) Management Plan*, Fort Carson, Colorado. Fort Carson, CO. Aug 2013.

_____. 2013c. *Stormwater Management Plan*, Fort Carson, Colorado. Updated Jan 2013. http://www.carson.army.mil/DPW/environmental/stormwater/documents/20130401-SWMP.pdf.

HDQA. 2011. March 2011 *Record of Decision for the Realignment, Growth, and Stationing of Army Aviation Assets*. Prepared by the U.S. Army Environmental Command. Signed by the Assistant Deputy Chief of Staff, G-3/5/7 on March 25, 2011. Available on the Web at: http://aec.army.mil/usaec/nepa/cab-rod_2011.pdf.

Jepson, Daniel A, et.al. 1992 *Archaeological Survey of the High Priority Parcels and Other Miscellaneous Areas on the Fort Carson Military Reservation, El Paso, Pueblo, and Fremont Counties, Colorado*. 2 volumes. Centennial Archaeology, Inc., Fort Collins, Colorado. Submitted to the National Park Service, Rocky Mountain Regional Office, Interagency Archeological Services, Denver. -- FC, NPS/MWAC

Johnson, et.al., 2002. *Responses of Mexican Spotted Owls to Low-flying Military Jet Aircraft*. USDA Forest Sevice Research Note RMRS-RN-12, Fort Collins, CO. 2002.

Summit Technical Resources, Incorporated. 2011*. Site Wide Selenium Study. Occurrence and Distribution of Selenium in Groundwater* Fort Carson, CO. August 2011.

Title 42 United States Code (U.S.C.) Sec. 4321 et seq. The National Environmental Policy Act of 1969.

U.S. Army. 2014. *Operational Noise Assessment for Unmanned Aircraft Systems*, Fort Carson, CO, 16 September 2014. WS.0022619-e-14.

U.S. Army Environmental Command (USAEC) 2012. *Final Environmental Assessment for Fort Carson Aviation Brigade Stationing Implementation*. Prepared by U.S. Army Environmental Command and U.S. Army Garrison Fort Carson, Co, with assistance from Potomac-Hudson Engineering, Inc.

U.S. Department of Agriculture, Natural Resource Conservation Service (NRCS). 2014. Web Soil Survey (WSS). USDA NRCS, Washington, D.C. Available from http://websoilsurvey.nrcs.usda.gov/app/.

U.S. Department of the Army, 2004. Life-Cycle Environmental Assessment (LCEA) for the Extended Range Multipurpose Unmanned Aerial Vehicle System. December.

_____ 2011. *Aviation Complex Planning and Design Criteria for Army Unmanned Aircraft Systems (UAS)*. Technical Letter 1110-3-506.

_____ 2014. *Aviation Force Structure Realignment Record of Environmental Consideration*. Roger L. Cloutier, U.S. Brigadier General, GS, 31 July 2014.

7.0 ACRONYMS

Acronym	Definition
AOI	Area of Interest
AR	Army Regulation
AST	Aboveground Storage Tank
BAAF	Butts Army Airfield
BASH	Bird Air Strike Hazard
BMP	Best Management Practice
C4I	Command, Control, Communications, Computers, and Intelligence
CAA	Clean Air Act
CAB	Combat Aviation Brigade
CCR	Code of Colorado Regulation
CDPHE	Colorado Department of Public Health and Environment
CEP	Central Energy Plant
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CO	Carbon monoxide
CO2	Carbon dioxide
COA	Certificate of Authorization
dB	decibels
DPTMS	Directorate of Plans, Training, Mobilization, and Security
DPW	Directorate of Public Works
EA	Environmental Assessment
EIS	Environmental Impact Statement
EMCS	Energy Monitoring Control Systems
EO	Executive Order
ER/MP	Extended Range/Multi-Purpose
FAA	Federal Aviation Administration
FNSI	Finding of No Significant Impact
ft	feet
ft^2	Square feet
GHG	Green House Gas

LEED	Leadership in Engineering and Environmental Design
mg/L	milligrams per liter
MQ-1C	Army Gray Eagle Unmanned Aerial Vehicle
HWMP	Hazardous Waste Management Plan
IDS	Intrusion Detection System
IFR	Instrument Flight Rules
INRMP	Integrated Natural Resources Management Plan
LCEA	Life cycle Environmental Assessment
LID	Low Impact Development
m_3	million cubic meters
mcf	million cubic feet
MOA	Military Operations Area
MS4	Municipal Separate Storm Sewer Systems
MSGP	Multi-Sector General Permit
MVA	megavolt amperes
NAAQS	National Ambient Air Quality Standard
NAGPRA	Native American Graves and Repatriation Act
NAS	National Airspace System
NEPA	National Environmental Policy Act
NFA	No Further Action
NHPA	National Historic Preservation Act
NOA	Notice of Availability
NOI	Notice of Intent
NOT	Notice of Termination
NOTAM	Notice to Airman
NOx	Nitrogen oxide
NPDES	National Pollutant Discharge Elimination System
NRCS	Natural Resources Conservation Service
OPS	Oil and Public Safety
P2	Pollution Prevention
PA	Programmatic Agreement
PCB	Polychlorinated Biphenyl
PCMS	Piñon Canyon Maneuver Site
PEA	Programmatic Environmental Assessment
PEIS	Programmatic Environmental Impact Statement
PM	Particulate matter
POL	Petroleum, oil, and lubricants
ppm	parts per million
PPP	Power Projection Platform
PRTCI	Properties of Religious, Traditional, and Cultural Importance
RSTA	Reconnaissance, Surveillance, and Target Acquisition
SDZ	Surface Danger Zone
Se	Selenium
SO2	Sulfur dioxide
SPCCP	Spill Prevention, Control, and Countermeasures Plan
SUA	Special Use Airspace

SWMU	Solid Waste Management Unit
TCLP	Toxicity Characteristic Leaching Procedure
TCP	Traditional Cultural Property
UAS	Unmanned Aerial System
UGCS	Universal Ground Control Stations
UE	Unit of Employment
UFC	Unified Facilities Criteria
US	United States
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Command
USDA	U.S. Department of Agriculture
USFWS	U.S. Fish and Wildlife Service
USGS	U.S. Geological Survey
µm	micrometers
VFR	Visual Flight Rules
WASH	Wildlife Aircraft Strike Hazard
WWTP	Wastewater Treatment Plant

8.0 APPENDICES

APPENDIX A

Agency and Public Correspondence

Fort Carson Gray Eagle Stationing

Environmental Assessment

Comments on the December 2014 EA and Draft FNSI

A large number of comments received expressed essentially political and public policy views regarding the Gray Eagle and other topics. Our responses will address the environmentally relevant matters raised. Comments received on matters other than the proposed Gray Eagle stationing and operation are not addressed herein and the Army's lack of comment on such matters is not intended to indicate agreement or accession to the commenter's point of view.

ID: 1	**Date:** 12/24/14	**Name:** Col (Ret) David R. Hughes	**Affiliation:**	**Method:** Email
Comment-subject Proposed Stationing of Eagle Drones at Fort Carson As a past Brigade and Battalion commander of Mechanized units at Fort Carson, and from my 23 years - with two wars Korea and Vietnam - combat service experience as a Colorado Springs native I whole heartedly agree with the Army's proposed stationing of an Eagle Drone unit at Carson by 2017, operating from Butt's Army Airfield. At Carson I also served as the G-3 of the 4th Mech Division and responsible for planning training for the large 18,000 soldier force on the LIMITED downrange training space (which ultimately required acquisition of training areas at Pinion Canyon) The PRIMARY purpose of stationing combat units at Carson is to constantly train troops units to get, and keep them, in a high state of readiness for possible deployments. The innovative development of Drones for both unmanned (but remotely controlled Reconnaissance and Strike missions) during our current and recent wars is a major advance in military art. Which at once reduces the risk of destruction of US manned helicopters and loss of their crews or loss of spotter unarmed aircraft, while also being capable of delivering with pin point accuracy missile ordnance. I view the proposed stationing at Carson of such as unit, ability to train at high altitude (and the potential for practising delivery of dummy warheads on the Carson training area (or with limited live delivery at Pinion Canyon) as a very valuable gain in US Army combat power. Air space management is well advanced in Colorado. Not to be overlooked also, is the training the Colorado National Guard			**Response** **Thank you for your service and comments.**	

does at Carson. The ability of those units also to learn the nature of drone operations, not just for possible combat BUT ALSO for Mountain Search (before rescue or evacuation by medical helicopters) extends the value of such units stationed in Colorado. Few people or local officials remember that it was Fort Carson in the 1970s who both pioneered the search for lost climbers and rescued them with Army helicopters (named MAST unit (military assistance) missions for Colorado - that paved the way for civilian hospital helicopter rescue across Colorado. Close up viewing by remote operators by drones could be a great asset to Colorado search before rescue missions, when called upon by Colorado civil authority. As for the statements made to the press by Bill Sulzman against the proposed stationing of Drones at Carson, you should just dismiss his views - which ALWAYS have been motivated solely by 'peace activism' and neither FOR the national defense needs of America OR the economic welfare of El Paso County.				
ID: 2	**Date:** 12/25/14	**Name:** Shawn McFarland	**Affiliation:**	**Method:** Email
Comment-subject Drones over R-2601 Sir/Maam, Shawn McFarland here. I am an Airline Transport Pilot (ATP) Rated helicopter pilot flying out of Colorado Springs. I was stationed at Fort Carson as a Warrant Officer One way back in 2001. As someone who this will directly impact I would like to say I welcome the drones to Fort Carson. I think this will be a great environment to test, train, and field these systems. Please contact me at (*email redacted*) for any further comment from someone intimately familiar with R-2601 and the local area. Thank you.			**Response** **Thank you for your comments.**	
ID: 3	**Date:** 12/25/14	**Name:** Bob Street	**Affiliation:**	**Method:** Email
Comment-subject Drone Potential My name is Bob Street and I am a member of El Paso County Search and Rescue. We are a 501 C(3) non-profit operating under the auspices of the Sheriff. Our volunteer staff of 60+ effects searches for missing persons throughout the Pikes Peak Region, principally in areas west, including the Rampart Range and Old Stage/Gold Camp areas, and, of course, the Pikes Peak Massif and its surrogates. Your drone program proposed for Ft. Carson is interesting. While there are limitations in the use of Federal assets for civilian purpose, I suspect these drones could be very effective in locating lost persons in our mountainous topography...and in saving lives. If this notion is worthy of consideration as you weigh the pros and cons of locating the drones at Ft. Carson, we'd be pleased to assemble a small			**Response** **Thank you for comments.**	

team for meetings and discussion. All the best,				
ID: 4	**Date:** 12/29/14	**Name:** Greg Dorman	**Affiliation:**	**Method:** Email
Comment-subject Gray Eagle UAS at Fort Carson To Whom It May Concern, Gray Eagle stationing at Fort Carson is a necessary aspect of training and aviation integration for the installation and the 4th Infantry Division team. This project is welcome in the community and fits well with the existing restricted airspace that exists over Fort Carson. By blending the existing resources with new training and combining that with a location that has exceptional weather, the Army is taking a needed step towards preparing our Soldiers for success on the battlefield of today and tomorrow. Sincerely,			**Response** **Thank you for your comments.**	
ID: 5	**Date:** 12/29/14	**Name:** Bill Sulzman	**Affiliation:**	**Method:** Email
Comment-subject Comment letter Drip, Drip Drip What analogy should we use as we analyze the Army's ever increasing demands for airspace in our state? Is it the "camel getting its nose under the edge of the tent", "the frog in water slowly brought to a boil" or drip, drip, drip? I've settled on drip, drip drip. We have an excellent chance to learn from our recent history as we seek to counter the unprecedented Army demands for air space. Back in 2006 the Army started a gradual (drip, drip drip) campaign to massively expand the Pinon Canyon Maneuver Site in Southeast Colorado. A well coordinated campaign of research of heavily redacted Army documents, well coordinated political opposition and finally a brilliant lawsuit which took the mask off the Army's various documents and maps and told the true story. The scheme was blown up and stopped, at least for the moment. There is another big Army plan being implemented piece by piece, little by little. The starting point seems to have been sometime in 2010 when Fort Carson was selected by higher ups to be the aviation equivalent of the National Training Center at Fort Irwin California, hosting units from all over the Army, Navy, Marines, Air Force and National Guard for specialized high altitude helicopter training. This decision was not open to the public. The first glimpse we get of the plan is a Colonel from Fort Hood, TX showing up at the Bureau of Land Management Office in Canon City with a map of 20 landing zones he was going to use for training of his helicopter unit to begin in a few months. Wow! What was the background for all that? Who selected the sites? (He actually added a couple more later). Who did those? Subsequently the number of Army Aviation Units doing			**Response** **Thank you for your comments.** **The proposed action does not require any additional restricted airspace. Operation of the Gray Eagle would be conducted at Fort Carson, CO within the existing restricted airspace, launched from the very closely adjacent Butts Army Airfield. See Figure 1-4 of this environmental assessment.** **The proposed action alternatives do not include, nor would they require, any land expansion of PCMS. No additional land would be sought or acquired as a result of this action.** **High altitude helicopter training at Fort Carson is not part of the proposed action, but has been an important mission at Fort Carson for several decades. We are working as a cooperating Agency with BLM to identify additional sights, and they are conducting the appropriate environmental analysis for that proposed action.**	

similar training grew by leaps and bounds, Fort Drum, Fort Bragg, Fort Campbell, Fort Riley and Fort Hood a second time. . An unspecified number of training units from the Marine Corps, Navy, Air Force and National Guard joined the chorus. Drip drip, drip. To be clear no one said this was going to happen. They just started doing it. Drip Drip drip. Things kept evolving, The total number of helicopter Landing Zones (LZ's) in the mountains grew from about a dozen to more than 5 dozen, 45 on BLM land, more than a dozen on United States Forest Service (USFS) land. The public was apparently not supposed to notice that this was the equivalent of a quantum leap. It was also learned that the Army wants to add to the approved LZ's on USFS Lands when their agreement for use comes up for renewal in 2017. Drip drip drip. The mechanism for site selection is again not clear. The Army announced a year ago that they had reached an agreement with the Pueblo Municipal airport for its use for helicopter training. And this summer they announced they had reached a similar agreement with the Air Force for joint use of the Bullseye landing strip near Ellicot. Drip, Drip Drip. After some public outcry the BLM announced they were doing an Environmental Assessment of the increased activity on BLM lands. I attended the two public meetings. It was clear in both cases that the Army was running the show and the BLM was there to take notes. Nothing I heard suggested that more LZ's could not be added at a later time if the Army wanted them. The Army chose Christmas Eve to announce the addition of 12 Gray Eagle armed drones to the Combat Aviation Brigade (CAB) at Fort Carson. Drip, drip drip. There had been repeated denials that this was going to happen but now it is going to happen. A bit of background. The Army at one time included the Air Force. When the two split the Army lost its air attack component. Incrementally it has set out to get it back. They took a big step forward when they got the Apache helicopter and loaded it up with armaments including the same hell fire missiles which are to be part of the Gray Eagle attack drone company coming to Fort Carson.. One of the problems with the Apache is it flies low and slow and can readily be brought down by ground fire. Enter the Gray Eagle as its potential replacement. Flies high, is faster and there are no people on board if it is shot down. And it's just as fancy as the Air Force and CIA's fleets of similar aircraft. Take that! Just for good measure the Apache will be kept around. It has its own mystique and contractors make a lot of money building it,	**The proposed action does not have any effect on helicopter training operations which are modified, adjusted and environmentally assessed as necessary.** **Fort Carson acknowledges that the timing warranted consideration and extended the normal 30-day comment period to 45 days to allow for the holidays.**

The current Environmental Assessment draft about the Gray Eagle coming to Fort Carson has some interesting observations which are suspicious. It is points out the air speed and notes its long distance capabilities but then says it can't fly as far as PCMS, What? Another curious observation is that there are no current plans to use PCMS for the Gray Eagle. But they admit that could happen with a simple EA that would authorize cement trucks and asphalt contractors to come in and bring the landing strip up to snuff to handle that possibility. Drip, drip drip. They make it sound like they could have problems getting FAA approval for airspace use. It is hard to imagine that would be the case. The Air Force has huge air space use permits out of both Buckley Air Force Base and Peterson Air Force Base. Why would there be a problem with the Army's demands at Butts Field or at PCMS? A mere formality one would presume. And how hard would it be to add other landing locations for the Gray Eagle at such places as Pueblo Airport, Bullseye or even at the joint Army and National Guard helicopter training facility at Gypsum, CO? One can imagine that somewhere down the road other CAB units would want to come here with their drones to do training in a high altitude environment right alongside their helicopters. After all, this is the come to place for such training. much like Fort Irwin is for similar full spectrum training exercises. They still need to come clean about that. One can imagine that the Army which has now added an unmanned Gray Eagle bomber fleet to its portfolio will want to keep up with the Air Force as newer, bigger versions of its unmanned bombers come on line. Another curious item in the Gray Eagle EA is the specious argument that the Gray Eagle is simply an update of surveillance technology on earlier small unmanned drones. Why not just add that new technology to existing air frames? They chose to replace apples with oranges, so to speak. It's a different animal all together. Drip, drip drip * And there are other questions which come to mind from reading the document. It is almost humorous reading the description of the scenario that would occur if and when the remote control hookup to the Gray Eagle fails. It describes a very benign final solution, The aircraft just keeps flying till it runs out of fuel and settles gently to the earth close to home. No harm done. No chance of it crashing into Pueblo West. * They avoid the subject of targeted assassinations which is the main use of Air Force and CIA killer drones. For example, are the Army Gray Eagles deployed to Afghanistan involved in strikes in Pakistan? Have they ever been? Are the Army Gray Eagles that are in Afghanistan now sometimes used by the CIA to carry out missions in the region? Do Gray Eagles	**Sec 2.4.2.1 discusses and rejects PCMS as a site for the operation of the Gray Eagle. Distance to PCMS was not a controlling consideration.** **The intent of any lost link procedure is to ensure that airborne operations remain predictable. Lost link programmed procedures (orbit points) will avoid unexpected turnaround and/or altitude changes and will provide sufficient time to communicate and coordinate with Air Traffic Control.** **If the link is not reestablished within a predetermined time the aircraft may do one of the following: 1. Auto land; however, the aircraft will not exit the Restricted Area or Warning Area 2. Proceed to another Lost-Link Point in an attempt to regain control link. 3. Proceed to a Flight Termination Point or the location specified in other contingency planning measures for flight termination. This statement has been added to Section 2.3.2 of the EA.** **We believe that the lost-link procedures can effectively maintain the risk within Fort Carson's restricted airspace.**

share the same runways as CIA Predator Drones? If the Fort Carson CAB is ever deployed there would they do targeted assassinations in Afghanistan and Pakistan?. Is it the position of legal officials at Fort Carson that that would be legal and moral to do? * It is mentioned in the document that it has been ready for release since July. Why do it now? Seems sneaky. In any case I will try to get others informed so they can respond in the small window left for comments. * There is a long list of those consulted. All are from the Army. Almost all are from Fort Carson itself. Punctuates the fact that this is totally in house. * How will the Gray Eagles get here? Will they be flown in or arrive by rail Finally it should be clear that I oppose this operation on moral and legal grounds and believe it would further pollute our civilian airspace. It would also be a huge waste of money better spent on local human needs.	**This environmental assessment was initiated after a stationing action for the UAS personnel at Fort Carson was documented in a *Record of Environmental Consideration (REC) for the MQ-1C Gray Eagle UAS Stationing*, which was signed 31 July, 2014** **The Gray Eagles will arrive via ground transportation.**

ID: 6	**Date:** 01/03/15	**Name:** Dr. Peg Rooney	**Affiliation:**	**Method:** Email
Comment-subject Drones at Fort Carson I understand the need for drone training, but I object to the fact that this training was not included in the environmental studies on the addition of a combat aviation brigade at Fort Carson, CO. Building facilities, noise, habitat disruption, more personnel, electronics- all will have an effect on birds and wildlife. Ft. Carson has been cognizant of natural resources to some degree, but now seems hell-bent to "train at any cost", regardless of environmental concerns. :A cloud of secrecy" is never a good thing.			**Response** **The CAB EA was completed in 2012 and at that time, Fort Carson had not been selected to receive the Gray Eagle. Army structure changes in September 2013 included Gray Eagles. The Gray Eagle stationing decision was officially announced and documented in an Army Record of Environmental Consideration dated July 2014. It was at this time that the environmental analysis began at Fort Carson.**	

ID: 7	**Date:** 01/03/15	**Name:** Bill Santiago	**Affiliation:**	**Method:** Email
Comment-subject Drones To Whom, It May Concern, My name is Bill Santiago. I recently read an article in the Gazette Newspaper in Colorado Springs about the possibility of Ft. Carson transferring a contingency of personnel to Ft. Carson to support the Drone program. I have resided in Colorado Springs since 1964. My father retired from Ft. Carson as a W4, after approximately 35 years in the US Army. Needless to say, I grew up a military brat and proud of it. This is a short note in support of the Drone program at Ft. Carson, if you so desire. I write this in frustration with some of todays society who move into the Colorado Springs area, knowing the military commitment to this community.			**Response** **Thank you for your comments.**	

It annoys me that some will complain about the loud cannons at Ft. Carson or Air Force planes flying around the AFA. Ft. Carson & the AFA were here long before many of these developed areas started to accommodate those who want to complain about the loud activities, either at Ft. Carson or the AFA. These military institutions are here to train todays soldiers or airmen & provide housing for them and their families ! Now, many in our society want to have these institutions minimize or curtail our needed training for our military. It just doesn't make sense to me that our institutions even have to ask permission to provide this training. Many of these members of our society are the ones who benefit financially having our military institutions in the Colorado Springs area ! I could go on, but I won't. I think you understand the jest of my support & concerns. Thank you for your service & the opportunity to express our thoughts. Good Luck in having the Drone program initiated ! Sincerely,				
ID: 8	**Date:** 01/05/15	**Name:** Gary L & Annie Collins)	**Affiliation:**	**Method:** Email
Comment- **(see Attachment A)**			**Response** **Thank you for your comments.**	
ID: 9	**Date:** 01/05/15	**Name:** James W. White (Rev. Dr., US Army retired)	**Affiliation:**	**Method:** letter
Comment-subject Killer Drone Proposal This does not feel like a good idea to me. When you have a hearing, please let me know. Thank you.			**Response** **Thank you for your comment.**	
ID: 10	**Date:** 01/06/15	**Name:** Don and Marilyn Brenneman	**Affiliation:**	**Method:** Email
Comment-subject Comments on Gray Eagle drone proposal we are not happy with the thought of drones so near the city			**Response** **Thank you for your comment.**	
ID: 11	**Date:** 01/06/15	**Name:** Senga Fittz	**Affiliation:**	**Method:** Email
Comment-subject Comments on Gray Eagle drone proposal Please extend the public discuss of this most important proposal at least another month for a meaningful public dialogue to take place.			**Response** **Thank you for your comment. Fort Carson acknowledges that the timing of the public release warranted consideration and extended the normal 30-day comment period to 45 days to allow for the holidays. Additionally, we published a Notice of Availability in local newspapers, released a Public Service Announcement to local television broadcast/radio, city officials, Mayor's office, and Congressional staff. The document was made available publicly on**	

			the Fort Carson website.	
ID: 12	**Date:** 01/07/15	**Name:** Bill Suilzman	**Affiliation:**	**Method:** Email
Comment-subject der speigel Are Gray Eagles doing these kind of targeted assassinations in Afghanistan? Will they be doing this in the future in other countries? Will the Fort Carson CAB be doing this when it is up and running and deployed? new Snowden docs released: http://www.spiegel.de/international/world/secret-docs-reveal-dubious-details-of-targeted-killings-in-afghanistan-a-1010358.html			**Response** **Thank you for your comments.**	
ID: 13	**Date:** 01/07/15	**Name:** Nadine Jackson	**Affiliation:**	**Method:** Email
Comment-subject Comments on Gray Eagle drone proposal Please, no Drone warfare training at Ft Carson ! We have enough military and enough government spending on military warfare in this area. Sincerely,			**Response** **Thank you for your comment.**	
ID: 14	**Date:** 01/12/15	**Name:** Esther Kisamore	**Affiliation:**	**Method:** letter
Comment- **(see Attachment B)**			**Response** **Thank you for your comment.**	
ID: 15	**Date:** 01/12/15	**Name:** Patricia McCormick	**Affiliation:**	**Method:** letter
Comment- **(see Attachment C)**			**Response** **Thank you for your comment. See comment response #11.**	
ID: 16	**Date:** 01/12/15	**Name:** Shirley Whiteside	**Affiliation:**	**Method:** Email
Comment-subject NEPA Process, MQ-1C Gray Eagle), at Fort Carson, CO **(see Attachment D)**			**Response** **Thank you for your comment.** **We recognize the danger associated with all forms of aviation and we believe the lost-link procedures described are an appropriate response to that risk.** **The intent of any lost link procedure is to ensure that airborne operations remain predictable. Lost link programmed procedures (orbit points) will avoid unexpected turnaround and/or altitude changes and will provide sufficient time to communicate and coordinate with Air Traffic Control.** **If the link is not reestablished within a predetermined time the aircraft may do one of the following: 1. Auto land; however, the aircraft will not exit the Restricted Area or Warning Area 2. Proceed to another Lost-Link Point in an attempt to regain control link. 3. Proceed to a Flight Termination Point or the location specified in**	

			other contingency planning measures for flight termination. This statement has been added to Section 2.3.2 of the EA. **We believe that the lost-link procedures can effectively maintain the risk within Fort Carson's restricted airspace.**	
ID: 17	**Date:** 01/13/15	**Name:** Sharon Blanding	**Affiliation:**	**Method:** Email
Comment- subject comments on bringing Drones to Fort Carson To whom it may concern: I strenuously object to Fort Carson bringing drones to this area. I have property off of Hwy 115, by Rock Creek Mesa, an area already heavily impacted by activities from the base. Between the helicopters and all-night shelling going on, it sometimes feels like it is a war zone, and I feel this neighborhood has sacrificed enough already. Also, the helicopters already impact electronic communications around here (television antennas and cell phones). This would only get worse (and probably much, much worse) when there are remote controlled drones flying around the area. We already put up with some fairly serious environmental impacts from the base (noise, traffic, communication disturbances, etc) and I feel it is time for you to back off from further contaminating our air space, both with noise and possible (likely?) crashes occurring. It is interesting to me how military environmental assessments always find "no impact," when that is hardly the case. Regards,			**Response** **Thank you for your comments.** **Noise from Gray Eagle operations within Fort Carson's restricted airspace would not extend beyond Fort Carson boundaries. See Figure 3-8 for noise contours. Fort Carson is committed to maintaining a "Fly Neighborly" relationship with the community and continues to maintain a noise complaint hotline ((719) 526-9849 [during business hours] and (719) 526-3400 [after business hours]).**	
ID: 18	**Date:** 01/26/15	**Name:** Gary Vorhes	**Affiliation:**	**Method:** Email
Comment- subject Stop Stop the bullshit and stop making war on the people of Colorado. We don't buy your crap, and we don't like buying your toys.			**Response** **Thank you for your comment.**	
ID: 19	**Date:** 01/26/15	**Name:** Mary Alwyn Wilson	**Affiliation:**	**Method:** Email
Comment- subject Piñon Canyon Maneuver Site I am confident that very few of these complaints get read but as a Veteran of 74 years old I must speak: I condemn military efforts to fail to follow the law or the spirit of the law. It's a shameful period of our country. Stop trying to enlarge the site or damage our sacred environment and fragile landscape.			**Response** **Thank you for your service and your comment.** **The Proposed Action alternatives do not include, nor would they require, any land expansion of PCMS. No additional land would be sought or acquired as a result of this action.**	
ID: 20	**Date:** 01/27/15	**Name:** Concerned Citizen	**Affiliation:**	**Method:**letter
Comment- subject DOD,			**Response**	

Please close the Pinon Canyon Manuever Site.Please stop all plans for all maneuvers in SE Colorado. The impact would be disastrous in so many ways! Deeply Concerned US citizen Norman, Oklahoma			**Thank you for your comment. See response to Comment #19.**	
ID: 21	**Date:** 01/27/15	**Name:** Conrad Olmedo	**Affiliation:**	**Method:** Email
Comment- subject Gray Eagle Drone Directorate of Public Works, I received an email giving mis-leading information about the Gray Eagle Drone program at Fort Carson. After having reviewed the Environmental Assessment, I would like to extend my support for the program. I believe the Gray Eagle Drone will help better train our troops to combat our enemies. As a resident of Colorado Springs, within the Region of Interest, I am proud to know this training will be occurring nearby. Thank you for the opportunity to comment			**Response** **Thank you for your comment.**	
ID: 22	**Date:** 01/29/15	**Name:** Christine Tortorice	**Affiliation:**	**Method:** Email
Comment- subject EAgle GRey Drones I Believe if you need to use them- use them where they are needed , rather than a practice field here in Colorado. THis needs to stop. Thank you- Christine Tortorice			**Response** **Thank you for your comment.**	
ID: 23	**Date:** 02/02/15	**Name:** Bill Sulzman	**Affiliation:**	**Method:** Email
Comment- subject Additional comments and questions on the Gray Eagle EA * What exactly is the origin of the Gray Eagle UAV's name? Answers I've found are unclear. Is it named after an Army hero or an Indian chief? Cherokee or Lakota tribe? * The literature I have found indicates that the Gray Eagle can carry not only Hellfire missiles but also Viper bombs and Stinger missiles. Why are these not mentioned in the EA? * Just to be clear why should we not expect the training area for the Gray Eagle to be expanded to places like PCMS and Bullseye. The Colorado Springs Business Council says it will be used at PCMS in the future. There is a hint of this in the EA implying that future inclusion of PCMS use would include the necessity for a new EA before going forward? Sounds like a formality. * A study of background information also reveals that an important part of the Gray Eagle mission is to coordinate with the Apache helicopter in attack scenarios. Since many of these scenarios would include high altitude (HAMET) missions why should we not expect to see expansion of			**Response** **Thank you for your comments.** **The Gray Eagle would not be armed with any weapons outside of restricted airspace. Therefore, only "dummy" Hellfire missiles could be used for training, since Butts Army Airfield is adjacent to but outside of restricted airspace. The missiles do not have firing capability, but only add the appropriate weight to the UAS to simulate an armed aircraft.** **Use of the Gray Eagle at PCMS or over BLM lands is not part of the proposed action. The Gray Eagle requires infrastructure and associated airspace requirements that are not available at PCMS. There is no proposal to and/or funding for infrastructure**	

use in joint Apache-Gray Eagle high altitude training involving BLM airspace? A new EA could clear the way for that, right?. * Another possible change could be firing Gray Eagle munitions into the impact range at Fort Carson. Much larger explosives are already dropped and detonated there by the Army, Air Force and National Guard. Why not the hellfire missile? Another EA? * There is information that the scenario in the EA that describes what would happen if the remote control link fails is misleading. In one account I've read it indicates that only 2 out of 3 rogue UAV's in one such event landed as planned. One strayed way off course before running out of fuel and in another case a UAV had to be shot down by the Air Force.			**improvements at PCMS.** **Operation of the Gray Eagle would be conducted at Fort Carson, CO within the existing restricted airspace, launched from the very closely adjacent Butts Army Airfield. See Figure 1-4** **Fort Carson will not be able to support firing of the hellfire missiles from the Gray Eagle due to inadequate surface danger zones. See Sec 2.3.3.2. Also, see responses above regarding restricted airspace.** **See Comment Response #16**	
ID: 24	**Date:** 02/03/15	**Name:** Pikes Peak Justice and Peace Commission	**Affiliation:**	**Method:** Email and mail
Comment- To the U.S. Army **(See Attachment E)**			**Response** **Thank you for your comments.**	
ID: 25	**Date:** 02/05/15	**Name:** Peaceful Skies Coalition	**Affiliation:**	**Method:** Email and mail
Comment- subject Peaceful Skies Coalition Comment Draft FNSI Environmental Assessment MQ-1C Gray Eagle Unmanned Aerial Systems **(See Attachment F)**			**Response** **Thank you for your comments.** **DoD activities in the broadest sense are not so interdependent that they must be environmentally assessed together. Gray Eagle operations would be conducted within Fort Carson's restricted airspace and are wholly distinct from the type of operations that could ever occur at the proposed BLM helicopter landing sites. The helicopter operations at Bullseye airfield are limited in nature and represent a routine modification to local training and operations of the Combat Aviation Brigade. Integration with Gray Eagle is not anticipated. Helicopter training and operations are dynamic in**	

	nature and when local operations require additional environmental analysis, it has been initiated. **The federal government's treatment of these activities as separate for purposes of NEPA does not represent "piecemealing" or improper segmentation. The Gray Eagle was not previously analyzed in our CAB EA because at that time, the CAB did not have a Gray Eagle Company attached to it. This environmental assessment was initiated after a stationing action for the UAS personnel at Fort Carson was documented in a *Record of Environmental Consideration (REC) for the MQ-1C Gray Eagle UAS Stationing*, which was signed 31 July, 2014.** **Gray Eagle operations are distinct from helicopter operations because the Gray Eagle is proposed for use only in Fort Carson's restricted airspace.**

ID: 26	**Date:** 02/05/15	**Name:** M Reedy	**Affiliation:**	**Method:** Email
Comment- subject Gray Eagle Environmental Assessment I am completely against the presence of the 'Gray Eagle' in Pinon Canyon Maneuver Site. I have studied this weapon and know that it presents a grave danger to anyone near where it operates. If this weapon crashes or is lost it will cause harm to the land and the inhabitants of that land. I would like to see this weapon tested, etc on a base that has the area that is required for the Gray Eagle and that is currently unused and uninhabited for the most part.			**Response** **Thank you for your comment.** **Use of the Gray Eagle at PCMS is not part of the proposed action.**	

ID: 27	**Date:** 02/05/15	**Name:** Elaine Taylor	**Affiliation:**	**Method:** Email
Comment-subject Gray Eagle Environmental Assessment Let me begin by saying that the Department of Defense/Army has proven time and time again that they care nothing about the well being, desires or opinions of the American citizens that live in southeastern Colorado. They have bullied their way through our part of this fine country, taking what they want and stepping on our toes without the slightest regard for what they are doing to us. That having been said, I will go on with my comment about the Gray Eagle knowing full well that what I say as an American citizen			**Response** **Thank you for your comment.** **Use of the Gray Eagle at PCMS is not part of the proposed action.**	

means nothing to the very Department that is sworn to protect me and my fellow citizens. I am completely against the presence of the 'Gray Eagle' in Pinon Canyon Manuever Site. I have studied this weapon and know that it presents a grave danger to anyone near where it operates. If this weapon crashes or is lost it will cause harm to the land and the inhabitants of that land. I would like to see this weapon tested, etc on a base that has the area that is required for the Gray Eagle and that is currently unused for the most part. May I suggest White Sands??? My comment then is that I am AGAINST the presence of the Gray Eagle on Pinon Canyon.				
ID: 28	**Date:** 02/05/15	**Name:** Mary Ellen White	**Affiliation:**	**Method:** Email
Comment-subject Gray Eagle Environmental Assessment This Gray Eagle Environmental Assessment is the worst EA Fort Carson has dreamed up yet! Pure bull excrement! We do not believe a word of it and I am telling you to take the Gray Eagle no further south than rear end kissing Colorado Springs. We will NOT have it in the real SE Colorado short grass prairie! Your minds may be made up already, but make no mistake, so is ours! Close PCMS!			**Response** **Thank you for your comment.** **Use of the Gray Eagle at PCMS is not part of the proposed action.**	
ID: 29	**Date:** 02/06/15	**Name:** Not 1 More Acre!	**Affiliation:**	**Method:** Email
Comment-subject Gray Eagle EA comments **(See Attachment G)**			**Response** **Use of the Gray Eagle at PCMS is not part of the proposed action. The Gray Eagle requires infrastructure and associated airspace requirements that are not available at PCMS. There is no proposal to and/or funding for infrastructure improvements at PCMS. Because the Gray Eagle would take off from an established airfield and remain aloft in Fort Carson's restricted airspace, we disagree that it could have significant impacts to sensitive species, sensitive soils or other biological resources. Air impacts are assessed in Section 3.2.2.2.** **The Gray Eagle was not previously analyzed in the 2012 CAB EA because at that time, the CAB did not have a Gray Eagle Company attached to it, as documented in a Record of Environmental Consideration (REC) for the MQ-1C Gray Eagle UAS Stationing, signed 20 May 2011 (Attachment I). This environmental assessment was initiated after a stationing action for the UAS personnel at Fort**	

	Carson was documented in a Record of Environmental Consideration (REC) for the MQ-1C Gray Eagle UAS Stationing, which was signed 31 July, 2014 (Attachment J). **Gray Eagle operations would be conducted within Fort Carson's restricted airspace and are wholly distinct from the type of operations that could ever occur at the proposed BLM helicopter landing sites. The helicopter operations at Bullseye airfield are limited in nature and represent a routine modification to local training and operations of the Combat Aviation Brigade. Integration with Gray Eagle is not anticipated. Helicopter training and operations are dynamic in nature and when local operations require additional environmental analysis, it has been initiated.** **Regarding integration with broader Army structuring and realignment, this matter has been subject of a tiered environmental analysis for the assessment of the broader implications of the stationing decision. The concept of tiering was promulgated in the 1978 CEQ regulations. In this case, tiering of environmental analysis is appropriate because it addressed a broad, general program, policy and proposal. This current environmental analysis focuses on a narrower site-specific proposal and shifts from a stationing concern to the narrower site-specific implications of construction, maintenance, and operations of the Gray Eagle at Fort Carson.** **Regarding the agency's reference materials, the *Final Life Cycle Environmental Assessment (LCEA) for the Extended Range/Multi-Purpose (ER/MP) Unmanned Aerial Vehicle System* was included in the EA as Appendix B. The reference to the 2013, Army Structure Memorandum (Total Army Analysis 2015-2019) was cited simply for historical information regarding the decision-making process which resulted in stationing of the grey eagle. That matter has been subject of a tiered environmental analysis for the assessment of the broader implications of the stationing decision. The document is not relevant to the local environmental analysis of**

	operations at Fort Carson and was not intended to be incorporated by reference. The citation has been removed from the references section of the EA. **The *Record of Environmental Consideration (REC) for the MQ-1C Gray Eagle UAS Stationing*, which was signed 31 July, 2014 has been posted on the Fort Carson website to make its availability easier for the public to obtain. It has also been included as an attachment to this EA (Attachment J).**

ID:30	**Date:** 02/06/15	**Name:** Doug Holdread	**Affiliation:**	**Method:** Email

Comment-subject Comment on environmental impacts of unmanned aerial systems (MQ-1C Gray Eagle), at Fort Carson I have a number of questions regarding the proposed Gray Eagle unmanned aerial system (UAS) at Fort Carson: * What fail-safe systems are in place in the event that an operator loses control of a drone? * How many test flights of this system have been completed? * How many failures have occurred? * Has any Gray Eagle testing or training been undertaken in close proximity of a populated area such as Colorado Springs? * Why is it necessary to establish drone units at multiple bases? Isn't this an unnecessary and expensive redundancy? * What is the cost to tax-payers of each drone and each drone support unit? * What steps would be necessary in order to expand drone testing or training to the Pinon Canyon Maneuver Site? * What Congressional and Department of the Army planning and approval exists for the stationing of Gray Eagles at U.S. Army installations? At what locations do current plans indicate that drones will be stationed? * Has funding for this project already been approved? If not, what is the approval process? * What is "swarming" and how will it be used in training with helicopters and drones? * Who will operate and control drones during training exercises at Fort Carson? What rank and level of training will operators have before they fly drones at Fort Carson? * What is the worst-case scenario in the event that an operator loses	**Response** **Thank you for your comments.** **See Comment Response #16** **Use of the Gray Eagle at PCMS is not part of the proposed action.** **Army structure changes in September 2013 included Gray Eagles. The Gray Eagle stationing decision was officially announced and documented in an Army Record of Environmental Consideration dated July 2014. It was at this time that the environmental analysis began at Fort Carson.** **For a description of a Gray Eagle Company see Section 2.3.2** **See Comment Response #16**

contact and/or control of a drone? Is it possible for an out-of-control drone to fly beyond restricted airspace? Is it possible that a drone could crash in a populated area? I look forward to the answers to these questions.				
ID: 31	**Date:** 02/08/15	**Name:** Kathleen McCormick	**Affiliation:**	**Method:** Email
Comment- subject Drones -Army Further Destroying Front Range Quality of Life Step by step, the Army is eroding our quality of life by attempting to turn the entire Front Range into a military training area and crisscross it with military training routes. While these drones may have the ability to fly at 29,000 feet, I was unaware they are capable of vertical take-off or landing. If they can't, this means they will be flying low and maneuvering over populated areas on the way to the target and back to the landing spot and the Army is being duplicitous by using 29,000 feet as a reference. The drones that overflew our neighborhood last summer were not flying anywhere near 29,000 feet AGL or ASML. Just as the Black Hawks and Chinooks do not fly over 1,000 feet as the Army claims. The helicopters fly low enough that they rattle the windows and the vibration can be felt long before and after they fly by. Yet, they are below the tree line and not visible unless they fly directly overhead. When they are directly overhead, it is easy to see they are not at 500 feet. Just, this morning, a Sunday, at 9:04 am, a low flying helicopter flew close by rattling windows. Colorado Springs and the rest of the front range are not George AFB in the 50s or Indian Wells. They are populated areas. We did not buy our house anywhere near a military base or a military training area or under the flight path of an airport. We do not want to live in an aerial training area now. The army has millions of acres of military reservations and the military as a whole has millions more. The drones should be stationed where the Army can adequately accommodate them without endangering the nearby public or destroying quality of life.			**Response** **Thank you for your comments.** **The proposed action does not require any additional restricted airspace. Operation of the Gray Eagle would be conducted at Fort Carson, CO within the existing restricted airspace, launched from the very closely adjacent Butts Army Airfield. See Figure 1-4.**	
ID: 32	**Date:** 02/04/15	**Name:** Citizens for Peace in Space	**Affiliation:**	**Method:** Petitions
Comment- **We, the undersigned wish to express our opposition to the Fort Carson plan to add the Gray Eagle killer drone to the Combat Aviation Brigade at Fort Carson. We believe that killer drones like the Predator and Gray Eagle are illegal and immoral and we object to having them in our community. (411 signatures**			**Response** **Thank you for your comments.**	

received).				
ID: 33	**Date:**	**Name:** Postcards	**Affiliation:**	**Method:** Petitions
Comment- **Fort Carson also received 56 "Ground the Drones" postcards demanding a public hearing and an extension of the 45 day comment period. A copy of the postcard is shown in Attachment H.**			**Response** **See comment response #11.**	

ATTACHMENT A

Gary L & Annie Collins
4335 Winding Circle
Colorado Springs, CO 80917-3635

DENVER CO 802
05 JAN 2015 PM 6 L

RECEIVED JAN 12 2015

DIRECTOR PUBLIC WORKS
ENVIRONMENTAL DIV.
1626 EVANS ST.
BLDG 1219
FORT CARSON, CO 80913-4362

80913417926

5 JAN 2015

Reference Indp Newspaper 31 DEC 2014

SUBJECT: DRONES ON CARSON

I say that DRONES & CAB ON FT CARSON should be a 'GO'
TIE MORE SOLDIERS CIVILIANS ON POST MAKES FOR A BOOM TO THE LOCAL ECONOMY. A PACIFIST SCREWBALL OPINION SHOULD BE ELIMINATED. BESIDES THAT MORE PEOPLE WILL RENT PLACES TO LIVE AND THATS GOOD FOR LANDLORDS.

ATTACHMENT B

Esther L Kisamore
817 1/2 S Tejon St
Colorado Spgs CO 80903-4150

RECEIVED JAN 12 2015

Fort Carson Nat'l Environmental
Policy Act Prog. Manager
Directorate of Public Works
Environmental Division
1626 Evans St. Bldg. 1219
Fort Carson, CO 80913-4362

Give us, O God, the vision which can see thy love in the world in spite of human failure. Give us the faith to trust the goodness in spite of our ignorance and weakness. Give us the knowledge that we may continue to pray with understanding hearts, and show us what each one of us can do to set forward the coming day of universal peace. Amen.

First prayer from space, Apollo 8
Christmas Eve, 1968

Directorate of Public Works,
Environmental Division:

Fort Carson's plans to add
12 Gray Eagle unmanned aerial systems
makes a mockery of the prayer from
space at the top of this page.

The Army adding drones is part of
the wasteful military branches competition.
Why does the army covet what the air
force has?

We need to stop the expansion of
militarism and put more + more
resources into diplomacy and real peace
building.

Use of drones develops more terrorists
when wedding parties, funerals, children
women, grandparents and daddy in house
and in the landscape are killed.

Use of drones clutter the air space, is
bad for the environment. Continue military
build up = morally diseased! We need more
comment time + a public hearing meeting.

Esther L. Kissmore

" A nation that continues year after year to spend more money on military defense than on programs of social uplift is approaching spiritual death" MLK

Riverside Church NYC
April 4, 1967

ATTACHMENT C

2626 Osceola St. #504
Denver, Co 80212

DENVER CO 802
07 JAN 2015 PM 9 L

RECEIVED JAN 12 2015

Ft. Carson Nat'l. Environmental Program Mgr.
Director of Public Works, Env'l Division
1626 Evans St. Bldg. 1219
Ft. Carson, Co 80913

80913417926

Jan. 6, 2015

Ft. Carson National Environmental Manager
Director of Public Works Env'l Division
1626 Evans St. Bldg 1219
Ft. Carson, Co 80913

Dear Environmental Program Manager,

A few days before Christmas I read an article in the Denver Post about your plan to bring 12 Gray Eagle Drones & military personnel to Ft Carson. Now I understand that you have set Feb. 6, 2015, as a deadline for public comment concerning your plan. Since the public announcement was made during holiday season, the public is not aware of your plan. An extension of the deadline is only just & public meetings must be scheduled.

I am opposed to the use of drones in warfare. They defy every "rule of law & war" ever adhered to since WWI. They are killing innocent civilians, indiscriminately "choosing" suspected terrorists, and creating future generations in the Middle East & Africa filled with anger & recrimination for the murder of so many innocent family members. Drones create greater insecurity for US future generations. Drones must be outlawed as military solutions to terrorism. The use of drones for military goals is immoral.

Sincerely,
Patricia McCormick
2626 Osceola St. #504
Denver, Co 80212

ATTACHMENT D

Shirley Whiteside
2922 West 55th Avenue
Denver, CO 80221

January 12, 2015

Re: NEPA Process, MQ-1C Gray Eagle), at Fort Carson, CO.

To Whom It May Concern:

I am concerned about proposed increased drone activity in Colorado for a number of reasons. For the purposes of this feedback opportunity, I was alarmed at a yearlong study published by the Washington Post in June 2014 http://www.washingtonpost.com/sf/investigative/2014/06/20/when-drones-fall-from-the-sky/ about increased drone crashes, both in the U.S. and abroad. Attached please see "Drone Crash Attachment".

The Army (Fort Carson) or the Pentagon in the case of drones dispatched by other branches of the military and CIA, have not taken responsibility for the damage these machines do, not only to the U.S. domestic economy and quality of life, but hostility fueled by U.S. attacks in lands where the drones are being used militarily, affecting the lives and deaths of civilians.

The Bureau for Investigative Journalism is attempting to compile a list of the names of persons killed by drones in Pakistan alone over the last decade. The list can apply several filters, including children. When I filtered it for child & civilian, I got a list of the names of 99 civilian children killed by drones. The Pentagon wants to increase their ability to wage this type of warfare "successfully" but in the best case of the word, it seems like the more "success" they/we have with these aggressive war-making programs, the more people in these *extremely* impoverished nations struggling for their very survival have cause to hate us. Not to weigh data like this from our comfortable station in Colorado is irresponsible. Here is a link to that ongoing report: http://www.thebureauinvestigates.com/namingthedead/the-dead/?sorted-by=newest-to-oldest&gender=child&location=any&reported_status=civilian&lang=en It becomes impossible not to begin to blame the U.S. military machine and its CIA covert arm for inciting terrorism world-wide. While it may be possible those U.S. military operations have served some defensive purpose or purpose for good in the world, this concept is increasingly difficult to imagine as possible.

In its plea to expand its flight rights the Army says *If the Proposed Action is not implemented, Gray Eagle training at Fort Carson would not be available to CAB units to support the Army mission. Support to Soldiers on the battlefield would be*

compromised because Fort Carson ground combat units would lack the collective training integration opportunities, and reconnaissance and critical real-time intelligence capability of these unmanned aircraft. (http://www.carson.army.mil/DPW/nepa%20documents/2014-EA-Draft-FNSI-Gray-Eagle.pdf, page 5) Perhaps the presence of CAB units to support the Army mission (which is possibly undefined or at the very least lacking clarity) themselves need to be reconsidered. With all the real-time intelligence and strike capability of these weapons, terrorism against the West appears to be fueled, sometimes by the very weapons the U.S. has provided. When someone sees their child's limbs blown off, or the fields feeding their families made sterile, or family members held for years without charges in clandestine prisons how long does it take to cause them to see the enemy as U.S.?

With all due respect, giving the Army carte blanche permission to take over a huge region of the state of Colorado is at best an oversight. Just because the Army says they are making us safer does not make it true. Just because this organization says more technology for attacking others is "defensive" does not make it true. Too many questions are not being asked to allow this request to go forward unchallenged at this time.

Thank you for your consideration of my input regarding this matter.

Shirley Whiteside
Concerned Citizen
Denver, CO

Drone Crash Attachment:

This attached list of drone crashes last updated in October 2014 documents 19 crashes since 2007 of the Grey Eagle drone, also known as the Warrior. 81 crashes of the Predator, which General Atomics references in its description of the Gray Eagle drone as "Technologically advanced derivative of the combat-proven Predator UAS" (http://www.ga-asi.com/products/aircraft/gray_eagle.php).

Source: http://dronewars.net/drone-crash-database/

Last updated: October 2014

Date	Operating nation	Drone type	Cause details	Where crash	Source*	Note
Oct 20 2014	UN	Falco		DR Congo	Press report	
Sep 23 2014	US Air Force?	Predator?		Yemen	Press report	
Sep 18 2014	NATO ISAF	Unknown		Afghanistan	Press report	
Jun 25 2014	US Air Force	Unknown		Afghanistan	Press report	
Apr 26 2014	US Air Force	MQ-1B Predator	Oil leak	Afghanistan	USAF Investigation	
Apr 04 2014	US Air Force	Predator	Pilot error	US, Nevada	USAF Investigation	
Jan 28 2014	US DHS	MQ-1B Predator	Mechanical failure	California, US	Press Report	
Jan17 2014	Ecuador Navy	Searcher-II		Ecuador	Press Report	
Jan 16 2014	US Air Force	Predator?		Yemen	Press Report	
Jan 15 2014	UN	Falco		DR Congo	Press Report	
2013						
Dec 13 2013	Indian Army	Heron-1		Tamil Nadu, India	Press Report	
Dec 06 2013	Turkish Air Force	Anka		Turkey	Press Report	
Nov 28 2013	Indian Army	Unknown		India	Press Report	
Nov 14 2013	US Air Force	MQ-9 Reaper		Nevada, USA	Press Report	
Nov 13 2013	US Army	MQ-5B Hunter		Afghanistan	WaPo database	
Nov 12 2013	USAF	MQ-9 Reaper		Lake Ontario, USA	Press Report	
Nov 03 2013	Israeli Air Force	Unknown		Gaza, Palestine	Press Report	
Oct 30 2013	US Air Force	MQ-1B Predator		New Mexico, US	Press report	
Oct 24 2013	US Navy	MQ-8B Fire Scout		Maryland, US	WaPo database	
Oct 16 2013	US Army	MQ-1C Gray Eagle	Lost link	Afghanistan	WaPo database	
Oct 08 2013	Israeli Air Force	Hermes 450		Israel	Press report	
Sep 23 2013	US Army	MQ-1C Gray Eagle		Afghanistan	WaPo database	
Sept 17 2013	USAF	MQ-1B Predator	Lost link	Off coast of Sicily	WaPo database	
Aug 14 2013	US Army	MQ-1B Warrior	Lost link	Afghanistan	WaPo database	
July 25 2013	US Air Force	MQ-9 Reaper		New Mexico, USA	Press Report	
July 24 2013	US Army	MQ-1C Gray Eagle		Afghanistan	WaPo database	
July 14 2013	Israeli Air Force	Hermes 450		Israel/Egypt bdr	Press Report	
Jun 27 2013	US	MQ-1B Predator	Mechanical Failure	Afghanistan	Press Report	

June 5 2013	US Marines	K-Max		Afghanistan	Press Report	
May 27 2013	US	S-100 Camcopter		Somalia	Press Report	
May 13 2013	US Air Force	MQ-1B Predator	Propeller problems	Nevada, USA	Press Report	
May 11 2013	USAF	MQ-1 Predator		Afghanistan	WaPo database	
May 11 2013	Israeli Air Force	Heron-1	Engine failure	Israel	Press Report	
Apr 22 2013	Russian Air Force	Unknown		Kazakhstan	Press Report	
Apr 9 2013	US Air Force	USAF MQ – 9 Reaper	Mechanical failure	Mali	Press Report	
Apr 5 2013	US Air Force	MQ-9 Reaper	Severe weather	Gulf of Aden	WaPo database	
Mar 29 2013	US Air Force	MQ-1B Predator	Struck by lightening	Afghanistan	WaPo database	
Feb 28 2013	US Army	MQ-5B Hunter		Afghanistan	WaPo database	
Mar 2 2013	US Air Force	MQ-1B Predator	Electronics failure	Afghanistan	USAF Investigation	
Sometime 2013	US Air Force	MQ-1 Predator		?	WaPo database	Details classified
2012						
Dec 21 2012	US Air Force	unknown		South Waziristan	Press Report	
Dec 13 2012	US Navy	MQ-8B Fire Scout		Off Libyan coast	WaPo database	
Dec 5 2012	Sudan Army	Unknown		Sudan	Press Report	
Dec 5 2012	US Air Force	MQ-9 Reaper		Nevada, US	Press Report	
Nov 30 2012	US Army	MQ 5-B Hunter	Engine failure	Afghanistan	WaPo database	
Nov 14 2012	US Army	MQ-1C Grey Eagle	Engine failure	Afghanistan	WaPo database	
Oct 26 2012	US Air Force	MQ-1Predator		Afghanistan	USAF Press Release	
Oct 11 2012	US Army	MQ-1C Grey Eagle	Engine failure	Afghanistan	WaPo database	
Sept 27 2012	Turkish Air Force / TAI	Anka		Turkey	Press report	
Sept 25 2012	US Army	MQ-1C Grey Eagle	Engine failure	Afghanistan	WaPo database	Civilian contractor operated
Sept 18 2012	US Air Force	MQ-1Predator	Lost link	Iraq	USAF Press Release	
Aug 22 2012	US Air Force	MQ-1Predator	Electrical fault	Afghanistan	USAF Press Release	
July 25 2012	US Air Force/GA	Predator & Grey Eagle	Crash on runway	Arizona, US	Press Report	
July 24 2012	USAF	MQ-1B Predator	Pilot error	Afghanistan	WaPo database	
July 20 2012	US Army	MQ-1C Grey Eagle		Afghanistan	WaPo database	
July14 2012	Hezbollah	Unknown		Lebanon	Press report	
July 11 2012	US Army	MQ-1C Grey Eagle	Engine failure	Afghanistan	WaPo database	
Jun 19 2012	Unknown	Unknown		Afghanistan	Press Report	
Jun 11 2012	US Navy	RQ-4A BAMS		Maryland, USA	Navy press release	
May 19 2012	Pakistan army	Unknown		Pakistan	Press Report	
May 10 2012	Schiebel	Schiebel S-100	Lost link	South Korea	Press Report	
April 14 2012	US Air Force	MQ1-B Predator	Engine failure	Afghanistan	Press Report	
April 6 2012	US Navy	MQ-8B Fire Scout		Afghanistan	WaPo database	Operated by civilian contractor
April 4 2012	US Air Force	MQ-9A	Pilot error	Seychelles	WaPo database	

		Reapers				
Mar 31 2012	US Air Force	MQ-9 Reaper			WaPo database	Details classified
Mar 30 2012	US Navy	MQ-8B Fire Scout		off West Africa	WaPo database	
Mar 21 2012	US Army	MQ-1B Warrior	Lost link	Afghanistan	WaPo database	
Feb 25 2012	US Air Force	Unknown		Pakistan	Press Report	
Feb 21 2012	US Air Force	MQ-1B Predator	Mechanical failure	Djibouti	USAF Investigation	
Feb 16 2012	Indian Navy	Searcher II		India	Press Report	
Feb 14 2012	US Air Force	MQ1-B Predator	Mechanical failure	Afghanistan	USAF Investigation	
Feb 3 2012	Unknown	Unknown		Somalia	Press Report	
Jan30 2012	US Air Force	MQ-1B Predator	Mechanical failure	Afghanistan	USAF Investigation	
Jan 29 2012	Israel Air Force	Heron TP		Israel	Press Report	
Jan 10 2012	US Army	MQ-5B Hunter	Pilot error	Georgia, US	WaPo database	
Sometime 2012	US Air Force	MQ-1B Predator			WaPo database	
Sometime 2012	US Air Force	MQ-9 Reaper			WaPo database	
2011						
Dec 27 2011	US Air Force	MQ-1B Predator		Afghanistan	Press Report	
Dec 13 2011	US Air Force	MQ-9 Predator		Seychelles	USAF Investigation	
Dec 4 2011	US Air Force	MQ-170 Sentinel		Iran	Press Report	
Nov 11 2011	Turkey Air Force	Heron-1		Turkey	Press Report	
Oct 7 2011	US Air Force	MQ-9 Reaper		New Mexico	Press Report	
Sep 22 2011	US Army	MQ-1B Warrior	Engine failure	Afghanistan	WaPo database	
Aug 24 2011	Chinese	Pterodactyl		China	Press Report	
Aug 24 2011	US Air Force	MQ-9 Reaper		New Mexico, US	Press Report	
Aug 20 2011	US Air Force	MQ-1B Predator	Mechanical failure	Afghanistan	USAF Investigation	
Aug 20 2011	US Air Force	RQ-4 Global Hawk		Afghanistan	USAF Investigation	
Aug 15 2011	US Army	RQ-7B Shadow	Collides with plane	Afghanistan	Press report	
Aug 11 2011	US DARPA	HTV-2	Wear to outer skin	Pacific Ocean	Press Report	
Jul 19 2011	Pakistan Navy	Unknown		Pakistan	Press report	
July 10 2011	US Air Force	MQ-1B Predator		Afghanistan	USAF Investigation	
Jun 28 2011	US Air Force	MQ-1B Predator	Bad weather	Afghanistan	ISAF report	
June 5 2011	US Air Force	MQ-1B Predator	Lightning strike	Afghanistan	USAF Investigation	
May 20 2011	US Air Force	MQ-9 Reaper		Nevada, US	WaPo database	
May 17 2011	US Air Force	MQ-1B Predator		Djibouti	USAF Investigation	
May 7 2011	US Air Force	MQ-1B Predator		Djibouti	USAF Investigation	
May 5 2011	US Air Force	MQ-1B Predator		Afghanistan	USAF Investigation	
May 1 2011	US Air Force	MQ-1 Predator	Engine failure	Afghanistan	UASF Investigation	
Apr 1 2011	US AeroVironment	Global Observer 1		California	Press report	
Apr 1 2011	US Air Force	MQ-9 Reaper		New Mexico, US	Press reports	
Mar 16 2011	US Army	MQ-1C Gray Eagle		California, US	WaPo database	

Mar 15 2011	US Air Force	MQ-1B Predator		Djibouti	WaPo database	
Mar 4 2011	Turkey Air Force	Heron -1		Turkey	Press Report	
Feb 8 2011-	USAF Air Force	Predator MQ-1		Yemen	Press Report	
Feb 7 2011	US Army	MQ-5B Hunter	Pilot error	Iraq	WaPo database	
Jan 14 2011	USAF Air Force	Predator MQ-1B	Engine failure	Djibouti	USAF Investigation	
Jan 3 2011	USAF Air Force	Predator MQ-1B		Kandahar	USAF Investigation	
2010						
Dec 14 2010	Mexican	Orbiter UAV		El Paso, Texas	Press Report	Mexican drone crash in US
Dec 9 2010	USAF Air Force	Predator MQ-1B	Pilot error	Kandahar	USAF Investigation	
Nov 02 2010	US Army	MQ-5B Hunter	Lost links	Afghanistan	WaPo database	
Oct 28 2010	USAF Air Force	MQ-9 Reaper		New Mexico, US	Press Report	
Oct 22 2010	USAF Air Force	MQ-1 Predator		New Mexico, US	US Press Release	
Oct 17 2010	US Army	MQ-5B Hunter		Afghanistan	WaPo database	
Sep 19 2010	USAF Air Force	Predator MQ-1B	Mechanical failure	Kabul	USAF Investigation	
Aug 31 2010	USAF Air Force	MQ-9 Reaper	Pilot error	US California	WaPo database	
Aug 18 2010	US Army	MQ-1B Warrior	Lost link	Iraq	WaPo database	
Aug 16 2010	USAF Air Force	Predator MQ-1B	Pilot error	Iraq	USAF Investigation	
Jul 29 2010	DARPA/Boeing	A160T	Pilot error	California, US	Press Report	Contractor
Jul 28 2010	USAF Air Force	Predator MQ-1B	Pilot error	New Mexico, US	USAF Investigation	
Jul 16 2010	Canadian Air Force	Heron-1		Canada	Press Report	
June 4 2010	Australian Air Force	Heron-1		Afghanistan	Press Report	
May 14 2010	US Army	MQ-5B Hunter	Weather	Iraq	WaPo database	
Apr 20 2010	USAF Air Force	MQ-1B Predator	Pilot error	US, California	USAF Investigation	
Mar 14 2010	USAF Air Force	MQ-1B Predator		Afghanistan	WaPo database	Details classified
Feb 13 2010	US Army	MQ-5B Hunter		Afghanistan	WaPo database	
Feb 09 2010	USAF Air Force	MQ-1B Predator		Afghanistan	Press Report	Details classified
Jan 24 2010	US Air Force			Afghan/Pakistan	Press Report	
Jan 15 2010	US Air Force	MQ-1B Predator	Pilot error	Afghanistan	WaPo database	Pilot flew Predator upside down
Jan 14 2010	USAF Air Force	MQ-1B Predator		Afghanistan	USAF Investigation	Details classified
Jan 13 2010	Italian Air Force	RQ-1B Predator A		Off Italian coast	Press Report	
2009						
Dec 13 2009	US Army	MQ-5B Hunter		Afghanistan	Wikileaks War Logs	
Nov 20 2009	USAF Air Force	MQ-1B Predator	Lost link	Afghanistan	USAF Investigation	
Nov 14 2009	US Army	MQ-1B Warrior		Afghanistan	Wikileaks War Logs	
Oct 3 2009	USAF Air Force	MQ-1B Predator	Pilot error	Afghanistan	USAF Investigation	
Sep 24 2009	German Army	LUNA		Afghanistan	Wikileaks War Logs	
Sep 23 2009		Falco		Wales	Press Report	
Sep 14 2009	USAF Air Force	MQ-1B Predator	Mechanical failure	Iraq	Wikileaks War Log	
Sep 13 2009	USAF Air Force	MQ-9 Reaper	Lost link	Afghanistan	Press Report	Shot down

Sep 11 2009	USAF Air Force	MQ-1 Predator		New Mexico, US	WaPo database	
Sep 04 2009	USAF Air Force	MQ-1B Predator	Mechanical failure	Afghanistan	Wikileaks War Logs	
Aug 22 2009	US Army	MQ-5B Hunter	Fuel leak	Iraq	WaPo database	
Aug 13 2009	USAF Air Force	MQ-1B Predator	Mech. failure	Iraq	USAF Investigation	
Aug 12 2009	US Army	I-GNAT		Iraq	Wikileaks War Logs	
July 04 2009	USAF Air Force	MQ-9 Reaper		Afghanistan	Wikileaks War Logs	
Jun 12 2009	USAF Air Force	RQ-1 Predator		Nevada, US	WaPo database	Details classified
Jun 02 2009	UK Army	Hermes 450	Engine Failure	Afghanistan	Wikileaks War Logs	
May 28 2009	US Air Force	RQ-4A Global Hawk		California, US	WaPo database	
May 13 2009	US Air Force	MQ-1B Predator		Afghanistan	USAF Investigation	Never found
May 08 2009	US Air Force	MQ-1B Predator	Mech.failure	Afghanistan	USAF Investigation	
Apr 28 2009	US Air Force	MQ-1B Predator	Mechanical failure	Nevada. US	USAF Investigtion	
Apr 21 2009	US Army	MQ-5B Hunter		Iraq	WaPo database	
Apr 20 2009	US Air Force	MQ-1B Predator	Electrical failure	Afghanistan	USAF Investigation	
Apr 10 2009	US Army	MQ-5B Hunter		Georgia, US	WaPo database	
Mar 20 2009	US Air Force	MQ-9 Reaper	Mechanical failure	California, US	USAF Investigation	
Mar 14 2009	Canadian Air Force	SPERWER		Afghanistan	Wikileaks War Logs	
Feb 22 2009	US Air Force	MQ-1B Predator	Electrical failure	Iraq	Wikileaks War Logs	
Feb 08 2009	US Air Force	MQ-1B Predator		Afghanistan	WaPo database	
Sometime 2009	US Air Force	MQ-9 Reaper		?	WaPo database	
2008						
Dec 04 2008	US Air Force	MQ-1B Predator		Iraq	Wikileaks War Logs	
Nov 20 2008	US Air Force	MQ-1B Predator		Afghanistan	Wikileaks War Logs	
Nov 17 2008	US Army	MQ-1C Warrior		California, US	WaPo database	
Nov 02 2008	US Air Force	MQ-1B Predator	Pilot error	Afghanistan	USAF Investigation	
Oct 25 2008	Canadian Air Force	Sperwer		Afghanistan	Wikileaks War Logs	
Oct 21 2008	Canadian Air Force	Sperwer		Afghanistan	Wikileaks War Logs	
Oct 19 2008	US Air Force	MQ-1B Predator	Mech.problems	Iraq	USAF Investigation	
Sep 9 2008	US Air Force	MQ-9A Reaper		California, US	WaPo database	Details classified
Sep 8 2008	US Air Force	MQ-1 Predator		Iraq	WaPo database	
Aug 01 2008	US Air Force	MQ-1B Predator	Electrical failure	Iraq	Wikileaks War Logs	
Jul 21 2008	US Air Force	MQ-1B Predator	Lost link	Afghanistan	USAF Investigation	Never found
Jul 13 2008	US Army	RQ-1C Warrior		Iraq	WaPo database	
Jul 11 2008	**US Army**	**MQ-5A Hunter**	Engine failure	Iraq	WaPo database	
Jun 13 2008	US Air Force	MQ-1B Predator		Afghanistan	WaPo database	
Jun 02 2008	US Air Force	MQ-1B Predator	Electrical failure	Iraq	USAF Investigation	
May 12 2008	US Air Force	**MQ-9A Reaper**			WaPo database	Details classified
May 7 2008	**US Army**	**MQ-5B Hunter**		Arizona, US	WaPo database	

May 02 2008	US Air Force crash	MQ-1B Predator	Engine failure	Iraq	Wikileaks War Logs	
Apr 09 2008	US Air Force	MQ-1B Predator	Mech. failure	Iraq	USAF Investigation	
Apr 09 2008	UK RAF	MQ-9 Reaper	Mech. failure	Afghanistan	Press report	
Mar 22 2008	US Army	**RQ-1L** Gnat	Lost link	Afghanistan	WaPo database	
Mar 11 2008	**US Army**	**MQ-5A Hunter**	Pilot error	Iraq	WaPo database	
Jan 28 2008	**US Army**	**RQ-1C Warrior**	Lost link	Afghanistan	WaPo database	
Jan 23 2008	US Air Force	MQ-9A Reaper		?	WaPo database	Details classified
Jan 13 2008	UK Army	Hermes 450		Iraq	Wikileaks War Logs	Crashed into airport building
Sometime 2008	US Air Force	MQ-1 Predator		?	WaPo database	Details classified
2007						
Dec 17 2007	US Air Force	MQ-1B Predator	Power failure	Iraq	Wikileaks War Logs	
Dec 11 2007	US DARPA / Boeing	A160T		California, US	Press Report	
Dec 7 2007	US Army	MQ-5B Hunter	Lost link	Iraq	WaPo database	
Nov 20 2007	US Army	MQ-5B Hunter	Left wing fell off	Iraq	WaPo database	
Sep 4 2007	US Air Force	MQ-9A Reaper		Nevada, US	WaPo database	
Aug 29 2007	US Army	MQ-5B Hunter	Engine failure	Iraq	WaPo database	
Aug 20 2007	US Air Force	MQ-1B Predator			USAF Investigation	Details classified
Jul 31 2007	US Air force	MQ-1L Predator	Engine failure	Iraq	USAF Investigation	
Jul 30 2007	US Air Force	MQ-1B Predator	Engine failure	Iraq	USAF Investigation	
Jun 4 2007	US Army	MQ-5B Hunter	Lost link	Iraq	WaPo database	Operated by civilian contractor
Apr 21 2007	US Army	RQ-1C Warrior		Iraq	WaPo database	
Apr 1 2007	US Army	MQ-5B Hunter	Engine failure	Iraq	WaPo database	
Feb 23 2007	US Air Force	MQ-1L Predator	Engine failure	Afghanistan	WaPo database	
Jan 17 2007	US Air Force	MQ-1B Predator	Engine failure	Iraq	USAF Investigation	
Sometime 2007	US Air Force	MQ-1B Predator	?	?	WaPo database	Details classified

ATTACHMENT E

Pikes Peak Justice and Peace Commission

A Voice for Nonviolence, Social Justice and Sustainability

To The U.S. Army
usarmy.carson.imcom-central.list.dpw-ed-nepa@mail.mil

February 3, 2015

As the Executive Director of Pikes Peak Justice and Peace Commission I am opposed to the U.S. Army's decision to add the Gray Eagle drone to the Combat Aviation Brigade at Fort Carson. I do support our soldiers and believe that every person has a right to defend themselves against aggressive or hostile acts. I would like the U. S. Army to first try and resolve conflicts we have with other nations, organizations, or terrorist using non violent techniques before using drones to kill what is perceived as an enemy. Erica Chenowith, distinguished University of Denver professor, has studied worldwide historical conflict and statistically proven that non-violent resolution to conflict is twice as likely to resolve the conflict as a violent resolution.

Pikes Peak Justice and Peace Commission promotes non violent resolution to conflict. We facilitate a peace camp every summer where we teach children in first to eighth grade self defense through the martial art, Aikido, and if possible non violent resolution to conflict. We give peace scholarships to graduating high school seniors who have demonstrated non violent resolution skills. Many of our members have served in the military and recognize that it is better to resolve a conflict using non violent resolution rather than to go to war because war often leads to more war.

At the present time our world is facing endless war in the middle east and in many other nations. War is creating more war and continuing to use drones to hunt down and kill a perceived enemy is perpetuating war and not leading to a peaceful resolution of conflict.

Respectfully Yours,

Scott R. Olson

Scott Olson
Executive Director

Box 2115
Colorado Springs, CO 80901

TEL: 719-632-6189

www.ppjpc.org

Pikes Peak Justice and Peace Commission

A Voice for Nonviolence, Social Justice and Sustainability

To The U.S. Army
usarmy.carson.imcom-central.list.dpw-ed-nepa@mail.mil

February 3, 2015

As the Executive Director of Pikes Peak Justice and Peace Commission I recently wrote an article in our newspaper publication, Active For Justice, about what I think Dolphins would say to humans about the folly of war and how it is affecting them. We need to consider how war harms other species as well as humans. This is a finite planet with finite species. War is quickly eliminating many other species. Stop being so self absorbed and consider that other species lives matter as well as humans!

Respectfully Yours,

Scott R. Olson

Scott Olson
Executive Director

Box 2115
Colorado Springs, CO 80901

TEL: 719-632-6189

www.ppjpc.org

VOLUME XXXVII NO.1 January/February/March 2015

ACTIVE FOR JUSTICE

PIKES PEAK JUSTICE AND PEACE COMMISSION

ACLU AMERICAN CIVIL LIBERTIES UNION

Pikes Peak Permaculture

A VOICE FOR PEACE, JUSTICE & SUSTAINABILITY IN THE PIKES PEAK REGION

Gaebler to speak at annual Party for Peace Jan. 31

All PPJPC members and friends are invited to our Party for Peace & Annual Meeting, 5-7 p.m. Jan. 31 at Grace & St. Stephen's Episcopal Church Parish Hall, the corner of Tejon and Monument streets.

The potluck dinner is a yearly opportunity to bring food to share (homemade items preferred), celebrate and renew memberships, and fellowship around community change in the coming year.

The festivities will include guest speaker Colorado Springs City Councilwoman Jill Gaebler, who joined the J&P at September's International Day of Peace breakfast. For more infor-

Dolphins: Humans need to end war

Scott Olson

One of the reasons to living peacefully is recognizing that war harms other species, too. Imagining that they have a voice in this matter, I have asked myself, if I were a dolphin, what would I say to humans about the folly of war? This is what I think they would say – a good message for 2015.

You humans have been at war with each other for as long as there has been recorded history. When are you going to stop? Will it be when you are no longer able to record your history because no one is alive to record it? How does war benefit you?

You must believe that it does or you would not continue killing each other. Do you get a sense of power and importance from being the victor and seeing others suffer?

Is it claiming more of the earth's land, even though it is not yours to claim? Is it because you have a need to possess for fear of not having enough?

Does war give you a sense of meaning? Is it because you believe that you have the righteousness of God on your side?

Donna and Jack Kassewitz reach out to dolphins with their SpeakDolphin.com Research Project. Like Scott Olson, they hope to advance the field of human-cetacean communication in order to give dolphins and whales a greater voice in world affairs.

Is it because you want revenge for all of the pain and suffering that you and your families have endured from one another's hand?

Your nuclear, chemical, biological and sound weapons are directly harming us dolphins. Our immune systems have become weakened and we are more susceptible to disease.

You may have supreme fighting

ATTACHMENT F

Peaceful Skies Coalition of New Mexico and Colorado
c/o P.O. Box 322
Arroyo Hondo, New Mexico 87513

February 5, 2015

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

US Army Environmental Command and
Commander Fort Carson
626 Evans Street, Building 1219
Fort Carson, Colorado 80913-4362

Re: Draft FNSI Environmental Assessment MQ-1C Gray Eagle Unmanned Aerial Systems

To Whom It May Concern:

Peaceful Skies Coalition is submitting comments on the Draft FNSI for the Fort Carson Environmental Assessment MQ-1C Gray Eagle Unmanned Aerial Systems as required under the National Environmental Policy Act of 1969, 42 U.S.C. § 4331, et seq., (NEPA) for the United States Army Environmental Command and Fort Carson Army Base.

These comments are submitted during the requisite comment period by the Peaceful Skies Coalition (Commenters). The Commenters request that Peaceful Skies Coalition members Carol Miller and Clifton Bain be placed on the recipient list to receive notice of any developments in the NEPA review process for this proposal and any related documents issued by the US Army Environmental Command and/or Fort Carson in the course of the NEPA review of this or any other Fort Carson proposal. The Commenters further request that these comments be included as part of the administrative record in order to establish standing as a stakeholder organization.

Adjacent and Encircling DOD Activities Ignored in the Draft FNSI Gray Eagle

Peaceful Skies Coalition has identified a large number, but not all, of Army and other branches of the military that are simultaneously conducting Scoping, Public Hearings, Draft and Final EAs and Draft and Final EISs. These activities encircle and/or directly impact Fort Carson and Piñon Canyon. Comprehensive and accurate regional information cannot be ignored. Both Fort Carson and PCMS have numerous NEPA procedures underway now, each in isolation of the other in violation of longstanding decisions in Federal court. The Federal courts have ruled that government NEPA activities "cannot isolate a proposed project, viewing it in a vacuum." 40 C.F.R. § 1508.25(a)

Current Fort Carson NEPA proposals are at http://www.carson.army.mil/DPW/nepa.html. Fort Carson is attempting to isolate all of those proposed projects from each other as well as from the large scale Bureau of Land Management High Altitude Mountain Environment Training (HAMET) also underway.

Four Colorado airforce bases surround Fort Carson, of these Peterson is the only one mentioned in the Draft FNSI Gray Eagle. One of the key problems with adding more air operations at Fort Carson is clearly stated in the document.

> "The installation already experiences airspace congestion. Fort Carson not only supports its resident units, but other units and entities. Other units that utilize BAAF are the US Air Force Academy, 306th Flying Training Group; a unit of the US Air Force, assigned to Air Education and Training Command, US Air Force Flight Pre-Screening, Doss Aviation Air Force Contract, Peterson Air Force Base Aero Club, Air Force 413 Fight Test Squadron Osprey, Corps of Engineers, and Army units from other installations coming to Fort Carson for high-altitude training. The Proposed Action would contribute to this congestion and increase the competition for this airspace." Page 18 (p 24 pdf)

Other adjacent and nearby air training activities which are not addressed in the Draft FNSI Gray Eagle are Cannon afb UAV and piloted aircraft, Holloman afb UAV and piloted aircraft, Kirtland afb aircraft, nor the large infrastructure development and new UAV airstrip the Army plans to construct in New Mexico at Fort Bliss.

With the army increasing the numbers of rotary and UAV aircraft at the same time as there are changes in airforce aircraft, there are significant concerns about increased restrictions on regional airspace. Even though Fort Carson has established what it calls a "Fly Neighborly" policy with an ever increasing numbers of flights and different types of aircraft, flight volume has already passed the level that might be considered neighborly.

In addition to training on the base, Fort Carson trains on the public lands in the national forest, is seeking to expand onto BLM public land, and also would like to control what happens on adjacent private land.

> "The continued development of infrastructure on Fort Carson and in surrounding areas could have cumulative impacts on nearby non-military land uses." Page 23 (p 29 pdf)

Peaceful Skies Coalition opposes military expansion efforts that take or negatively impact public and private lands.

<u>Bioregional Impacts Must be Addressed – No Silos</u>

As Peaceful Skies Coalition has previously commented to Fort Carson, in order to comment on any specific part of this NEPA process, the public needs to be provided information about adjacent and other proposed national military projects. Once again, this has not been done. Without complete information there is no way to determine if a project is even needed. Wildlife, water and air quality, avian flyways, to name just a few of the potentially affected natural systems, exist in very large bioregions which are not defined by lines drawn on a map around a single base.

<u>Cumulative Impacts</u>. Failure to consider cumulative impacts is one of the weakest parts of the Draft FNSI Gray Eagle document provided to the public. The NEPA review process requires taking a hard look at the cumulative impacts of a proposed action. 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. Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time." 40 C.F.R. § 1508.7, cited on page 4.1 (pdf 309).

Establishing the proper geographic scope or boundary for a cumulative impacts analysis is extremely important because the proposed action will have direct, indirect, and "additive" effects on resources *beyond the immediate* area. Environmental analysis should: (1) determine the area and resources that will be affected by their proposed action (the "project impact zone"); (2) make a list of resources within that area or zone that could be affected by the proposed action; and (3) determine the geographic areas occupied by those resources outside the immediate area or project impact zone.

In most cases, the largest of these areas will be the appropriate area for the analysis of cumulative effects. By way of example, for resident or migratory wildlife, the appropriate geographic area for the cumulative impacts analysis will be the species habitat or breeding grounds, migration route, wintering areas, or total range of affected population units. *See e.g., NRDC. v. Hodel*, 865 F.2d 288, 297 (D.C. Cir. 1988).

Another important aspect of a cumulative impacts analysis is the assessment of other past, present, and reasonably foreseeable actions affecting the resources, ecosystems, and/or human communities of concern. According to the CEQ, the "most devastating environmental effects may result not from the direct effects of a particular action, but from the combination of individually minor effects of multiple actions over time." Council on Environmental Quality, *Considering Cumulative Effects Under the National Environmental Policy Act* 1 (January 1997) *available at* http://ceq.hss.doe.gov/nepa/ccenepa/ccenepa.htm (last visited November 2, 2011). The requirement to consider cumulative impacts, therefore, is designed to avoid the "combination of individually minor" effects situation – to avoid the "tyranny of small decisions" or death by a thousand cuts scenario. *See e.g., Grand Canyon Trust v. FAA*, 290 F.3d 339, 346 (D.C. Cir. 2002).

As the D.C. Circuit Court noted, federal agencies must "give a realistic evaluation of the total impacts [of the action] and cannot isolate a proposed project, viewing it in a vacuum." *Grand Canyon Trust*, 290 F.3d at 342. Even "a slight increase in adverse conditions . . . may sometimes threaten harm that is significant. One more factory . . . may represent the straw that breaks the back of the environmental camel." *Id*. at 343 (*quoting Hanly v. Kleindienst*, 471 F.2d 823 (2d Cir. 1972)).

Thus, the Draft FMSI Gray Eagle must examine the cumulative effects with all other Department of Defense bases, training areas and operations at a minimum in Colorado, New Mexico, and the other adjacent states. As explained below, this comprehensive analysis is required by NEPA and mandates the preparation of a programmatic EIS that addresses the scale and scope of base and training expansions.

The Commenters therefore urge withdrawal of the Draft FNSI and instead initiate a Continent-wide EIS for all US Department of Defense (DOD) land and airspace use and training, whether manned or unmanned, by any and all branches of the military. This is pursuant to the CEQ's NEPA regulations, actions that: (1) are closely related, i.e., are interdependent parts of a larger action and depend on the larger action for their justification; or (2) are cumulative actions, which when viewed with other proposed actions have cumulatively significant impacts; or (3) are similar actions that have similarities that provide a basis for evaluating their environmental consequences together, such as common timing and geography, need to be considered in one EIS. *See* 40 C.F.R. § 1508.25.

There are a number of individual NEPA activities, or operations, throughout the western United States, and indeed the entire country, that should be considered in one, single programmatic or comprehensive EIS to establish once and for all a national, DOD-wide baseline.

These comments are submitted on behalf of the Peaceful Skies Coalition. A primary mission of the Peaceful Skies Coalition is to participate in this and other important decisions affecting military activities on military, public and private resources in New Mexico and Colorado.

We hope you find these comments to be helpful, informative, and useful in your efforts to comply with the NEPA and other substantive statutes. If you have any questions or comments, or wish to discuss the issues raised in this comment please do not hesitate to contact the Peaceful Skies Coalition representatives listed below.

Sincerely,

Carol Miller

On *Behalf* of:

Peaceful Skies Coalition
P.O. Box 322,
Arroyo Hondo, NM 87513

Carol Miller
HCR 65 Box 17
Ojo Sarco, NM 87521

Clifton Bain
P.O. Box 297
Arroyo Hondo, NM 87513

ATTACHMENT G

not one more acre! PO Box 773 • Trinidad • Colorado • 81082

news@not1moreacre.net • www.not1moreacre.net

February 6, 2015

Fort Carson NEPA Coordinator
Directorate of Public Works
Email: usarmy.carson.imcom-central.list.dpw-ed-nepa@mail.mil

Dear Sir or Madam:

Not 1 More Acre! ("N1MA") submits the following comments on the November, 2014 Environmental Assessment for the MQ-1C Gray Eagle Unmanned Aerial System (UAS) at Fort Carson, Colorado (the "EA") and the Draft Finding Of No Significant Impact (the "Draft FONSI") circulated therewith.

I. Interests of N1MA

N1MA is a non-profit organization formed to promote the ecological health of southern Colorado and northern New Mexico, including the area in and around the Joint Forces Piñon Canyon Maneuver Site ("PCMS").

On April 23, 2008, N1MA and several of its individual members filed a lawsuit against the Army in the United States District Court for the District of Colorado. That lawsuit (*Not 1 More Acre! v. United States Department of the Army*, D. Colo. Case No. 08-cv-00828-RPM) involved the Army's failure to comply with NEPA before approving the use of PCMS for various training purposes.

The Court ruled in N1MA's favor on all issues, and, in so doing, it invalidated the Army's reliance on a 2007 document titled "Final Piñon Canyon Maneuver Site Transformation Environmental Impact Statement" (the "2007 EIS"). The Court also awarded N1MA approximately $200,000.00 in attorney fees.

II. Comments on EA and Draft FONSI

Our comments on the EA and Draft FONSI are as follows:

a. Potential for Impacts to PCMS. The EA fails to address potential impacts to PCMS, instead suggesting that "[i]f the proposal to utilize PCMS for Gray Eagle training becomes reasonably foreseeable, the appropriate NEPA analysis will be conducted at that time." Vague assurances of this sort are not enough to satisfy NEPA, particularly where, as here, they are facially implausible.

The Army's own documents make it clear that Gray Eagle training at PCMS is already reasonably foreseeable:

-The 2013 Environmental Assessment for Fort Carson Combat Aviation Brigade Stationing Implementation (i) admitted that the Gray Eagle UAS is a standard component of a Heavy Combat Air Brigade (CAB), (ii) proposed to station a CAB at Fort Carson, and (ii) purported to allow elements of the CAB to train and PCMS.

-The Army's 2014 Draft Environmental Impact Statement for PCMS Training and Operations proposed to increase UAS training activities at PCMS.

Therefore, potential impacts on PCMS should have been considered in ***this*** EA.

Under these circumstances, the Army must either (i) revise the EA to account for potential impacts to PCMS and recirculate the document for a second round of public review or (ii) adopt a legally-enforceable prohibition on Gray Eagle use within 50 miles of PCMS as a binding condition on approval of the

Proposed Action. Any other approach would impermissibly allow reasonably foreseeable impacts on PCMS to escape review and public comment.

b. Significant Impacts. The Army's failure to consider potential impacts on PCMS is significant because (contrary to the Army's assertion) the environmental impacts of UAS training and operations are quite significant. Among other things, operation of UAS significantly impacts air quality and sensitive species. It also threatens the fragile soil and biological resources of shortgrass prairie ecosystems such as those on and near PCMS.

c. Failure to Evaluate Connected and Cumulative Actions/Impacts. The scope of a NEPA document must be broad enough to include all connected, similar, and cumulative actions or impacts. 40 C.F.R. §§ 1508.7, 1508.8, 1508.25. For each of the reasons set forth in parts (a) and (b), the EA fails properly to address all connected, similar, and cumulative actions. And the EA's cumulative impacts "analysis" utterly fails to address any of other past, present, and reasonably foreseeable future projects also affecting Fort Carson, PCMS, and their surrounds (including, without limitation, the Army's proposed 2020 force structure realignment, the Army's proposed PCMS training and operations, the Army's proposed use of Bullseye Auxilliary Airfield, and the High Altitude Mountain Environment Training landing zones proposed by the Bureau of Land Management and United States Forest Service).

d. Alternatives. The EA and Draft FONSI conclude that the Proposed Action must be adopted because any other option "could impair the deployment and combat readiness of soldiers and their units." But that would only be true if (i) all soldiers must be trained on the Gray Eagle UAS and (ii) that training can only be obtained at Fort Carson. Neither is accurate. Therefore, the EA should have considered additional alternatives.

Indeed, an EA must evaluate ***all*** "appropriate and reasonable alternatives that can be realistically accomplished." 32 C.F.R. §§ 651.20, 651.34(d). Therefore, the EA must be revised to include a full range of "reasonable and appropriate" ways to meet the Army's readiness goals, including, without limitation the alternative of meeting Gray Eagle UAS training needs at other Army installations.

e. Incorporation by Reference. NEPA's implementing regulations permit agencies to incorporate material by reference ***into an Environmental Impact Statement***, provided that the incorporated material is ***made available to the public*** within the time allowed for comment. 40 C.F.R. § 1502.21. The Army has improperly relied on incorporation by reference in the context of an EA and without making the incorporated material (including, without limitation, the documents referenced on pages 1 and 2 of the EA) available for public review during the EA comment process. As a result, the public has been deprived of a meaningful opportunity review and comment on the full range of environmental analyses on which the Army relied.

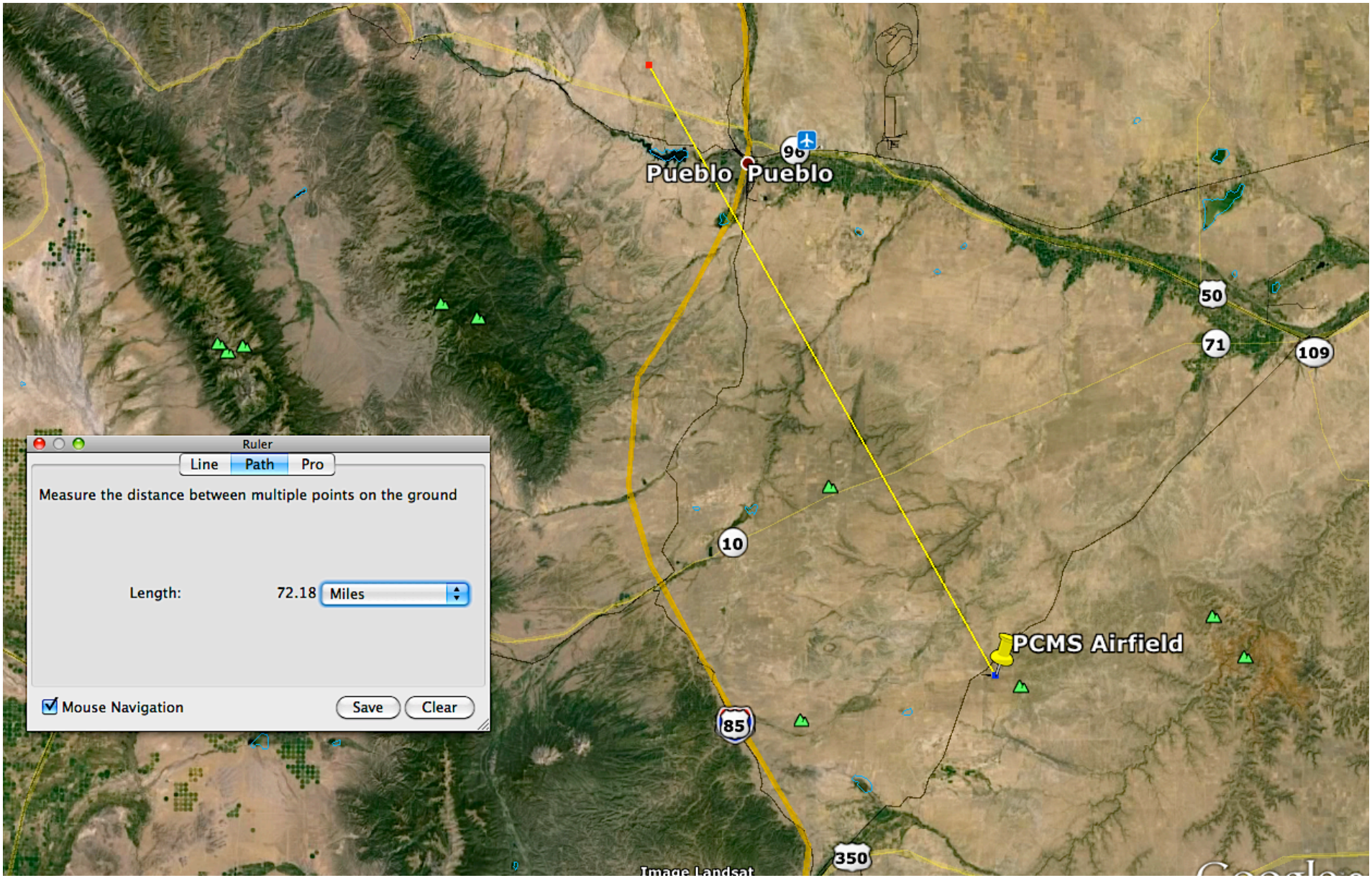
To comply with NEPA, the Army must revise and recirculate the EA for a second round of public review and comment before deciding whether to issue a FONSI or prepare a full EIS.

Thank you for the opportunity to submit these comments.

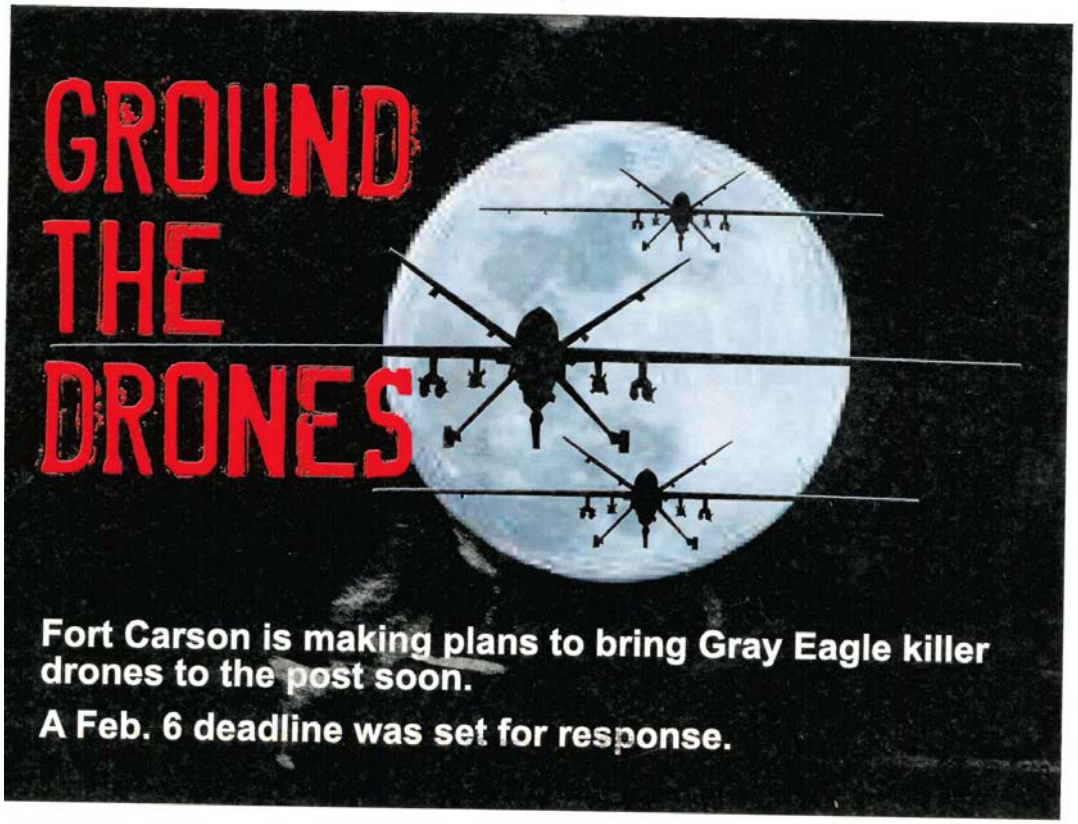
Sincerely,

Jean Aguerre

Attachment: 1


Pueblo
Pueblo
96
50
71
109
10
85
350
PCMS Airfield
Ruler
Line
Path
Pro
Measure the distance between multiple points on the ground
Length:
72.18
Miles
Mouse Navigation
Save
Clear
Image Landsat

ATTACHMENT H



DENVER CO 802

2015

We demand a public hearing on combat drones at Ft. Carson and an extension of the 45 day comment period.

Ft Carson NEPA Program Manager
Directorate Public Works
Environmental Division
Evans St, Building 1219
Fort Carson, CO 80913-4362

Sincerely,

Kate Williams
114 Prairie Dr
Colorado Springs, CO 80906

ATTACHMENT I
Record of Environmental Consideration
2011 Stationing of MQ-1C Gray Eagle
Unmanned Aircraft System (UAS) Stationing

RECORD OF ENVIRONMENTAL CONSIDERATION

Project Title. Record of Environmental Consideration (REC) for the stationing of MQ-1C Gray Eagle Unmanned Aircraft System (UAS) Stationing.

Purpose of Proposed Action. The purpose of the proposed action is to establish home station training (HST) sites in order to train at Army installations in the United States with MQ-1C Gray Eagles. This involves stationing companies of 128 Soldiers and associated equipment (see below) with up to four companies at a single installation.

Reason for Using REC. A REC is allowed under 40 Code of Federal Regulations (C.F.R.) Part 1500.4(p) because the proposed action is categorically excluded. The applicable Department of Army Categorical Exclusions (32 C.F.R., Appendix B to Part 651, Section II,) for all or parts of this action, dependent upon the installation(s) selected for stationing, are:

- Paragraph (b)(4): Proposed activities and operations to be conducted in an existing non-historic structure which are within the scope and compatibility of the present functional use of the building, will not result in a substantial increase in waste discharged to the environment, will not result in substantially different waste discharges from current or previous activities, and emissions will remain within established permit limits, if any.
- Paragraph (b)(12): Reductions and realignments of civilian and/or military personnel that: fall below the thresholds for reportable actions as prescribed by statute (10 U.S.C. 2687) and do not involve related activities such as construction, renovation, or demolition activities that would otherwise require an EA or an EIS to implement. This includes reorganizations and reassignments with no changes in force structure, unit redesignations, and routine administrative reorganizations and consolidations.
- Paragraph (c)(1): Construction of an addition to an existing structure or new construction on a previously undisturbed site if the area to be disturbed has no more than 5.0 cumulative acres (2 hectares) of new surface disturbance. This does not include construction of facilities for the transportation, distribution, use, storage, treatment, and disposal of solid waste, medical waste, and hazardous waste.
- Paragraph (j)(2): Flying activities in compliance with Federal Aviation Administration Regulations and in accordance with normal flight patterns and elevations for that facility, where the flight patterns/elevations have been addressed in an installation master plan or other planning document that has been subject to National Environmental Policy Act (NEPA) public review

Additionally, the MQ-1C Gray Eagle UAS, as an Extended Range/Multi-Purpose (ER/MP) Unmanned Aerial Vehicle System (UAVS), had a life-cycle environmental assessment completed in December 2004, which resulted in a Finding of No Significant Impact (FNSI). The *Final Life Cycle Environmental Assessment (LCEA) for the Extended Range/Multi-Purpose (ER/MP) Unmanned Aerial Vehicle System (UAVS)* and resulting FNSI was prepared by the Army's Unmanned Aerial Vehicle Systems Project Office and approved by the G-4. In July 2010, a *NEPA Review of the Extended Range Multi-Purpose (ER/MP) Unmanned Aircraft System (UAS) Record of Environmental Consideration* was completed, addressing the changes/modifications subsequently done, including a slightly larger engine and a reconfigured propeller.

Project Description. Training on MQ-1C Gray Eagle UASs enables the Army to meet its mission requirements. The ER/MP UAS (a.k.a., the MQ-1C Gray Eagle UAS) mission is to provide combatant commanders a real-time responsive capability to conduct long-dwell, persistent stare, wide-area reconnaissance, surveillance, target acquisition, communications relay, and attack missions. The system addresses the need for a long-endurance, armed, unmanned aircraft system that offers greater range, altitude, and payload flexibility.

As a company assigned to a Combat Aviation Brigade (CAB), the ER/MP UAS executes reconnaissance, surveillance, security, attack, and command and control missions to provide dedicated mission-configured UAS support to assigned division CABs, Fires

Brigades, Battlefield Surveillance Brigades, Brigade Combat Teams, and other Army and joint force unities based upon the division commander's mission priorities.

The baseline system of one general purpose forces (GPF) company of a MQ-1C Gray Eagle UAS consists of 128 Soldiers, 12 MQ-1C Gray Eagles, five Ground Control Stations, five Ground Data Terminals, one SATCOM Ground Data Terminal, four Tactical Automatic Landing Systems, two Portable Ground Control Stations, and two Portable Ground Data Terminals. The 128 Soldiers, 12 MQ-1C Gray Eagles, and supporting equipment would be the maximum number of Soldiers and equipment that could potentially be at a home station for one GPF ER/MP UAS company, should there be no deployments. Four MQ-1C Gray Eagles and supporting equipment would typically be at the home station for home station training / dwell. The remaining equipment could be expected to be deployed to theatre to support operations; however, if changes occur to United States priorities, a full company and its requisite equipment set could all potentially be at home station. This would be the minimum number of equipment that would likely be at a home station for one GPF ER/MP UAS company. A special operations forces (SOF) ER/MP UAS company has the same number of Gray Eagles (12) but consists of additional Soldiers (165 total) and vehicle mounted ground control stations.

As part of this action, up to 17 ER/MP UAS Companies may be assigned to Army installations.

Screening Criteria. The Army established five screening criteria to identify appropriate installations. These criteria were that the installation has:

- an existing Combat Aviation Brigade (CAB);
- heavy troop concentrations to facilitate maneuver training;
- an operating military airfield with a runway length at least 4,500 feet (1,371.6 meters) and a runway slope less than or equal to 1.5 degrees;
- access to restricted airspace; and,
- space available for facilities (e.g., barracks, hangars with controlled access, Company Headquarters (HQ), and motor pool).

The Army desired, but did not require, that a ER/MP UAS company stationing result in the company being co-located with a Division HQ and be in the vicinity of an air transportation hub for movements in and out of the area.

ER/MP UAS companies would be assigned to a CAB. As such, the Army established the following limits for this stationing action:

- No more than four companies in a single CAB (limitation due to airspace, frequency spectrum, and C2 concerns).

- No more than four companies at a single installation.

Environmental Considerations. The MQ-1C Gray Eagle uses an airfield for landings and takeoffs. Per the screening criteria, selected installations would have an existing runway of a minimum length, therefore no new impacts resulting from a runway construction or extension would occur.

As mentioned previously, a ER/MP UAS stationing would require support facilities, including a hangar. Current hanger design can accommodate two companies without changing the footprint; a third company would require an ancillary adjacent support building. Seven hangars on six installations would potentially need to be constructed. Environmental impacts are expected to be less than significant as hangers would likely be constructed on previously disturbed ground and/or disturbed has no more than 5.0 cumulative acres (2 hectares).

At installations where the ER/MP UAS would be co-located with a CAB, the ER/MP UAS companies can use CAB maintenance facilities. Installations with an existing CAB is one of the screening criteria, therefore environmental impacts resulting from expansion or use of an ER/MP UAS maintenance facilities are expected to be less than significant. If construction of a maintenance facility were needed, impacts are expected to be less than significant as the facility would likely be constructed on previously disturbed ground and/or the activity, combined with other ER/MP UAS facility construction, would be expected to disturb less than 5.0 cumulative acres (2 hectares).

The ER/MP UAS is expected to have only minor impacts to air quality, hazardous materials and waste, health and safety, and noise at facilities where the system would be deployed. Details of the environmental analysis for the UAS is contained in the December 2004 *Final Life Cycle Environmental Assessment (LCEA) for the Extended Range/Multi-Purpose (ER/MP) Unmanned Aerial Vehicle System (UAVS)* and resulting FNSI, prepared by the Army's Unmanned Aerial Vehicle Systems Project Office, and in the July 2010 *NEPA Review of the Extended Range Multi-Purpose (ER/MP) Unmanned Aircraft System (UAS) Record of Environmental Consideration*. These documents are incorporated by reference herein.

Environmental and socioeconomic impacts resulting from ER/MP UAS Soldiers and their Families working and living on an installation is expected to be less than significant. Installations may receive between 128 Soldiers (one GPF company) and 660 Soldiers (four SOF companies). Per the screening criteria, no more than four companies would be stationed at a single installation. Even with 660 Soldiers, the installations being considered each have well over 35,000 employees (civilian, military, and other) working on the installation and well over 35,000 residents (e.g., Soldiers and

Families) living on the installation. One to four companies of ER/MP UASs would consist of less than 1.9 percent populations of each.

Environmental Checklist. To ensure compliance with the President's Council on Environmental Quality (CEQ) guidance (40 CFR Parts 1500-1508) and the Army's NEPA rule (32 CFR Part 651), a specific REC checklist is included. The environmental checklist further demonstrates the consideration of environmental effects of the ER/MP UAS stationing decision and provides a framework for identifying NEPA requirements for subsequent Army actions to implement the stationing decision.

a. Soil Resources

1. Off-road operations of ER/MP UAS support vehicles are likely to significantly increase soil compaction, rutting, or conditions above that caused by current level of activities on training ranges and maneuver areas. **NO**

b. Air Quality

2. Using ER/MP UASs at this installation will contribute to a change in the air quality compliance status (e.g., from attainment to nonattainment) in the region. **NO**

c. Water Resources

3. The Proposed Action will result in unpermitted direct impacts to waters of the U.S.**NO**

d. Biological Resources (including Threatened and Endangered Species and Wetlands)

4. Off-road operations of ER/MP UAS support vehicles are likely to significantly increase the level of damage to vegetation on training ranges and maneuver areas above that caused by current level of activities on training ranges and maneuver areas. **NO**

5. Construction of facilities for the Proposed Action will significantly impact a federally listed threatened or endangered species or their designated critical habitat. **NO**

6. Normal operational or training use of ER/MP UASs will significantly impact a federally listed threatened or endangered species or their designated critical habitat. **NO**

7. The Proposed Action will result in construction of one or more ER/MP UAS facilities in jurisdictional wetlands. **NO**

8. The Proposed Action will require ER/MP UAS support vehicles to operate in areas not previously traveled by tactical vehicles, and require additional surveys to identify and delineate jurisdictional wetlands. **NO**

e. Cultural Resources

9. The Proposed Action will require ER/MP UAS support vehicles to operate in areas not previously traveled by tactical vehicles, and thus require additional cultural resource surveys. **NO**

f. Noise

10. Noise generated by normal operations of ER/MP UASs will likely affect sensitive wildlife populations, to include threatened and endangered species. **NO**

11. Noise generated by the normal operations of ER/MP UASs, will change existing noise contours on the installations **NO**

g. Hazardous Materials and Used Oil

12. The installation will need to build, or significantly modify, facilities necessary to store waste petroleum, oil, and lubricant products in accordance with local/state/federal regulations. **NO**

13. The proposed action will require modification for the installation's Spill Prevention, Control and Countermeasures Plan. **NO**

h. Facilities, Utilities and Energy

14. The Proposed Action will require expansion of existing facilities for maintaining or parking ER/MP UAS aircraft and support vehicles involving more than 5.0 cumulative acres (2 hectares) of land. **NO**

15. The Proposed Action will require modification to the installation's Stormwater Discharge Prevention Plan. **NO**

16. More frequent delivery of fuel will require revision of existing emergency response or spill response plans. **NO**

i. Cumulative Effects

17. Other actions are underway, or proposed, that when combined with the potential effects of operating and maintaining ER/MP UASs on the installation, could have a significant effect on human health or the environment. **NO**

j. Implementing ER/MP UASs Stationing Decision

18. The fielding of ER/MP UASs requires changing any response listed above to YES.

NO. If the installation answered "**NO**" to question number 18 listed in the checklist above, then an installation's proposed action of implementing ER/MP UASs stationing decision at Army Installations in the United States likely qualifies for a REC. The REC should cite the applicable Categorical Exclusion(s) from 32 C.F.R., Section II of Appendix B to Part 651, the LCEA and resulting FNSI for the ER/MP UAVS prepared by the UAVS Project Office, the follow-on REC prepared in 2010 by the UAVS Project Office, and any installation-level environmental analyses or environmental impact statements, if any, that are applicable.

YES. If the installation answered "**YES**" to question number 18, additional environmental analysis may be required, and would be conducted as part of installation level site-specific NEPA analysis.

Stationing Decision. Using the screening criteria and factoring in information about limits, existing hangars, and cost for new hangars, HQ, Department of the Army has identified the following installations for home stationing of ER/MP UAS companies.

- Fort Bliss, TX - 3 GPF companies
- Fort Bragg, NC - 3 GPF companies
- Fort Campbell, KY - 2 SOF companies
- Fort Hood, TX - 3 GPF companies
- Fort Riley, KS - 3 GPF companies
- Fort Stewart, GA - 3 GPF companies

Approval Authority. I have reviewed and approved this document for publication.

20 May 2011

Peter W. Chiarelli
General, U.S. Army
Vice Chief of Staff

Date

Acronyms.

ACOM ..... Army Aviation and Missile Life Cycle Management Command
CAB..... Combat Aviation Brigade
C.F.R. ..... Code of Federal Regulations
ER/MP..... Extended Range Multi-Purpose
FNSI..... Finding of No Significant Impact
GPF..... general purpose forces
HQ..... Headquarters
HST..... home station training
LCEA..... Life Cycle Environmental Assessment
REC..... Record of Environmental Consideration
SOF..... special operations forces
UAS..... Unmanned Aircraft System
UAVS ..... Unmanned Aerial Vehicle System

References.

Final Life Cycle Environmental Assessment (LCEA) for the Extended Range/Multi-Purpose (ER/MP) Unmanned Aerial Vehicle System (UAVS), December 2004. Army Aviation and Missile Life Cycle Management Command (AMCOM), Unmanned Aerial Vehicle Systems (UAVS) Project Office.

Finding of No Significant Impact for the *Life Cycle Environmental Assessment (LCEA) for the Extended Range/Multi-Purpose (ER/MP) Unmanned Aerial Vehicle System (UAVS)*, February 2005. AMCOM, UAVS Project Office.

NEPA Review of the Extended Range Multi-Purpose (ER/MP) Unmanned Aircraft System (UAS) Record of Environmental Consideration, July 2010. AMCOM, UAVS Project Office.

ATTACHMENT J
Record of Environmental Consideration
2014 Aviation Force Structure
Realignment

Record of Environmental Consideration

2014 Aviation Force Structure Realignment

1. Purpose

The purpose of this document is to determine whether several proposed aviation initiatives described below are adequately covered by "existing or previous" National Environmental Policy Act (NEPA) documentation. This analysis concludes the initiatives are so covered and that more formal analysis is not required at the programmatic, Headquarters, Department of the Army level. The implementation of the proposed aviation initiatives at certain installations may require installation-level, site-specific analysis.

2. Proposed Actions

The proposed action consists of three initiatives to be implemented over the next several years. The first is the Aviation Restructure Initiative (ARI). For purposes of discussion in this Record of Environmental Consideration (REC), ARI is considered as three actions: Changes in Combat Aviation Brigade (CAB) sizes and organization, the inactivation of a CAB at Fort Campbell, and relocation of an Attack/Reconnaissance Battalion (ARB) from Fort Carson to Joint Base Lewis McCord (JBLM). The second initiative is the activation of new MQ-1C Gray Eagle unmanned aerial system companies at several installations. The third initiative is conducting Gray Eagle Follow-on Test and Evaluation (FOT&E) at Fort Irwin, CA.

a. Aviation Restructure Initiative (ARI)

In February, 2014, the Secretary of Defense announced that the Army would conduct a reorganization of aviation units across the Army to modernize its fleet and make it more capable and efficient. Following a comprehensive review of its aviation strategy, the Army determined it must restructure aviation units to achieve a leaner, more efficient and capable force that balances operational capability and flexibility across the Total Army. The ARI includes inactivating the 159th CAB and relocating an ARB stationed at Fort Carson to JBLM; these two actions are discussed separately for the purpose of this REC.

Army aviation forces are restructuring for multiple reasons. As the Army decreases the number of its Brigade Combat Teams (BCTs), other units such as CABs must adjust their composition and numbers. In addition, the Army decided in 2013 to restructure BCTs; part of this entailed repurposing the BCTs' Shadow Unmanned Aerial Vehicle (UAV) System. These Shadow units will be added to the CABs, as discussed below. Finally, the Department of Defense and the Army face budgetary pressures due to the

Budget Control Act of 2011 and subsequent budget legislation, which result in an overall decrease in the size of the Army.

Rather than implementing cuts across the board, the Army developed the ARI, to better manage its aviation assets. Under ARI, the Army will divest three entire fleets of aircraft – the OH-58A/C Kiowas, the TH-67 Creek training helicopters, and the OH-58D Kiowa Warriors – an overall reduction of 798 aircraft, avoiding substantial operations and sustainment costs associated with these aging fleets. The low-density, high-demand Apache helicopter will be transferred from the Reserve Component (RC) to the Active Component Army to replace the OH-58D Kiowa Warriors, with the RC receiving UH-60 Blackhawk helicopters. The transfer will enable the teaming of Apaches with unmanned aircraft systems (UAS) such as Shadows and MQ-1C Gray Eagles. This will fill a critical need for an Armed Aerial Scout created by the elimination of the Armed Reconnaissance Helicopter program. ARI achieves necessary cost savings while maintaining the most modern, capable, and ready fleet possible.

ARI avoids approximately $12B in near-term costs. If the Army were to not execute ARI, it would be forced to retain many of its oldest and least capable aircraft while divesting several hundred modernized airframes. Upgrades to the Kiowa Warrior would cost over $10B. Replacing the legacy TH-67 with a new training helicopter would cost another $1.5B. In addition, reduced procurement rates of modernized aircraft would increase the cost per aircraft and cost the Army approximately $15B. These costs would be unbearable for the Army under the current budget constraints and would risk creating a hollow force, with less overall capability and less investment in modernization.

1) CAB Structure Changes

Current CAB Structure. A CAB is a multi-functional unit that fields military helicopters and unmanned aerial systems offering a combination of attack helicopters (AH-64 Apache), reconnaissance helicopters (OH-58 Kiowa Warrior), utility helicopters (UH-60 Black Hawk), cargo helicopters (CH-47 Chinook), air ambulance / medical evacuation (MEDEVAC) helicopters (HH-60 Black Hawk), and UAS (RQ-7 Shadow and MQ-1 Grey Eagle). Army CABs are currently organized utilizing four designs in Active Component (AC) and Reserve Component (RC) units: Heavy (x6; 4x AC, 2x RC), Medium (x8; 8x AC), Full Spectrum (x1; 1x AC), and Expeditionary (x6; 6x RC). Three Medium CABs are structured with an assigned Pathfinder Light Infantry Company (60 Soldiers) organic to the Assault Helicopter Battalion (1x Bragg, 2x Campbell).

The CAB (Heavy) consists of:

- Headquarters and Headquarters Company (HHC)
- General Support Aviation Battalion (GSAB): 8x UH-60 providing command and control capability, 12x CH-47 providing heavy lift capability, 15x HH-

60 providing medical evacuation capability, and an Air Traffic Services Company providing air traffic control
- Assault Helicopter Battalion (AHB): 30x UH-60 providing utility capability
- Two Attack/Reconnaissance Battalions (ARB): 48 AH-64 Apaches providing attack and reconnaissance capability (24 per Battalion)
- Aviation Support Battalion (ASB): providing intermediate level maintenance, signal, and transportation capabilities
- The AC CABs (Heavy) are stationed at: Bliss, Hood, Germany, and Carson; two are RC (CONUS)
- Approximately 2,580 personnel are assigned

The CAB (Medium) consists of:

- Headquarters and Headquarters Company (HHC)
- General Support Aviation Battalion (GSAB): 8x UH-60 providing command and control capability, 12x CH-47 providing heavy lift capability, 15x HH-60 providing medical evacuation capability, and an Air Traffic Services Company providing air traffic control
- Assault Helicopter Battalion (AHB): 30x UH-60 providing utility capability
- Attack/Reconnaissance Battalion (ARB): 24x AH-64 Apaches providing attack and reconnaissance capability
- Attack/Reconnaissance Squadron (ARS): 30x OH-58D Kiowa Warriors providing attack and reconnaissance capability
- Aviation Support Battalion (ASB): providing intermediate level maintenance, signal, and transportation capabilities
- All CABs (Medium) are Active Component and stationed at Riley, ROK, Hunter AAF, Drum, JBLM, Hawaii, Bragg, and Campbell
- Approximately 2,530 personnel are assigned

The CAB (Full Spectrum) consists of:

- Headquarters and Headquarters Company (HHC)
- General Support Aviation Battalion (GSAB): 8x UH-60 providing command and control capability, 12x CH-47 providing heavy lift capability, 15x HH-60 providing medical evacuation capability, and an Air Traffic Services Company providing air traffic control
- Assault Helicopter Battalion (AHB): 30x UH-60 providing utility capability
- Attack/Reconnaissance Battalion (ARB): 24x AH-64 Apaches providing attack and reconnaissance capability
- Attack/Reconnaissance Squadron (ARS): 21x OH-58D Kiowa Warriors providing attack and reconnaissance capability and a UAS company of 8x RQ-7 Shadow UAVs
- Aviation Support Battalion (ASB): providing intermediate level maintenance, signal, and transportation capabilities

- The one Full Spectrum CAB is AC and stationed at Campbell
- Approximately 2,590 personnel are assigned

The CAB (Expeditionary) consists of:

- Headquarters and Headquarters Company (HHC)
- General Support Aviation Battalion (GSAB): 8x UH-60 providing command and control capability, 12x CH-47 providing heavy lift capability, 15x HH-60 providing medical evacuation capability, and an Air Traffic Services Company providing air traffic control
- Assault Helicopter Battalion (AHB): 30x UH-60 providing utility capability
- Attack/Reconnaissance Battalion (ARB): 24x AH-64 Apaches providing attack and reconnaissance capability
- Security and Support Battalion (S&S): 32x LUH-72 Lakotas providing light utility capability
- Aviation Support Battalion (ASB): providing intermediate level maintenance, signal, and transportation capabilities
- The CAB (Expeditionary) are all Reserve Component formations and stationed in the continental United States

Current CAB Structure			
CAB (Heavy)	**CAB (Medium)**	**CAB (Full Spectrum)**	**CAB (Expeditionary)**
HHC	HHC	HHC	HHC
GSAB (8xUH, 15xHH, 12xCH)	GSAB (8xUH, 15xHH, 12xCH)	GSAB (8xUH, 15xHH, 12xCH)	GSAB (8xUH, 15xHH, 12xCH)
AHB (30xUH)	AHB (30xUH)	AHB (30xUH)	AHB (30xUH)
ARB (24xAH)	ARB (24xAH)	ARB (24xAH)	S&S (32x LUH)
ARB (24xAH)	ARS (30xOH)	ARS w/ Shadow (21xOH, 8x RQ-7)	ARB (24xAH)
ASB	ASB	ASB	ASB
2,580 Soldiers	2,530 Soldiers	2,590 Soldiers	2,540 Soldiers

Future CAB Structure. Under ARI, proposed Total Army Aviation Brigade formations will become organized into two principal brigade designs: CABs (AC) and Expeditionary CABs (RC). The reorganization centers on the inactivation of aviation force structure, divestiture of the OH-58D Kiowa Warrior helicopter and associated Attack Reconnaissance Squadrons, and the divestiture of the TH-67 Creek training helicopter, to be replaced by LUH-72 Lakotas for basic flight training at Fort Rucker. Equipping changes in order to facilitate and execute ARI include transferring AH-64 Apaches currently equipping RC formations to AC formations to equip Heavy-Armed Reconnaissance Squadrons; moving in excess of 100 UH-60 Black Hawks from the AC to the RC to equip Assault Helicopter Battalions; and RQ-7 Shadow UAS platoons assigned to AH-64 equipped Heavy-Armed Reconnaissance Squadrons (H-ARS).

Three AC CABs will continue to be structured with an assigned Pathfinder Light Infantry Company (60x personnel) organic to the Assault Helicopter Battalion (Bragg, Campbell, Drum[1]).

The CAB will consist of:

- Headquarters and Headquarters Company (HHC)
- General Support Aviation Battalion (GSAB): 8x UH-60 providing command and control capability, 12x CH-47 providing heavy lift capability, 15x HH-60 providing medical evacuation capability, and an Air Traffic Services Company providing air traffic control
- Assault Helicopter Battalion (AHB): 30x UH-60 providing utility capability
- Attack/Reconnaissance Battalion (ARB): 24x AH-64 Apaches providing attack and reconnaissance capability
- Heavy-Attack/Reconnaissance Squadron (H-ARS): 24x AH-64 Apaches providing attack and reconnaissance capability and 12x RQ-7 Shadows providing unmanned reconnaissance capability
- Aviation Support Battalion (ASB): providing intermediate level maintenance, signal, and transportation capabilities
- Unmanned Aerial System Company (UAS): 12x MQ-1 Grey Eagles providing unmanned reconnaissance and attack capability
- CABs, all active Component, will be stationed at Bliss, Hood, Carson, Riley, Hunter AAF, Drum, Lewis, Hawaii, Bragg, and Campbell (a CAB equipment set will remain in ROK for unit rotations)
- Approximately 2,830 personnel are assigned

The Expeditionary CAB will consist of:

- Headquarters and Headquarters Company (HHC)
- General Support Aviation Battalion (GSAB): 8x UH-60 providing command and control capability, 12x CH-47 providing heavy lift capability, 30x HH-60 providing medical evacuation capability, and an Air Traffic Services Company providing air traffic control
- Two Assault Helicopter Battalions (AHB): 60x UH-60 providing medium lift capability (30 per battalion)
- Aviation Support Battalion (ASB): providing intermediate level maintenance, signal, and transportation capabilities
- The Expeditionary CABs are all Reserve Component formations and stationed in the continental United States

[1] Forts Campbell and Bragg already have Pathfinder Companies; the one at Fort Drum will be a new addition.

Future CAB Structure	
CAB	**Expeditionary CAB**
HHC	HHC
GSAB (8x UH, 15xHH, 12xCH)	GSAB (8x UH, 30xHH, 12xCH)
AHB (30x UH)	AHB (30x UH)
ARB (24x AH)	AHB (30x UH)
H-ARS (24x AH, 12x RQ-7)	ASB
ASB	
UAS Company (12x MQ-1)	
2,830 Soldiers	2,102 Soldiers

ARI includes major force management actions utilizing unit inactivation, conversion, reflagging, and restationing actions as required. The following chart depicts approximate Aviation equipment and personnel force structure changes by installation. These figures represent planning assumptions based on pending Force Design Updates currently in staffing to determine final formation personnel numbers. Additionally, these numbers depict long-range planning assumptions with regards to stationing actions.

Impacts by Installation (Equipment / Soldiers)		
	Equipment	Soldiers
Ft Bliss (1AD)	+ 12 Shadows	+ 141
Ft Hood (1CD)	+ 12 Shadows	+ 145
Ft Carson (4ID)	- AH-64 ARB (24x AH) + 12 Shadows	- 323
Ft Riley (1ID)	- OH-58 Squadron (30x OH) + H-ARS (24x AH) + 12 Shadows	+ 181
Hunter Army Airfield (3ID)	- OH-58 Squadron (30x OH) + H-ARS(-) (18x AH) + 12 Shadows	+ 180
Ft Drum (10MTN)	- OH-58 Squadron (30x OH) + H-ARS (24x AH) + 12 Shadows	+ 242
JBLM (16CAB)	- OH-58 Squadron (30x OH) + ARB (24x AH-64) + 12 Shadows	+ 177
Hawaii (25ID)	- OH-58 Squadron (30x OH) + H-ARS (24x AH) + 12 Shadows	+ 189
Ft Bragg (82ABN)	- OH-58 Squadron (30x OH) + H-ARS (24x AH) + 12 Shadows	+ 239
Ft Campbell (101ABN)	- HHC, Brigade	- 2,419

	- GSAB (8x UH, 15x HH, 12x CH) - AHB (30x UH) - 2x OH-58 Squadrons (51x OH) - ASB + 4 Shadows (retain current 8)	
Alaska (25ID)	- ARS (30x OH) + ARB (24x AH)	+ 36

These figures do not necessarily mean that all of these Soldiers will be coming to the installation for the first time. For example, up to 81 members of the 91 Soldier Shadow Platoon could come from BCTs that are already on the installation. At Fort Riley, the net gain could be 114 rather than 181.

This REC covers aviation assets stationed in the United States. There are proposed adjustments to OCONUS aviation force structure; these are outside the scope of the REC because NEPA generally does not apply overseas. Germany and Korea could each lose a CAB, although these decisions have not been finalized.

2) Proposed Inactivation of the 159th CAB at Fort Campbell

This action is part of the ARI. As discussed above, it is described separately to facilitate NEPA consideration. Army personnel reductions associated with the divestiture of OH-58 aircraft and TH-67 aircraft and the repositioning of UH-60 and AH-64 aircraft between the AC and RC necessary to execute ARI result in the proposed inactivation of the 159 CAB at Fort Campbell in FY15. Additionally, stationing actions are intended to ensure Army BCTs are adequately supported by Army Aviation. Fort Campbell currently hosts two CABs: 101 CAB and 159 CAB. Fort Campbell will retain 101 CAB to support training and deployment requirements for the 101st Airborne Division and its subordinate units. The 159 CAB's UH-60 aircraft will be re-assigned to the RC and the AH-64s will be re-assigned to the 101 CAB, replacing its OH-58 Attack/Reconnaissance Squadron by converting to an AH-64 equipped Heavy-Attack/Reconnaissance Squadron. The net personnel loss at Fort Campbell for all aviation force structure initiatives will be 2,419 Soldiers. There will be approximately 116 fewer helicopters flying at Fort Campbell and is assumed to result in a reduction in operational noise. Fort Campbell will determine if further NEPA analysis is needed for facilities or operations.

3) Summary of ARI

The following are approximate CAB Soldier strength changes by installation due to proposed actions:

Fort Bliss, TX	151
Fort Hood, TX	151

Fort Carson, CO	-249
JBLM, WA	285[2]
Fort Wainwright, AK	45
Fort Riley, KS	195
Hunter AAF, GA	160
Fort Drum, NY	255[3]
Wheeler AAF, HI	195
Fort Bragg, NC	192
Fort Campbell, KY	-2419

It is assumed the 24 AH-64s in the new ARB will be authorized a similar number of flying hours as the 30 OH-58s that are now in the ARS. The AH-64 has a larger rotor system and larger engines and therefore makes slightly more noise (about three decibels) than the OH-58. It is not likely that the additional AH-64s will cause noise contours at installations to change substantially. The Army Public Health Command has detailed information on this issue that installations can use to determine whether site-specific NEPA analysis is needed for the effects on noise contours. Noise issues are discussed in items 10 and 11 of the checklist, discussed below. Two noise contour comparisons are attached, showing that there is little difference caused by the replacement of OH-58s with AH-64s.

b. Proposed ARB Relocation from Fort Carson to JBLM

An ARB from Fort Carson will move to JBLM. This battalion could be diverted to Wheeler AAF, Schofield Barracks, Hawaii. The AH-64 equipped Attack/Reconnaissance Battalion would replace the OH-58 equipped Attack/Reconnaissance Squadron at Wheeler Army Airfield. Hawaii would receive the same number of Soldiers described below (195), but on an accelerated timeline.

c. Gray Eagle UAS Stationing

The MQ-1C Gray Eagle UAS, an Extended Range/Multi-Purpose (ER/MP) (Gray Eagle) Company, executes reconnaissance, surveillance, security, attack, and command and

[2] This assumes relocation of an ARB from Fort Carson. If this does not happen, JBLM's gain would be 90.
[3] This includes addition of a 60-Soldier Pathfinder Company.

control missions to provide dedicated mission-configured UAS support to assigned division CABs, Fires Brigades, Battlefield Surveillance Brigades, BCTs, and other Army and joint force units based upon the division commander's mission priorities.

The general purpose forces Gray Eagle Company consists of 128 Soldiers, 12 MQ-1C Gray Eagles, five Universal Ground Control Stations (UGCS), five Ground Data Terminals, one Satellite Communication Ground Data Terminal, four Tactical Automatic Landing Systems, two Portable Ground Control Stations, and two Portable Ground Data Terminals.

There are two other types of AC Gray Eagle Companies. There are two Special Operations Forces companies (12 Gray Eagles and slightly more people). The Special Operations Forces companies will be at Fort Campbell. There also will be three Military Intelligence Gray Eagle Companies (six systems) with one for each Aerial Exploitation Battalion. One of these is at Fort Stewart, GA and two are at Fort Hood, TX.

The Gray Eagle Company at Fort Irwin will not be co-located with a CAB; rather, this new unit will train alongside rotations going through the NTC, thereby meeting the training requirement to support combat units by integrating UAS components in Overseas Contingency Operations. The Fort Irwin Gray Eagle Company will also be aligned and assigned to the 16th CAB at JBLM.

This REC covers the stationing of Gray Eagle Companies at Fort Carson, Fort Irwin, and Fort Drum. It also covers the stationing of a Gray Eagle company in Alaska, although the location is still to be determined. The alternatives include Fort Wainwright and Eielson Air Force Base, AK.

In 2011, the Army added an MQ-1C Gray Eagle UAS, an Extended Range/Multi-Purpose (ER/MP) Company to several CABs. The installations designated to receive the Gray Eagles in 2011 were Forts Bliss, Hood, Campbell, Bragg, Riley, and Stewart. For these installations, this action was previously decided and is not part of this discussion.

The following construction is necessary for Gray Eagle stationing. For Alaska, existing facilities are available at Eielson Air Force Base and Fort Wainwright.

Fort Drum	Small hangar, other minor requirements
Fort Irwin	Small hangar, runway, taxiways/aprons, and other requirements
Fort Campbell	Small hangar, taxiways/aprons
Fort Carson	Small hangar, other minor requirements

The Gray Eagle is relatively quiet compared to helicopters and its operation will not change any existing installation noise contours. The Gray Eagle has a small, 200 horse power engine. The Gray Eagle will primarily be flown in restricted air space over military installations. It may briefly transit unrestricted airspace over off-post areas on its way to training areas. When this happens, however, the Gray Eagle will be at restricted altitudes and will be routed to avoid residential housing. The Gray Eagle will never be armed with weapons during these brief transit flights. In the event of a malfunction, the Gray Eagle is programmed with automatic safety procedures designed to minimize risk to persons on the ground.

d. Gray Eagle Follow-on Test and Evaluation (FOT&E) at Fort Irwin

The Army will conduct a Follow-on Test and Evaluation (FOT&E) at Fort Irwin. The action will last about 90 days. This FOT&E will provide information for Gray Eagle operations Army-wide, and is required to provide the U.S. Army operational data in order to assess the universal ground control station (UGCS)-equipped Gray Eagle's mission effectiveness. Data would be used to evaluate the effectiveness and suitability of systems functionalities and Soldier training (such as maintenance) not tested during the initial operations test (IOT) of the Gray Eagle, implementation of solutions for deficiencies discovered during IOT, and additional functionalities of the latest software version. In addition, data would be collected to verify that the integration of UGCS did not degrade the information assurance of the system, and to support a performance evaluation of the HELLFIRE Romeo missile variant.

Other locations were considered for the FOT&E of the Gray Eagle, such as Fort Hood, TX, and Edwards Air Force Base, CA (where some of the IOT was conducted), but the Army has selected Fort Irwin based on available airspace, and the synergies between the stationing and operation of the Gray Eagle company and the preparation for and execution of the FOT&E. Fort Irwin is also the only installation that has mechanized, Brigade-on-Brigade exercises needed to support the testing. Runway improvements and the fiber optic cable installation necessary to conduct the FOT&E will be useful during subsequent Gray Eagle company training operations.

e. Total Personnel Changes for All Aviation Initiatives

This chart shows the loss or gain at installations under the aviation initiatives[4] as well as the loss or gain scenarios analyzed for each installation in the 2013 PEA.

Installation	Loss or Gain	Gain in 2013 PEA	Loss in 2013 PEA
Fort Bliss, TX	268	3,000	8,000

[4] These numbers include the ARI and Gray Eagle stationing initiatives.

Fort Hood, TX	272	3,000	8,000
Fort Carson, CO	-196	3,000	8,000
JBLM, WA	177	NA[5]	8,000
Fort Wainwright, AK	163[6]	1,000	4,900
Fort Riley, KS	308	3,000	8,000
Hunter AAF, GA	307	3,000	8,000
Fort Drum, NY	369	3,000	8,000
Wheeler AAF, HI	189	NA	8,000[7]
Fort Bragg, NC	366	NA	8,000
Fort Campbell, KY	-1,962	3,000	8,000
Fort Irwin, CA	127	NA	2,400

As shown in the chart above, the changes anticipated under the aviation initiatives are generally within the parameters addressed in the 2013 PEA. The gains at JBLM, Fort Bragg, Hawaii, and Fort Irwin were not covered by the 2013 PEA. Given the total Soldier populations on these installations, the aviation initiative gains represent only minor changes in the number of assigned personnel.

3. Legal Authority & Discussion

The Army's NEPA regulation states at 32 CFR §651.19:

"A Record of Environmental Consideration (REC) is a signed statement submitted with project documentation that briefly documents that an Army action has received environmental review. RECs are prepared for . . . actions covered by existing or previous NEPA documentation."

In addition to documenting that a proposed action is covered by existing environmental documentation, RECs are also used to document the use of Categorical Exclusions (CXs), categories of actions which normally do not require an EIS or EA. The Army's

[5] There were several installations for which the 2013 PEA did not analyze a gain. This was either because the installation did not have the capacity for a large gain or because a gain was not anticipated because there was no Brigade Combat Team at the site.

[6] This includes the Gray Eagle Company that may go to Eielson Air Force Base rather than Fort Wainwright.

[7] This number included potential losses both at Wheeler Army Airfield and at the adjacent Schofield Barracks.

NEPA regulation includes CXs from NEPA coverage in Appendix B. One such CX is b (12), which reads:

> (12) Reductions and realignments of civilian and/or military personnel that: fall below the thresholds for reportable actions as prescribed by statute (10 U.S.C. 2687) and do not involve related activities such as construction, renovation, or demolition activities that would otherwise require an EA or an EIS to implement (REC required). This includes reorganizations and reassignments with no changes in force structure, unit redesignations, and routine administrative reorganizations and consolidations (REC required).

10 U.S.C. §2687 applies to closure of installations or to reductions of more than 1,000 or 50% of civilian personnel employed at an installation.

Appendix B also provides that "before any CXs can be used, Screening Criteria as referenced in § 651.29 must be met." This section of the regulation sets out "extraordinary circumstances" that would preclude use of a CX.

Applicable to all aviation initiatives:

None of the personnel changes in the aviation initiatives exceeds the thresholds set out in CX(b)(12). None of the installations will have civilian employee losses above the thresholds in 10 U.S.C. §2687. There are no extraordinary circumstances that would preclude application of the CX. Therefore, the CX can be appropriately applied to the aviation initiatives, and no further NEPA documentation is required.

a. Existing NEPA Documentation

Both the President's Council on Environmental Quality (CEQ) regulations (40 CFR 1502.20) and the Army's own NEPA regulations (32 CFR 651.14(c)) encourage "tiering" of broad programs such as the aviation initiatives, as is intended by this REC. Recent CEQ guidance also encourages incorporation by reference of existing documents into a current analysis. The relevant, existing NEPA documentation applicable to the aviation initiatives, are:

Life Cycle Environmental Assessment for the Extended Range/Multi-Purpose Unmanned Aerial Vehicle System, 2004 (LCEA).

Programmatic Environmental Impact Statement for Army Growth and Force Structure Realignment (2007)(Army Growth EIS).

NEPA Review of the Extended Range/Multi-Purpose Unmanned Aerial Vehicle System Record of Environmental Consideration, 2010 (2010 REC).

Programmatic Environmental Impact Statement for the Realignment, Growth, and Stationing of Army Aviation Assets, 2011 (2011 Aviation EIS).

Record of Environmental Consideration (REC) for MQ-1C Gray Eagle Unmanned Aircraft System (UAS) Stationing, 2011 (UAS REC).

Programmatic Environmental Assessment for Army 2020 Force Structure Realignment, 2013 (2013 PEA).

b. Application of Existing NEPA Documentation to ARI

The Army Growth EIS looked at growth scenarios for the installations involved in the aviation initiatives, with the exception of Alaska and Hawaii locations. The growth subject to analysis consisted of three components: Implement Army Growth, Realignment, and associated activities between fiscal year 2008 and 2013 to support the Army's Modular Transformation and Global Defense Posture Review decisions; add approximately 30,000 Combat Support and Combat Service Support Soldiers to the Active and Reserve Components of the Army; and add up to six BCTs. For all installations, the potential gain analyzed was far in excess of the gain proposed under these aviation initiatives. Therefore, the aviation initiatives would be covered under the Army Growth EIS at all of the installations, with the exceptions of Fort Wainwright and Hawaii. It is important to note, however, that because of decisions made in 2013 to reorganize Army BCTs and reduce Army end strength, the growth realized at these installations was reduced. In other words, the net growth at these installations added to the ARI growth does not exceed the total growth analyzed in the Army Growth EIS. Therefore, the gains at ARI installations except Fort Wainwright and USAG Hawaii (including Wheeler Army Airfield and Schofield Barracks, where all aviation initiative changes would occur) are adequately covered by existing documentation. In addition, subsequent Army restructuring actions have only continued to reduce the numbers of Active Component Soldiers at these installations.

The 2011 Aviation EIS analyzed the stationing of CABs at Fort Carson and JBLM. The Record of Decision selected a course of action that would station a CAB at each installation, although less than a full CAB was designated for JBLM. This decision was subsequently executed. The Soldier-strength of the CABs at these two installations under the ARI will be less than the population for the CABs analyzed in the EIS. Therefore, the gain at JBLM is adequately covered by existing documentation. The loss at Fort Carson from the 2014 aviation initiatives is within the scope of losses analyzed in the 2013 PEA.

The gains at Fort Wainwright and Hawaii are in each case less than the offsetting losses that were analyzed in 2013 PEA. The 2013 PEA looked at a potential gain of 1,000 Soldiers at Fort Wainwright. The 2014 aviation initiative gain of 45 is within the number analyzed. The gain at Schofield Barracks is offset by other losses announced in 2013, and therefore no additional analysis of the additional aviation initiative

population is necessary; CX b (12) can be applied to the action. Essentially, since there are fewer Soldiers after all changes are implemented, there will be no new environmental impact.

c. Application of Existing NEPA Documentation to the inactivation of the 159th CAB

The 2013 PEA looked at the socioeconomic impacts of the maximum possible reductions that could occur at Fort Campbell as well as possible losses that could occur at 20 other installations. The combined loss at Fort Campbell, including the ARI loss, does not exceed the loss analyzed in the PEA. Therefore, the inactivation of the 159th CAB at Fort Campbell is adequately covered by the PEA.

d. Application of Existing NEPA Documentation to Gray Eagle Stationing

The proposed action in the 2011 Gray Eagle REC was to establish home stations for MQ-1C Gray Eagle companies. This involved stationing companies of 128 Soldiers and associated equipment with up to four companies at any single installation. The REC applied CXs b(4), b(12), c(1), and j(2). It also cited the 2004 LCEA. The REC determined that some hangar construction would be required. The REC found that if construction of a maintenance facility were needed; impacts would be less than significant, however, as the facility would likely be constructed on previously disturbed ground and would be expected to disturb less than 5.0 cumulative acres. The ER/MP UAS was expected to have only minor impacts to air quality, hazardous materials and waste, health and safety, and noise at facilities where the system would be deployed. The REC had an 18-question checklist and stated that if an installation answered all of these questions "no," its proposed action of implementing ER/MP UASs stationing decision would likely qualify for a REC prepared at installation level.

The REC involved a Department of the Army decision to station Gray Eagle companies at Forts Bliss, Hood, Campbell, Bragg, Riley, and Stewart. It did not address the places now proposed for general purpose forces Gray Eagle stationing: Fort Carson, Fort Irwin, Fort Drum, and an Alaskan installation to be selected. In addition, Special Operations Forces Gray Eagle companies go to Fort Campbell and Military Intelligence Gray Eagle companies will be stationed at Fort Hood and Fort Stewart.[8] The aviation initiative will place Gray Eagle companies at these locations, pending completion of the checklist and preparation of a REC or other appropriate NEPA analysis by the installation. The checklist is attached to this REC, with modifications.

These Gray Eagle stationing actions are covered by the same CXs cited in the 2011 Gray Eagle REC. The stationing of the Gray Eagle Company is anticipated to result in

[8] The Gray Eagle REC considered stationing of up four companies at both of these installations. But application of the checklist for the additional companies should be done at both installations.

environmental impacts that may require site-specific, follow-on NEPA analysis. For example, the stationing of the company will require construction of facilities adjacent to an existing runway.

The stationing of a Gray Eagle company in Alaska also may require site-specific, follow-on NEPA, depending on the installation selected.

e. Application of Existing NEPA Documentation and Categorical Exclusions to the Execution of the FOT&E at Fort Irwin

The FOT&E at Fort Irwin together with the stationing and operation of the Gray Eagle Company is the subject of a site-specific Environmental Assessment. This includes analysis of the projects necessary to implement FOT&E. For example, FOT&E will require installation of a fiber optic cable underground. Fort Irwin has programs for dust suppression, soil erosion, and protection of natural and cultural resources. Given this, and the relatively limited scope of FOT&E (90 days in duration and very limited infrastructure), it is fairly certain that there will be no significant impacts. FOT&E will not be undertaken until NEPA analysis at Fort Irwin is complete. Execution of follow-on, site-specific NEPA analysis following preparation of this REC at headquarters level is consistent with the NEPA tiering process.

The stationing of the Gray Eagle Company and execution of FOT&E also involve the transfer of approximately 1,000 acres of leased property from the National Aeronautics and Space Administration (NASA) back to Fort Irwin. CX(f)(3) applies to transfer of real property administrative control from NASA to the Army.

Accordingly, based on this REC, the Army will station the Gray Eagle Company and to conduct the Gray Eagle FOT&E at Fort Irwin while recognizing the need for further, site-specific NEPA analysis of the impacts resulting from implementing this decision.

f. Cumulative Impacts

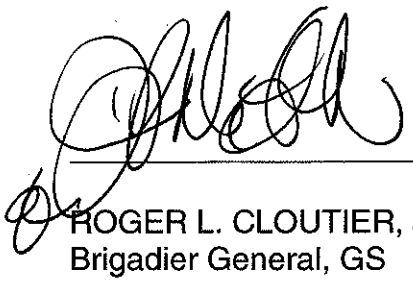
I have considered the cumulative impacts of all 2014 aviation initiatives. There are no cumulative impacts that would preclude application of CXs, and there are no new circumstances or changes in the proposed actions that would require supplementation of any of the existing NEPA documents.

4. Conclusion

This REC is sufficient to cover the aviation initiatives under consideration and no further NEPA analysis is required. The initiatives are covered either by the existing NEPA documents discussed above or by CXs. Individual installations may have to prepare site-specific analyses.

In considering the implementation of these stationing actions, installations should use the checklist[9] attached to this REC to determine whether the use of CXs and reliance on existing NEPA documents as described in this programmatic REC are appropriate, or whether additional NEPA analysis is needed. If the checklist review indicates that no further NEPA analysis is necessary, the action likely qualifies for a REC at the installation level. The installation REC also should cite any applicable documents identified in this REC, any applicable installation-level environmental analyses, and the applicable CX(s). The checklist from this REC should be attached to the installation's REC. If the installation concludes that additional NEPA analysis is necessary, it should be prepared before any implementation of the proposed action.

The aviation initiatives may be implemented without further NEPA analysis (other than the installation-specific REC prepared in conjunction with the checklist below), with three exceptions. The realignment will station a Gray Eagle company at Fort Irwin, California, as well as conduct the Army's Gray Eagle FOT&E there. The implementation of these decisions at Fort Irwin is the subject of ongoing, site-specific, NEPA analysis. Similarly, the aviation initiative will station a Gray Eagle company at an installation in Alaska, and implementation may be the subject of NEPA analysis. Site-specific analysis for Gray Eagle stationing may also be required at Fort Carson.



ROGER L. CLOUTIER, JR.
Brigadier General, GS
Director, Force Management

20140731

Date

[9] This checklist is based on the one used in the 2011 Gray Eagle REC, but has a few adjustments.

REC Annex for Aviation Initiatives

Environmental Checklist. To ensure compliance with the President's Council on Environmental Quality (CEQ) guidance (40 CFR Parts 1500-1508) and the Army's NEPA rule (32 CFR Part 651), a specific REC checklist is included. The environmental checklist facilitates the consideration of environmental effects of aviation initiatives and provides a framework for identifying site-specific NEPA requirements.

This checklist is intended to be used as follows:

The statements appearing after each environmental resource listed below are intended to serve as a general description of the threshold for application of a REC for the listed resources.

If the statements as applied to the installation are FALSE, the installation should conclude that implementation of the aviation initiatives described in the programmatic Aviation Force Structure Realignment REC above may be adequately covered by creation of a site-specific REC.

If garrison staff concludes that any of the statements are or may be TRUE, the staff must explain within their REC why, in spite of that statement, additional NEPA analysis is unwarranted in light of 32 CFR 651.29 (for example, that the potential impact has been or will be resolved through another environmental legal or regulatory process), or how existing environmental analysis is adequate.

If garrison staff find any of the below statements TRUE but will remain unresolved by another environmental legal/regulatory process, and that no existing NEPA analysis adequately covers the potential impact, the garrison would then conduct a site-specific Environmental Assessment or Environmental Impact Statement, as appropriate.

[Insert description of installation's proposed action to include number of new personnel, new equipment, construction requirements, range requirements, airspace, proposed training and operations, and proposed dates.]

a. Soil Resources

1. Off-road operations of aviation initiative support vehicles are likely to significantly increase soil compaction, rutting, or conditions above that caused by current level of activities on training ranges and maneuver areas.

b. Air Quality

2. Using aviation initiative equipment at this installation will contribute to a change in the air quality compliance status (e.g., from attainment to nonattainment) in the region and would not be subject to a Clean Air Act record of non-applicability.

c. Water Resources

3. The Proposed Action will result in unpermitted direct impacts to waters of the U.S.

d. Biological Resources (including Threatened and Endangered Species and Wetlands)

4. Off-road operations of aviation initiative support vehicles are likely to significantly increase the level of damage to vegetation on training ranges and maneuver areas above that caused by current level of activities on training ranges and maneuver areas.

5. Construction of facilities for the Proposed Action will jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their designated critical habitat.

6. Normal operational or training use of aviation initiative equipment will jeopardize the continued existence of any threatened or endangered species or result in the destruction or adverse modification of their designated critical habitat.

7. The Proposed Action will result in construction of one or more aviation initiative facilities in jurisdictional wetlands.

8. The Proposed Action will require aviation initiative support vehicles to operate in areas not previously traveled by tactical vehicles, and require additional surveys to identify and delineate jurisdictional wetlands.

e. Cultural Resources

9. The Proposed Action will require aviation initiative support vehicles to operate in areas not previously traveled by tactical vehicles, and thus require additional cultural resource surveys.

f. Noise

10. Noise generated by normal operations of aviation initiative equipment and weapons systems will likely affect sensitive wildlife populations, to include threatened and endangered species.

11. Noise generated by the normal operations of aviation initiative equipment and weapons systems will substantially change existing noise contours on the installations.

g. Hazardous Materials and Used Oil

12. The installation will need to build, or significantly modify, facilities necessary to store waste petroleum, oil, and lubricant products in accordance with local/state/federal regulations.

13. The proposed action will require substantial modification for the installation's Spill Prevention, Control and Countermeasures Plan.

h. Facilities, Utilities and Energy

14. The Proposed Action will require expansion of existing facilities for maintaining or parking aviation initiative aircraft and support vehicles involving more than 5.0 cumulative acres of land.

15. The Proposed Action will require substantial modification of the installation's Stormwater Discharge Prevention Plan.

16. More frequent delivery of fuel will require revision of existing emergency response or spill response plans.

i. Airspace

18. The Proposed Action would require the Army to propose an addition to, or modification of, existing airspace.

19. The Proposed Action would have substantial adverse impacts to commercial and/or general aviation.

j. Cumulative Effects

20. Other actions are underway, or proposed, that when combined with the potential effects of operating and maintaining aviation initiative equipment on the installation, could have a significant effect on human health or the environment.

APPENDIX B
Final Life Cycle Environmental Assessment (LCEA) For The Extended Range/Multi-purpose (ER/MP) Unmanned Aerial Vehicle System (UAVS)

FINAL
LIFE CYCLE ENVIRONMENTAL ASSESSMENT (LCEA) FOR THE EXTENDED RANGE/MULTI-PURPOSE (ER/MP) UNMANNED AERIAL VEHICLE SYSTEM (UAVS)

Unmanned Aerial Vehicle Systems
Project Office

December 2004

LIFE-CYCLE ENVIRONMENTAL ASSESSMENT
FOR THE
EXTENDED RANGE/MULTI-PURPOSE (ER/MP)
UNMANNED AERIAL VEHICLE SYSTEM (UAVS)

December 30, 2004

PREPARED BY:

Date 26 Jan 05
Richard Tyler, Chief
Technical Management Division
Unmanned Aerial Vehicle Systems
Project Office

REVIEWED BY:

Date 1-26-05
for LTC Jeffrey Gabbert
Product Manager
Medium Altitude Endurance
Unmanned Aerial Vehicle Systems
Project Office

PROPONENT OF THE ACTION AND
APPROVED BY:

Date 5 FEB 2005
COL John D. Burke
Project Manager
Unmanned Aerial Vehicle Systems
Project Office

REVIEWED BY:

Date 2/11/05
Sandy Olinger
Acquisition and Compliance Team Leader
G-4 Environmental Division

REVIEWED BY:

Date 2 Feb 05
Amy Meredith
AMCOM Legal Office

APPROVED BY:

Date 3/10
David S. Branham
G-4 (Logistics)

FINDING OF NO SIGNIFICANT IMPACT (FNSI)
FOR THE
LIFE CYCLE ENVIRONMENTAL ASSESSMENT (LCEA)
FOR THE
EXTENDED RANGE/MULTI-PURPOSE (ER/MP)
UNMANNED AERIAL VEHICLE SYSTEM (UAVS)

BACKGROUND: The Extended Range/Multi-Purpose (ER/MP) Unmanned Aerial Vehicle System (UAVS) is a weapons-capable UAV primarily used in Reconnaissance, Surveillance, and Target Acquisition (RSTA) Command, Control, Communications, Computers and Intelligence (C4I) roles in support of the Corps/Unit of Employment (UE) and below. The ER/MP UAVS will replace and upgrade the current Hunter UAV system, using the existing force structure and support concepts for the threshold system and perform tactical level RSTA and C4I, and provide a weapons capable platform throughout the full spectrum of Army operations including offensive, defensive, stability, and support operations as defined by FM 3-0, *Operations*, and Shaping, Decisive, and Transition Operations as defined by the Objective Force (OF) concept.

The ER/MP UAVS will operate in close proximity to heavily defended areas. It will be subject to hostile air defenses that may include the full range of anti-aircraft systems including conventional small arms, automatic anti-aircraft weapons, Man Portable Air Defense Systems (MANPADS), and crew-served systems using radar, optics, and electro-optics for detection, tracking, and engagement. The threat will also include launcher mounted Surface to Air Missiles (SAMs), air-to-air weapons launched by fixed wing aircraft, helicopters, and counter-UAV UAVs, anti-radiation missiles, and directed energy weapons. Airborne and ground components will be susceptible to the same threat as the unit they support. Airborne and ground computers, communications/data links (networks) may be subjected to offensive Information Operations (IO) (to include electronic warfare (EW)) and Computer Network Attack (CNA) and Computer Network Exploitation (CNE) and Signals Intelligence (SIGINT) exploitation.

DESCRIPTION OF THE PROPOSED ACTION: The Proposed Action is the continued management activities by the UAVS Project Office (UAVS PO) at Redstone Arsenal, Alabama, including: product development and improvement, testing, training, deployment, and ultimate demilitarization/disposal of the ER/MP UAVS.

ALTERNATIVES CONSIDERED: Two alternatives were considered during the scoping process: the No Action Alternative and the Preferred Alternative. The Preferred Alternative would result in production, testing and eventual fielding of the ER/MP UAVS.

ENVIRONMENTAL EFFECTS: The ER/MP UAVS is a weapon system still under development. Only minor impacts to air quality, hazardous materials and waste, health and safety, and noise would be expected to occur at facilities where the ER/MP UAVS would be produced, tested, and/or deployed. No significant impacts to the environment are anticipated from the ER/MP UAVS program.

CONCLUSION: A detailed review of available literature was conducted in the preparation of this document. Beneficial and/or adverse information on environmental impacts of the system

should be periodically reviewed and kept current during the remainder of the ER/MP UAVS life-cycle.

No cumulative impacts to the environment were identified and no mitigative measures are necessary for the ER/MP UAVS. This document concludes that there would be no significant environmental impacts associated with the continued acquisition, development, maintenance, and deployment of the ER/MP UAVS that would require the publication of an Environmental Impact Statement.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

ACRONYMS AND ABBREVIATIONS

A2C2S	Army Airspace Command and Control System
ABCS	Army Battle Command System
ACHP	Advisory Council on Historic Preservation
ACS	Aerial Common Sensor
ACTD	Advanced Concept Technology Demonstration
ADR	Air Data Relay
AED	Aviation Engineering Directorate
AFATDS	Advanced Field Artillery Target Data System
AGL	Above Ground Level
AI	Area of Interest
AMCOM	Army Aviation and Missile Command
AoA	Analysis of Alternatives
APE	Area of Potential Effect
AQS	Airworthiness Qualification Specification
ASAS	All Source Analysis System
ATEC	Army Test and Evaluation Command
AT&L	Acquisition Technology and Logistics
ATLS	Automatic Take-Off Landing System
AV	Air Vehicle
AVUM	Aviation Unit Maintenance
AWR	Airworthiness Releases
B-LRIP	Beyond-Low Rate Initial Production
BLOS	Beyond-Line-Of-Sight
C4I	Command, Control, Communications, Computers, and Intelligence
C4ISR	Command, Control, Communications, Computers, and Intelligence, Surveillance and Reconnaissance
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CDD	Capabilities Development Document
CDR	Critical Design Review
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CFSR	Contractor Field Support Representative
CGS	Common Ground Stations
CMSM	Contractor Managed Supply and Support
CNA	Computer Network Attack
CNE	Computer Network Exploitation
COMSEC	Communications Security
CONOPS	Concept of Operations
CONUS	Continental United States
COTS	Commercial-Off-The-Shelf
CPD	Capabilities Production Document

CWA	Clean Water Act
DCGS-A	Distributed Common Ground System-Army
DII/COE	Defense Information Infrastructure /Common Operating Environment
DL	Data Links
DoD	Department of Defense
DoDI	Department of Defense Instruction
DOT	Department of Transportation
D/OT&E	Director/Operational Test & Evaluation
DRR	Design Readiness Review
DT	Developmental Testing
DT&E	Developmental Test and Evaluation
DTC	Developmental Test Command
DTSS	Digital Topographic Support System
EA	Electronic Attack
EDT	Engineering Developmental Testing
EIS	Environmental Impact Statement
EMP	Electro-Magnetic Pulse
ENMP	Environmental Noise Management Program
EO	Executive Order
EO/IR	Electro-Optical/Infrared
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-To-Know Act
ER/MP	Extended Range/Multi-Purpose
ESA	Endangered Species Act
ESH	Environmental Safety and Health
EW	Electronic Warfare
FAA	Federal Aviation Administration
FAADS	Forward Area Air Defense System
FCS	Future Combat System
FNSI	Finding of No Significant Impact
FOC	Full Operational Capability
FRP	Full Rate Production
FY	Fiscal Year
GCS	Ground Control System
GDT	Ground Data Terminal
GFE	Government Furnished Equipment
GFP	Government Furnished Property
GOTS	Government Off-The-Shelf
GPS	Global Positioning System
GSE	Ground Support Equipment
HAPs	Hazardous Air Pollutants
HEMP	High-altitude Electro-Magnetic Pulse
HFE	Human Factors Engineering
HHAs	Health Hazard Assessments

HMMP	Hazardous Materials Management Plan
HSI	Human Systems Integration
HTI	Horizontal Technology Insertion
I/O	Input/Output
ICAO	International Civil Aviation Organization
ICD	Initial Capabilities Document
ICDs	Interface Control Documents
IERs	Information Exchange Requirements
ILS	Integrated Logistics Support
IMDG	International Maritime Dangerous Goods
IMETS	Integrated Meteorological System
IO	Information Operations
IOC	Initial Operational Capability
IOT	Initial Operational Test
IOT&E	Initial Operational Test and Evaluation
ISR	Intelligence, Surveillance and Reconnaissance
IT	Information Technology
JROC	Joint Requirements Oversight Council
JSTARS	Joint Surveillance Target Attack Radar System
JTA	Joint Technical Architecture
LCEA	Life-Cycle Environmental Assessment
LFT&E	Live Fire Test and Evaluation
LMI	Logistics Management Information
LOS	Line of Sight
LRF/LD	Laser Range Finder/Laser Designator
LRIP	Low Rate Initial Production
LRUs	Line Replaceable Units
LSA	Logistics Support Analysis
LUT	Limited User Test
M&S	Modeling and Simulation
MANPADS	Man Portable Air Defense Systems
MDA	Milestone Decision Authority
MDAP	Major Defense Acquisition Program
METT-TC	Mission, Enemy, Terrain, Troops, Time available, and Civilian considerations
MMI	Man-Machine Interface
MNS	Mission Need Statement
MOGAS	Motor Gasoline
MSE	Multiple Subscriber Equipment
MSL	Mean Sea Level
NAAQS	National Ambient Air Quality Standards
NAGPRA	Native American Graves Protection and Repatriation Act
NAS	National Aerospace Standard
NCES	Net-Centric Execution System
NDI	Non-Developmental Items

NEPA	National Environmental Policy Act
NESHAPs	National Emissions Standards for Hazardous Air Pollutants
NHPA	The National Historic Preservation Act
NLOS	Non-Line-Of-Sight
NSS	National Security Systems
OCONUS	Outside Continental United States
ODCs	Ozone-Depleting Chemicals
ODSs	Ozone-Depleting Substances
OF	Objective Force
OMS/MP	Operations Mode Summary/Mission Profile
OPTEMPO	Operational Tempo
ORD	Operational Requirements Document
OSHA	Occupational Safety and Health Administration
OT	Operational Test
OT&E	Operational Test and Evaluation
PDR	Preliminary Design Review
PGCS	Portable Ground Control Station
PGDT	Portable Ground Data Terminal
PM	Project/Product/Program Manager
PM_{10}	Particulate Matter (less than 10 μ in size)
$PM_{2.5}$	Particulate Matter (less than 2.5 μ in size)
PO	Project Office
PPT	Production Prove-Out Test
QDR	Quadrennial Defense Review
RCRA	Resource Conservation and Recovery Act
RDEC	Research, Development, and Engineering Center
REC	Record of Environmental Consideration
RF	Radio Frequency
RSTA	Reconnaissance, Surveillance, and Target Acquisition
SAMS	Surface to Air Missiles
SEMA	Special Electronic Mission Aircraft
RAM	Reliability, Availability, and Maintainability
RVT	Remote Video Terminal
SAR/MTI	Synthetic Aperture Radar/Moving Target Indicator
SARA	Superfund Amendments and Reauthorization Act
SATCOM	Satellite Communication
SCD	Systems Capabilities Demonstration
SDD	System Development and Demonstration
SDWA	Safe Drinking Water Act
SEMA	Special Electronic Mission Aircraft
SEMP	System Engineering Management Plan
SEP	System Evaluation Plan
SER	System Evaluation Report
SFR	System Functional Review

SIGINT	Signals Intelligence
SIPT	Supportability Integrated Product Team
SLPT	System Level Performance Test
SOPs	Standard Operating Procedures
SRR	System Requirements Review
SSMP	System Safety Management Plan
SSPP	System Safety Program Plan
SSWG	System Safety Working Group
SWB	Software Blocking
TAFT	Test-Analyze-Fix-Test
TAIS	Tactical Airspace Integration System
TAMMS	The Army Maintenance Management System
TCDL	Tactical Common Data Link
TD	Technology Development
TDS	Technology Development Strategy
TLE	Target Location Error
TOE	Table of Organization and Equipment
TRADOC	Training and Doctrine Command
TRI	Toxic Release Inventory
TRI-TAC	Tri-Service-Tactical
TRR	Test Readiness Review
TUAV	Tactical Unmanned Aerial Vehicle
UAV	Unmanned Aerial Vehicle
UAVS	Unmanned Aerial Vehicle System
UE	Unit of Employment
UN	United Nations
UPC	Unit Production Cost
UPS	Uninterruptible Power Supply
USD	Under Secretary of Defense
VOCs	Volatile Organic Compounds
WCP	Warfighter Information Network-Tactical Communications Payload
WIN-T	Warfighter Information Network-Tactical

1.0 INTRODUCTION

The Extended Range/Multi-Purpose Unmanned Aerial Vehicle System (ER/MP UAVS) is a weapons-capable Unmanned Aerial Vehicle (UAV) primarily used in Reconnaissance, Surveillance, and Target Acquisition (RSTA), Command, Control, Communications, Computers, and Intelligence (C4I) roles in support of the Corps/Unit of Employment (UE) and below. Combatant commanders have a need to provide Commanders a real-time responsive capability to conduct wide-area near real-time RSTA, Command and Control, Signals Intelligence (SIGINT), Electronic Warfare (EW), and special operations missions during peacetime and all levels of war against defended/denied areas over extended periods of time. The evolution of the hostile surface-to-air and air-to-air threat and their collective effectiveness against manned aircraft can generate unacceptably high attrition rates. Satellite systems are threatened by Electronic Attack (EA) and Computer Network Attack (CNA) to the overhead and downlink components, and EA, CNA, and physical attack against the ground component. Further, satellites are often too predictable; have insufficient dwell time over targets of operational/tactical interest; are not always responsive to the needs of tactical commanders; and, in some cases, cannot acquire the necessary data. Current systems cannot perform these missions in a timely, responsive manner in an integrated hostile air defense environment without high risk to personnel and costly systems. There is a need for a capability that can be employed in areas where enemy air defenses have not been adequately suppressed, in heavily defended areas, in open ocean environments, and in contaminated environments. Nuclear survivability is required as necessary to perform missions in a nuclear contaminated environment, including operating in the presence of High-altitude Electro-Magnetic Pulse (HEMP) (Objective).

This Life-Cycle Environmental Assessment (LCEA) evaluates the potential environmental impacts, which may result from the continued management, product development and improvement, testing, training, deployment, and ultimate demilitarization/disposal of the ER/MP UAVS. This document has been developed through the review of available environmental documentation, but does not address specific environmental impacts at production, testing, training, deployment and operational locations. These specific impacts would be addressed by environmental documents prepared by the installation where those activities occur. Contractor facilities for the production of the ER/MP UAVS components would be expected to adhere to all Federal, state, and local regulations regarding environmental issues to include: health and safety, pollution prevention, hazardous materials and hazardous waste management.

This LCEA was prepared in accordance with the requirements set forth by the National Environmental Policy Act (NEPA) (1969); Department of Defense (DoD) Directive 5000.1, *The Defense Acquisition System*, authorized October 23, 2000 and reissued May 12, 2003; DoD Instruction 5000.2, *Operation of the Defense Acquisition System*, authorized May 12, 2003; and 32 Code of Federal Regulations (CFR) Part 651, *Environmental Analysis of Army Actions, Final Rule*; dated March 29, 2002.

1.1 Background

The U.S. Army UAVS Project Office (PO) is responsible for the oversight and management of the ER/MP UAVS. The ER/MP UAVS is designed to collectively fulfill the ER/MP UAVS Operational Requirements Document (ORD) approved by the Army Requirements Oversight Council on 16 December 2003. The requirement for the ER/MP UAVS was initially identified when the Chairman of the Joint Requirements Oversight Council (JROC) signed the Mission Need Statement for a Long Endurance RSTA capability on 5 January 1990 (JROC Memo. 003-90). The ORD is expected to be approved by the JROC by the first quarter of Fiscal Year (FY) 2005 (1QFY05).

Current and envisioned non-Army UAV systems are limited in their ability to provide responsive support to various requesting ground-maneuver units based on limited assets. This limitation is multiplied by the supporting units' lack of direct control and tasking authority over the UAV asset while enroute or over the target area. When units are successful in requesting UAV support, communications problems and delays in retasking procedures/authority decrease the effectiveness and responsiveness of the UAV system. While other non-Army UAV systems are 'stove-pipe' controlled by rear-positioned control stations, often beyond organic communications reach, the ER/MP UAVS will utilize the Ground Control Station (GCS) to eradicate this problem. The GCS, objectively as a Distributed Common Ground System-Army (DCGS-A) plug, will enable the UAVS commander to 'hand-off' control of organic UAVs to non-organic, echelon-irrelevant (objectively service-irrelevant) units using common control architectures and procedures, thus effectively creating a network of UAV control stations deployed, as needed, throughout the battlespace. This capability will put the UAV system's 'cockpit' and direct tasking authority into the hand's of the supported commander thereby providing flexible UAV support and allowing the forward commander to 'fight' the UAV asset instead of only receiving products from it. The ER/MP UAVS combined with the GCS will provide more relevant, timely and responsive asset while avoiding inadequacies inherent in current non-Army systems.

Currently no other service can supply this capability. The lack of such capability limits commanders' flexibility in providing UAVs to collect important intelligence information, to conduct responsive RSTA, Command and Control, EW, and special operations missions.

1.2 System Overview

The Increment I ER/MP UAVS will consist of five GCS, five Tactical Common Data Link (TCDL) Ground Data Terminals (GDTs), two Portable Ground Control Station (PGCS), two TCDL Portable Ground Data Terminals (PGDTs), twelve Aerial Vehicles (AVs) each equipped with multi-mission payloads, a standard equipment package, and associated ground support equipment. Six of the twelve Air Vehicles (AVs) will be equipped with Satellite Communication (SATCOM) systems, and one ground SATCOM system will be provided. Each AV will have the connectivity capability, and space, weight and power to support SATCOM and payloads. The ER/MP UAVS will be capable of simultaneously controlling three AVs, which will provide three continuous RSTA/Intelligence, Surveillance and Reconnaissance (ISR) missions, consisting of Electro-Optical/Infrared (EO/IR) and Synthetic Aperture Radar/Moving Target Indicator (SAR/MTI) imagery, or two RSTA/ISR missions and one Warfighter

Information Network-Tactical (WIN-T) Communications Payload (WCP) mission, as well as Air Data Relay (ADR) support for all RSTA missions. The Increment I system will, at a minimum, provide 24 hours of coverage from two launch and recovery sites.

The ER/MP UAVS will be capable of simultaneously carrying two modular mission payloads with a combined minimum payload weight of 200 pounds. Each AV will be weapons capable with internal wiring/cabling and will have a minimum of two hard points each capable of supporting a minimum of 200 pounds. The ER/MP UAVS will transmit data from the AV to the GCS/PGCS via the TCDL, a secure data link. The GCS will give ready interface to the C4I architecture, to include DCGS-A, Joint Surveillance Target Attack Radar System Common Ground Stations (JSTARS CGS), Advanced Field Artillery Target Data System (AFATDS), All Source Analysis System (ASAS), Forward Area Air Defense System (FAADS), and Army Airspace Command and Control System (A2C2S), Integrated Meteorological System (IMETS), Digital Topographic Support System (DTSS), and the Tactical Airspace Integration System (TAIS) when available. Integration with these external Army Battle Command System (ABCS) functional areas and other C4I systems will be phased appropriately taking into account both the ER/MP UAVS and external system development schedules and maturities coordinated with the Army Software Blocking (SWB) initiative.

The mission configured ER/MP UAVS must provide a time on station of 12 hours at an operational range of 300 km using Line of Sight (LOS)/ADR/SATCOM relay from the controlling station, flying at altitudes of 25,000 feet Mean Sea Level (MSL) or greater. Nominal operating altitudes/survivable altitudes are from 8,000 to 15,000 feet Above Ground Level (AGL) for day operations and between 6,000 to 10,000 feet AGL for night operations.

1.2.1 GROUND CONTROL STATION

The GCS is the command and control center. It is utilized for pre-flight, launch, hand-off and recovery for operation of AVs and payloads.

1.2.2 COMMUNICTIONS

Data Links (DL)

LOS DL for the AV and payload data and telemetry will be TCDL. Beyond-Line-Of-Sight (BLOS) Data Link will be from the GDT, through a single relay AV, to multiple mission AVs. The Non-Line-Of-Sight (NLOS) Data Link will be from the GDT through satellite communications to the mission AV. DL will extend to a minimum range of 300 km to an objective range of 500 km. The change to a SATCOM DL for AV control may necessitate a change in the GCS and GDT.

Table 1-1: Key Performance Parameters for the ER/MP UAVS

Key Performance Parameter	Development Threshold	Development Objective	ORD Ref
Multi Payload/Weight Capability			4.a.(2)(a)
AV capable of simultaneously carrying payloads with a combined minimum weight.	2 Payloads 200 lbs total	3 Payloads 300 lbs total	
Airframe Sensors Payload Capability	The UAVS will be capable of accepting payloads that are: (EO/IR/LRF/LD) capable of providing a 90% Probability of Detection (PD) and 90% Probability of Recognition (PR) of a standard target, from the AV's nominal operational altitude, out to a 4km standoff range (nadir to target) (SAR/GMTI Sensor) capable of providing 85% PD of a standard target, from the AV's nominal operational altitude, out to a 7.5km standoff range (nadir to target).	The UAVS will be capable of accepting payloads that are: (EO/IR/LRF/LD) capable of providing a 90% Probability of Detection (PD) and 90% Probability of Recognition (PR) of a standard target, from the AV's nominal operational altitude, out to a 8km standoff range (nadir to target) (SAR/GMTI Sensor) capable of providing 90% PD of a standard target, from the AV's nominal operational altitude, out to a 18km standoff range (nadir to target).	
Reliability			4.a.(5)(a)
System must maintain a combat operational availability (Ao).	≥80%	≥90%	
AV Propulsion			4.a.(2)(c)
Use certain fuels only.	MOGAS, AVGAS or JP-8.	Heavy Fuel Engine	
Joint Interoperability			4.b.(1)
Information Exchange Requirements	Critical IERs identified in attachments 1&2.	All IERs identified in attachments 1&2.	
Weapons Capable Airframe			4.a.(2)(t)
The AV must be weapons capable, to include internal wiring and a minimum of 2 hard points for supporting a minimum weight.	200 lbs each (400 lbs total)	500 lbs each (1000 lbs total)	

Ground Data Terminals (GDTs)

The GDT enables the DL to be sent between the GCS and the AV. It is composed of transceivers and controls a Differential Global Positioning System (GPS) Base Station (with position self-determination), fiber optic link for remote operations of up to 400 meters, and directional antenna system for the primary command/telemetry and video links. The GDT is generator powered.

Portable Ground Control Station (PGCS)

The PGCS can perform preflight/take-off/launch/recovery operations. It mirrors the monitoring, control or mission planning function of the full GCS.

Portable Ground Data Terminal (PGDT)

The PGDT provides the data link for the PGCS. The major components are common to the GDT (transceivers/receivers, etc.). The PGDT will have a range of at least 100 Km. The PGDT is generator powered.

1.2.3 PAYLOADS

Support of the RSTA mission will require sufficient AVs to allow three continuous RSTA missions. In addition, due to possible route and terrain restrictions, the mission will require sufficient AVs to allow two dedicated relay AVs. All payloads will be Government Furnished Equipment (GFE).

The EO/IR with Laser Range Finder/Laser Designator (LRF/LD) sensor will provide a day/night capability to display continuous imagery to battlefield commanders.

Synthetic Aperture RADAR/Moving Target Indicator (SAR/MTI) (Threshold Payload)

The SAR/MTI payload will provide the commander an all-weather, multi-mode, multi-functional radar to increase situational awareness, battle management and targeting by providing high resolution imagery in all types of weather. It will cue the commander of imminent threat activities that can be confirmed with other onboard sensors. On-board sensor cross cueing and auto-search are required as defined in the applicable payload tabs.

WCP (Threshold Payload)

Support of the Communication Relay mission will require sufficient AVs to allow one dedicated continuous WCP mission. To perform the Communications Relay mission the air platform will provide an airborne, multi-purpose, BLOS, relay. It will provide an airborne augmentation to organic ground VHF/UHF-type BLOS retransmission capability. Support of the WCP mission will require 24-hours of LOS/NLOS/BLOS coverage in a 24-hour period.

Signals Intelligence (SIGINT)(Objective Payload)

To perform the SIGINT mission the system may require the air platforms to utilize SIGINT mission payloads that will work in tandem to provide emitter mapping and location capability. This is envisioned to require the simultaneous use of two AVs with separate controlling stations to provide two simultaneous eight-hour sorties of LOS/NLOS/BLOS coverage in 24-hours with surge to 24-hours of LOS/NLOS/BLOS coverage in 24-hours.

Multi-Functional (Objective Payload)

To perform the multi-functional mission the air platform will utilize various mission payload packages that will provide mine, chemical and biological detection and support the commanders' force protection mission sets. Support of the multi-functional mission will require 8-hours of LOS/NLOS/BLOS coverage in 24-hours.

Additional Mission Sets (Objective Payload)

As doctrinal and operational concept developments evolve, there will be additional mission payloads that will be added to the air platforms capabilities. This requires that the air platform and mission payloads be modular in design providing for growth and updating. Currently, the air platform may be designed to conduct lethal/non-lethal, air-to-air and air to ground missions.

1.2.4 AIR VEHICLE (AV)

The AV is the airborne platform of the ER/MP UAVS. The AV serves as the “carrying device” for mission payloads. The GCS through the GDT remotely controls this system. The AV will have on-station time of 12 hours at a 300 Km range (objective is 24 hours at 500 Km) with airborne mission equipment included. The AV will have autonomous navigation capability and flight between multiple selected waypoints. Waypoints can be updated or reprogrammed from the controlling GCS.

1.2.5 RECOVERY EQUIPMENT

Automatic Take-Off/Landing System (ATLS)

The ATLS is the additional hardware and software required to facilitate automatic take-off and recovery of the AV in all possible configurations (i.e. equipped with the SEP and with/without payloads, weapons including asymmetric loads and optional equipment; with the full continuum of fuel loads). The ATLS design may be airborne only, ground only or a combination of equipment installed on each AV and ground equipment that interfaces with the GCS. If airborne equipment is required then each AV will include this equipment as part of the SEP. If ground equipment is required then four sets will be provided with each ER/MP system.

2.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

2.1 Description of the Proposed Action

The ER/MP UAVS is designed to replace the aging and technologically obsolete Hunter UAVS. It will expand upon proven technology and Tactics, Techniques and Procedures while leveraging current and advanced Commercial-Off-The-Shelf (COTS) technology to update the Corps/UE RSTA capabilities. Given the nature of the anticipated missions for Joint Forces and for the Corps/UE-size elements under Army Transformation, and the guidance provided by Objective Force (OF) 2015 White Paper, dated 14 Oct 2002, the requirement for an ER/MP UAVS is critical. The ER/MP UAVS will help form the foundation of advanced capabilities and core technologies needed for the Future Force as well as set the conditions for irreversible momentum as the Army transitions. The ER/MP UAVS teamed, or supported by other systems, will provide the Future Joint Force the best combination of long-range acquisition and targeting technologies. Mission duration, payload limitations, required connectivity, LOS limitations and related AV range limitations render current UAVs, and the Future Combat System (FCS) UAVS unacceptable for Corps/UE missions. The ER/MP UAVS will have the range and endurance to support shaping operations and to facilitate support to decisive operations missions and will be compatible with Army, Coalition, and Joint aircraft and systems in shaping the battlespace.

The applications envisioned for the ER/MP UAVS at the Corps/UE (long range RSTA, communications relay (voice and data), and objectively logistics delivery, SIGINT, future lethal and non-lethal attack, etc), combined with the obvious requirement for better dissemination to all services, require greater capabilities than are available with other Army UAVS. Longer dwell times, greater range requirements and a larger payload capacity and external store requirements are all necessary to support the Joint Force/Corps/UE UAVS applications. The greater data-link range requirement forces a higher service ceiling and as well as a NLOS solution when terrain or other obstacles do not permit LOS operations. The ER/MP UAVS will have a personnel and equipment footprint on the battlefield that is compatible with current and Future Forces - smaller is better. The ER/MP UAVS will also be compatible with the GCS (via TCDL when available), in keeping with the one system concept and to reduce system costs. ER/MP UAVS requirements are defined through a series of experiments and analytical efforts that range from the Training and Doctrine Command (TRADOC) funded Concept Experimentation Programs to Advanced Concepts Technology Demonstrations (ACTD). As a minimum, the ER/MP UAVS requirements will include the same types of applications as current Divisions-level UAV assets, but at even greater ranges. .

The base ER/MP UAVS will be weapons capable. The system will be capable of simultaneously controlling three mission AVs, which will provide three continuous RSTA/ISR missions, consisting of EO/IR and SAR/MTI imagery, or two RSTA/ISR missions and one WCP mission, as the commander sees fit. The initial missions equate to either 72-hours of RSTA/ISR coverage and 24-48 hours of ADR support, or 48-hours of RSTA/ISR coverage and 24-hours of WCP and 24-48 hours of ADR support all with a weapons capable platform. The Increment II system will

be capable of simultaneously controlling seven AVs that will provide 96-hours of RSTA coverage, 48-hours of ADR support, and 24-hours of WCP support, at a maximum depth of 300 km in a 24-hour period. The Increment I, and following Increments, will provide a unique unmanned weapons capable platform with objective attack and logistics delivery capability never before seen at a Corps/UE level. It is envisioned the Increment II system will consist of eight GCSs, eight GDTs, 4 PGCSs, 4 PGDTs, and an approximately 18-19 AVs. The ER/MP UAVS will provide the UE commander with a minimum of four dedicated RSTA missions, two dedicated ADR missions and one dedicated communication relay mission in a 24-hour period, with the flexibility to allow the combatant commander to tailor the mission support as the battle or mission dictates, i.e. four RSTA missions, two attack missions, zero ADR missions, one communication relay mission. In summation, the ER/MP UAVS will provide more coverage with a single baseline than legacy systems could with five. In addition, the ER/MP UAVS will provide more varied missions over a longer range with a smaller footprint and less logistical strain than legacy systems. It is anticipated that the system will be flexible enough to meet the ever-changing needs of the Corps/UE commander. Thus, the commander can 'design' the unit, to include the amount of equipment he wishes to dedicate to a specific battle or phase of the battle. This includes Early Entry, shaping and decisive actions, and transition operations. (U.S. Army Aviation Center, undated)

2.2 Need for the Proposed Action

The Quadrennial Defense Review (QDR) sets a transformation goal of denying enemy sanctuary by providing persistent surveillance, tracking, and rapid engagement. This will require a greater UAV capability than the Army has ever had before. Historically, Corps and Division-level UAV assets provided a maximum of 16 hours of RSTA coverage, consisting of EO/IR imagery only, in a 24-hour period, per baseline. The force structure required two baselines at Corps with an additional baseline at each subordinate Division. A single baseline consisted of three GCSs, two GDTs, one PGCS, one PGDT, and eight AVs. The battlefield effect for a Corp element, equipped with two baselines and three subordinate Division elements, each equipped with one baseline, was 80 hours of RSTA coverage (EO/IR only), to a maximum depth of 200km, in a 24-hour period. This required a total of 15 GCSs, 10 GDTs, 5 PGCS/PGDT (equivalent) and 40 AVs. The Future Force will be required to provide greater coverage, at greater ranges, with less footprint and logistics tail. It is envisioned that the Increment I system will consist of no more than twelve AVs, five control shelters, five ground data terminals, two portable control stations and data terminals.

Combatant commanders have a need to provide a real-time responsive capability to conduct wide-area near real-time RSTA, Command and Control, SIGINT, EW, and special operations missions during peacetime and all levels of war against defended/denied areas over extended periods of time. The evolution of the hostile surface-to-air and air-to-air threat and their collective effectiveness against manned aircraft can generate unacceptably high attrition rates. Current systems cannot perform these missions in a timely, responsive manner in an integrated hostile air defense environment without high risk to personnel and costly systems. There is a need for a capability that can be employed in areas where enemy air defenses have not been adequately suppressed, in heavily defended areas, in open ocean environments, and in contaminated environments. Nuclear survivability is required as necessary to perform missions

in a nuclear contaminated environment, including operating in the presence of high-altitude Electro-Magnetic Pulse (EMP) (objective). Currently no other service can supply this capability. The lack of such capability limits commanders' flexibility in providing UAVs to collect important intelligence information, to conduct responsive RSTA, Command and Control, EW, and special operations missions. (U.S. Army Aviation Center, undated) Consequently, the Chairman of JROC signed the Mission Need Statement (MNS) for a Long Endurance RSTA capability on 5 January 1990 (JROC Memo. 003-90).

A brief example of unique evolving Army requirements is listed below:

- **Manned-unmanned teaming with Army Aviation assets**. This entails the ability to hand off Level III and IV control of the ER/MP UAVS to other Army systems thereby creating an unequaled synergy on the battlefield. In addition, this eliminates sensor-to-shooter delays when the UAV is teamed with a manned armed asset.

- **Communications Relay**. Dedicated communications on the battlefield is critical, especially during Early Entry Operations. In support of the War Fighter Information Network-Tactical, the ER/MP will provide a continuous, dedicated 24-hour communications relay capability. This capability will be the primary airborne network relay during Early Entry Operations providing vital communications between command centers and forward deployed units. In addition, the ER/MP UAVS will provide a continuing 24-hour dedicated network augmenting capability once other network supporting systems are operational in theater.

- **Interoperability with the GCS**. This capability enables the ER/MP UAVS to be handed off to other Army non-ER/MP UAVS unit organic control stations or forward deployed ER/MP UAVS control stations. This greatly enhances the flexibility of the system and enables the commander to forward deploy a network of control stations allowing better coverage of the Corps/UE Area of Interest (AI) as well as provide direct support to subordinate units without dedicating ER/MP specific ground control stations.

2.3 Purpose of the Proposed Action

The ER/MP UAVS is essential toward fulfilling the anticipated missions for UE sized elements under the Army Transformation, and the guidance provided by Objective Force 2015 White Paper, dated 8 December 2002. Intended as a follow-on replacement to Hunter, this new capability will address in particular the UE needs of persistent stare, communications relay, and wide-area surveillance. The Hunter system, even though performing well as the UAV workhorse for the Army, has quickly become technologically obsolete. As a result, growing maintainability costs have driven the life-cycle cost of the system beyond what is affordable. The ER/MP UAVS is designed to provide enhanced support to the current force battlefield commander while enabling growth potential through evolutionary development. The system will serve as a Joint enabler using a variety of common interfaces to ensure networking and cross-service mission execution as well as vital dissemination of the system's products.

The ER/MP UAVS is critical to the foundation of advanced capabilities and core technologies needed for the Future Force and the conditions for irreversible momentum as the Army

transitions. The ER/MP UAVS teamed, or supported by other systems, will provide the Future Force the best combination of long-range acquisition and targeting technologies. The ER/MP UAVS will have the range and endurance to support shaping operations, and to facilitate support to decisive operations missions, and be compatible with Army, Coalition, and Joint aircraft in shaping the battlespace.

The ER/MP UAVS will be used to counter the general threat to its supported unit by providing real-time combat information/intelligence. It will operate in close proximity to heavily defended areas. It will be subject to hostile air defenses that may include the full range of antiaircraft systems including conventional small arms, automatic antiaircraft weapons, Man Portable Air Defenses (MANPADs), and crew-served systems using radar, optics, and electro-optics for detection, tracking, and engagement. The threat will also include shoulder fired Surface to Air Missiles (SAMs), launcher mounted SAMs, air-to-air weapons launched by fixed wing aircraft, helicopters, and counter-UAV UAVs, anti-radiation missiles, and directed energy weapons. Airborne and ground components will be susceptible to the same threat as the unit they support. Airborne and ground computers, communications/data links (networks) may be subjected to enemy EW and SIGINT exploitation and attack as well as CNA. (UAVS, 2002)

A number of new/future applications are being developed for the ER/MP UAVS, including employment as an armed and/or logistics delivery platform, Nuclear/Biological/Chemical detection and mine detection. These are likely to have a significant impact on the ultimate system requirements for this system. The ER/MP UAVS will also provide support to the Army's current corps level Special Electronic Mission Aircraft (SEMA) such as the future Aerial Common Sensor (ACS) system. Armed UAVs could be employed in support of a range of missions including working in conjunction with attack helicopters during Mobile Strike operations and attacking fleeting high value targets.

2.4 Existing Capabilities and Deficiencies

The ER/MP UAVS will replace and upgrade the current Hunter UAVS, using the existing force structure and support concepts for the threshold system and perform tactical level RSTA, C4I and provide a weapons capable platform throughout the full spectrum of Army operations including offensive, defensive, stability, and support operations as defined by FM 3-0, and Shaping, Decisive, and Transition Operations as defined by the OF concept. As part of the Army's migration to the vision of a highly flexible, responsive, and lethal future force, it is developing a UAV strategy to provide integrated, flexible, responsive, echelon-organic UAV support to Army commanders at all echelons for future forces, while not ignoring current force needs.

The Army has no other near or mid-term plan for a UAVS that would meet the stated requirements. The need to replace the aging Hunter fleet, thereby saving the maintainability cost and updating the current 1980's technology are critical to the Army. Historically, the Army has been able to draw limited support from Theater Assets due to the low density, high demand nature of those assets. Even when providing coverage with Corps-organic Hunter systems and only requesting vital support from theater assets, there were still gaps in support. This issue was

reiterated by the Air Force Air Combat Command UAV Integration White Paper, dated 13 April 2004, which states "the Air Force has been unable to service every request in the past due to limited assets". In addition, operations in OF and various exercises such as Roving Sands and ULCHI FOCUS LENS, have proven there was a critical shortage of Theater assets when tasked to directly support ground maneuver units. Considering the already strained Theater ISR support architecture and the need to replace the current Army Hunter UAV system combined with the Army's unique evolving requirements, GCS interoperability, operating environment and specific missions, other service's assets become both inefficient and less responsive to the ground maneuver commander.

Given the nature of the anticipated UE roles under Army Transformation, the requirement for an ER/MP UAV is vital. The possible mission sets and roles currently envisioned for the ER/MP UAVS (long range RSTA/ISR, dedicated communications relay, aviation Manned/Unmanned teaming and objectively SIGINT, attack, logistics delivery, etc.) all require greater capabilities than are available with other Army UAVS. Longer dwell times, greater range requirements, and a larger payload and external store capacity all are necessary to support these missions. The greater range requirement forces a NLOS capability as demonstrated during Operation ALLIED FORCE and ongoing operations in both Afghanistan and Iraq. It is entirely probable that additional missions will be identified as the Objective Force Concept becomes better defined.

3.0 ALTERNATIVES CONSIDERED

NEPA requires decision makers to consider all reasonable alternatives, including the No Action alternative, for proposed Federal actions such as the development, fielding and ultimate disposal of weapon systems. The preferred alternative is the alternative that the UAVS PO believes would fulfill its statutory mission and responsibilities, while giving consideration to economic, environmental, technical and other factors (40 CFR 1500-1508). The Preferred Alternative incorporates some elements of each of the considered alternatives. However, the Preferred Alternative is the only alternative considered a viable, stand-alone option. This section reviews the range of alternatives considered and specifies the Preferred Alternative.

3.1 Purchase and Modification of Existing Military/Commercial items

Product developers and decision-makers consider the purchase of existing military/commercial items where practical. Previous experience with UAVs has shown that there are Non-Developmental Items (NDI) and commercial items that can be utilized in the assembly and integration of the system at the major component and subcomponent level. The Acquisition Strategy for ER/MP UAVS emphasizes the use of these commercial items where suitable.

However, the Army's existing tactical communications network and Command, Control, Communications, Computers, and Intelligence, Surveillance and Reconnaissance (C4ISR) capabilities are not capable of supporting the Future Force warfighters' needs as configured. The forces' current tactical communications system served well to support yesterday's command, control, and support services that relied heavily on voice and short text messaging. Today's warfighter depends on a much broader spectrum of information services: video/multimedia, graphics data, imagery, collaborative planning tools, embedded training in a synthetic environment, and distributed data bases. Tomorrow's warfighter requires an offensively oriented network enabling battle command on the move, Information Dissemination capabilities, extended reach and reachback, and increased throughput. Information Exchange Requirements (IERs) generated by the Army's Future Force and rapidly changing warfighting doctrine and tactics exceed the capability and potential of the current tactical communications infrastructure. These developments demand an increase in communications capacity as well as great advances in information security, mobility, efficiency, and seamless integration. The existing C4ISR and communications architecture does not enable sensor fusion. Sensors must be part of the network; the routing of sensor information is critical to the "Decision Action Cycle". The Future Force C4ISR architecture must support "act on cues" as opposed to "reacting" from sensor information. Many information, automation, and communication lessons were learned in the 1990's from experiences such as Desert Storm (Iraq), Operation Joint Forge (Bosnia-Herzegovina), Joint Guardian (Kosovo) and the Army Warfighting Experiments. Operational concepts have changed significantly and warfighter expectations for mobility and offensive orientation have outgrown the scope of Multiple Subscriber Equipment (MSE) and Tri-Service-Tactical (TRI-TAC) service. The current tactical networks cannot be effectively or efficiently modified to satisfy these operational requirements. (UAVS, 2004a)

As a design goal, COTS and Government Off-the-Shelf (GOTS) hardware/software will be used throughout the ER/MP UAVS program wherever possible to mitigate risk. Use of Defense Information Infrastructure /Common Operating Environment (DII/COE) GOTS including time-phased evolution to the Net-Centric Execution System (NCES) products will enable the rapid enhancement of the ER/MP C4I software components in addition to providing an operating environment that enables the leveraging of additional GOTS products (Falconview, CJMTK, Common Operating Picture, Common Tactical Picture). (PEO Aviation, 2004)

3.2 New Development Program (Preferred Alternative)

The Preferred Alternative is to implement the Proposed Action. This alternative would continue acquisition activities and eventually produce and field the ER/MP UAVS for use by various military components.

3.3 No-Action Alternative

The No-Action Alternative would result in discontinuing the ER/MP UAVS program. The Army has no other near or mid term plan for a UAV system that would meet the requirements detailed in this document. The need to replace the aging Hunter fleet, thereby saving the maintainability cost and updating the current 1980's technology are critical to the Army. Therefore, the No-Action Alternative is not considered a viable alternative.

4.0 ENVIRONMENTAL IMPACTS OF THE PROPOSED ACTION

This chapter discusses the various environmental components analyzed as well as the potential environmental impacts associated with the life-cycle phases of the ER/MP UAVS. Site-specific NEPA documentation is required for manufacturing, testing, and fielding activities as this document does not address potential impacts at specific locations (e.g., Ft. Huachuca, AZ). This section was prepared in accordance with the NEPA and DoD Directive 5000.1, *The Defense Acquisition System*, authorized October 23, 2000 and reissued May 12, 2003; DoD Instruction 5000.2, *Operation of the Defense Acquisition System*, authorized May 12, 2003; and 32 CFR Part 651, *Environmental Analysis of Army Actions, Final Rule*; dated March 29, 2002.

Eleven environmental components were analyzed to determine potential impacts to the environment from the Proposed Action. The environmental components addressed are air quality, biological resources, cultural resources, hazardous materials and waste, health and safety, infrastructure and transportation, land use, noise, geology and soils, socioeconomics, and water resources. The amount of detail presented in each section is proportional to the potential for impacts from the Proposed Action.

4.1 Related Environmental Documentation

Several documents have been prepared that provide information related to the potential environmental, safety, and health effects of the ER/MP UAVS. These include the following:

- *Life Cycle Environmental Impact Assessment for the Remotely Piloted Vehicle System* (October 1980)
- *Life Cycle Environmental Assessment (LCEA) for "DEEP" Unmanned Aerial Vehicle (UAV)* (20 January 1988)
- *Record of Environmental Consideration (REC) for Nonlethal UAV Short Range Tests (Multiple Locations)* (4 August 1989)
- *REC for RAVEN UAV* (November 1989)
- *REC for Customer Concept Test, "Air Defense Against UAV-Assessment of Target Location Capability"* (February 1989)
- *Environmental Assessment (EA) for Unmanned Aerial Vehicles at Fort Huachuca, Arizona* (August 1989)
- *LCEA for UAV Short Range Tests at Fort Huachuca Garrison Electronic Proving Ground* (February 1991)
- *Categorical Exclusion for UAV-Short Range Flight Tests at Naval Air Station, Point Mugu, CA* (June 1991)
- *LCEA for UAV Close Range* (November 1991)

- *EA for Short Range Unmanned Air Vehicle Tests at Fort Huachuca* (February 1992)
- *EA for the Construction and Operation of an Applied Instructional Building (AIB) to Accommodate Joint Service Training of Unmanned Aerial Vehicles, Fort Huachuca, Arizona* (November 1992)
- *REC for Heavy Fuel Engine for UAV Short Range Vehicle* (April 1993)
- *Comprehensive UAV Environmental Assessment* (November 1993)
- *LCEA for Hunter Baseline System for Joint Tactical Unmanned Aerial Vehicle* (September 1994)
- *Final EA for the Redstone Arsenal Master Plan Implementation, Alabama* (December 1994)
- *LCEA for Tactical Unmanned Aerial Vehicle* (7 July 1999)
- *Final LCEA for the Shadow 200 Tactical Unmanned Aerial Vehicle* (January 2002)
- *Environmental Assessment for the Operations, Training, and Testing of Unmanned Aerial Vehicles at Redstone Arsenal, Alabama* (May 2004)

The environmental tests for ER/MP UAVS will be undertaken in natural and induced environments in which the system is expected and required to operate. The environmental verification efforts associated with the TUAV Shadow 200 and Hunter Systems will be applied to the new ER/MP UAVS to the maximum extent possible. However, if there are any documented environmental performance deficiencies, test criteria differences or configuration changes to the existing system's equipment, additional analyses or environmental testing may be required. Government Furnished Property (GFP), which has been previously analyzed, will require system integration testing only and is not subject to the full range of environmental tests.

4.2 Environmental Components

Air Quality

The Clean Air Act (CAA), which was last amended in 1990, requires the Environmental Protection Agency (EPA) to set National Ambient Air Quality Standards (NAAQS) for pollutants considered harmful to public health and the environment. The EPA Office of Air Quality Planning and Standards has set NAAQS for six principal pollutants, called "criteria" pollutants (Table 4-1). Criteria pollutants are emitted primarily from combustion sources, including aircraft engines. Non-criteria pollutants are all other air pollutants that are regulated and controlled by emission standards, or other health-risk-based criteria. Non-criteria pollutants may be emitted from many sources, such as solvents, paints, and engine maintenance activities.

The EPA delegates much of its authority to administer regulations to the states, which in turn, are responsible for developing State Implementation Plans for the maintenance of air quality. The EPA has ultimate authority to approve or disapprove these plans, based on their adherence to Federal statutes. Federal facilities where ER/MP UAVS activities take place are required to comply with the guidelines established by the CAA, other applicable Federal regulations, and state regulations that administer guidelines to protect air quality.

Table 4-1: National Ambient Air Quality Standards

Pollutant	Standard Value		Standard Type
Carbon Monoxide (CO)			
8-Hour Average	*9 ppm*	*(10 mg/m^3)*	*Primary*
1-Hour Average	*35 ppm*	*(40 mg/m^3)*	*Primary*
Nitrogen Dioxide (NO_2)			
Annual Arithmetic Mean	*0.053 ppm*	*(100 µg/m^3)*	*Primary & Secondary*
Ozone (O_3)			
1-Hour Average	*0.12 ppm*	*(235 µg/m^3)*	*Primary & Secondary*
8-Hour Average	*0.08 ppm*	*(157 µg/m^3)*	*Primary & Secondary*
Lead (Pb)			
Quarterly Average	*1.5 µg/m^3*		*Primary & Secondary*
Particulate <10 micrometers (PM_{10})			
Annual Arithmetic Mean	*50 µg/m^3*		*Primary & Secondary*
24-Hour Average	*150 µg/m^3*		*Primary & Secondary*
Particulate <2.5 micrometers ($PM_{2.5}$)			
Annual Arithmetic Mean	*15 µg/m^3*		*Primary & Secondary*
24-Hour Average	*65 µg/m^3*		*Primary & Secondary*
Sulfur Dioxide (SO_2)			
Annual Arithmetic Mean	*0.03 ppm*	*(80 µg/m^3)*	*Primary*
24-Hour Average	*0.14 ppm*	*(365 µg/m^3)*	*Primary*
3-Hour Average	*0.50 ppm*	*(1300 µg/m^3)*	*Secondary*

Note: The ozone 8-hour standard and the $PM_{2.5}$ standards are included for information only. A 1999 Federal court ruling blocked implementation of these standards, which EPA proposed in 1997. Units of measure for the standards are parts per million (ppm) by volume, milligrams per cubic meter of air (mg/m^3), and micrograms per cubic meter of air (µg/m^3). Primary standards set limits to protect public health, including the health of "sensitive" populations such as asthmatics, children, and the elderly. Secondary standards set limits to protect public welfare, including protection against decreased visibility, damage to animals, crops, vegetation, and buildings.

An air emissions analysis has not been performed on the ER/MP UAVS as of the writing of this LCEA. However, the ER/MP UAVS would not be anticipated to produce large quantities of criteria pollutants. Construction activities associated with the development and maintenance of test areas may generate particulate emissions during site clearing and grading activities, but as mentioned previously, these activities would be considered under site-specific NEPA documentation. Vehicle emissions during testing and construction activities would result in minor outputs of CO, nitrogen oxides (NOx) including NO_2, and Volatile Organic Compounds (VOCs). VOCs and NOx combine in the presence of sunlight to produce O_3. Operations can also affect air quality through oil and fuel releases from support vehicles.

The CAA requires the EPA to adopt National Emissions Standards for Hazardous Air Pollutants (NESHAPS) that may adversely affect public health or the environment. Much like the NAAQS, NESHAPS compliance is regulated through Standard Operating Procedures (SOPs) and Federal- and state-specific guidelines. EPA regulates 188 Hazardous Air Pollutants (HAPs), which are chemicals that pose potential health risks to exposed persons. The ER/MP UAVS is not anticipated to emit significant quantities of HAPs. As appropriate, installation environmental staff personnel where ER/MP UAVS activities occur would evaluate the necessity of modifying the Title V Permit of their installation.

The Montreal Protocol on Substances that Deplete the Ozone Layer, to which the United States is a signatory, calls for a phase out of the production and consumption of these substances. Pursuant to Section 611 of the Clean Air Act Amendments (CAAA), EPA requires labeling for products manufactured with, containers of, and products containing specific Ozone-Depleting Chemicals (ODCs). Since 1 June 1993, ozone-depleting substances (ODSs) may not be used in products procured by the Federal government without approval from a senior acquisition official. In accordance with Executive Order (EO) 12843, Federal agencies have been directed to conform their procurement regulations and practices to the policies and requirements of Title VI of the CAAA, which deals with stratospheric ozone protection and the evaluation of present and future uses and recycling methods of ODSs. This includes taking measures to revise procurement practices and implement cost-effective programs such as the modification of specifications and/or contracts by substituting non-ODSs to the extent economically practicable. It is Army policy to minimize the procurement, use, and emissions of ODSs to the greatest extent possible. ODSs will be not utilized in any part of the ER/MP UAVS (UAVS, 2004b).

Biological Resources

Biological resources include vegetation, fish and wildlife, threatened and endangered species, wetlands, and unique habitats. Numerous environmental laws have been instituted to protect biological resources on Federal and state facilities, for example the Endangered Species Act (ESA) of 1973. Federal and state facilities where ER/MP UAVS activities take place would comply with the guidelines established by the ESA, and other Federal or state regulations that administer guidelines to protect biological resources through the NEPA process. Prior to undertaking any activity on a Federal installation, the site-specific Integrated Natural Resources Management Plan would be consulted to assure all planned activities conform to the requirements of the plan.

Criteria for determining the significance of potential impacts to biological resources are based on the importance of the resource, the number or amount of the resource that would be impacted, the sensitivity of the resource to the Proposed Action, and the duration of the impact. Impacts are considered significant if they are determined to have the potential to reduce the population size of Federal- and/or state-listed threatened or endangered species, degrade biologically important unique habitats, or cause long-term loss of vegetation and/or wildlife habitat.

Potential impacts to flora, fauna, and associated ecosystems attributable to ER/MP UAVS activities would potentially occur during test area preparation and activities associated with the movement and operation of ground support equipment on unimproved surfaces.

Cultural Resources

Cultural resources include prehistoric, historic, and Native American resources. The first step in the analysis of impacts to cultural resources is to define the Area of Potential Effect (APE). Next, resources listed or eligible for listing on the National Register of Historic Places, pursuant to the National Historic Preservation Act (NHPA) of 1966, or those that are considered cultural items pursuant to the Native American Graves Protection and Repatriation Act (NAGPRA) of 1990 are identified. Then the potential effects of the Proposed Action and its alternatives are considered.

ER/MP UAVS operations and training activities could impact cultural resources. Potential effects to cultural resources may require early consultation by installation environmental staff with the State Historic Preservation Officer, Tribal Historic Preservation Officer and/or the Advisory Council on Historic Preservation (ACHP), pursuant to NHPA Section 106. Depending on the type of cultural resource, consultation with Native American tribal representatives may also be required under NAGPRA. The ACHP's regulations, 36 CFR 800, were published in the *Federal Register* on May 18, 1999.

Federal facilities where ER/MP UAVS activities take place would comply with the guidelines established by the NHPA, other Federal regulations, and state regulations that administer guidelines to protect cultural resources through the NEPA process. Prior to undertaking any activity on a Federal installation, the site-specific Cultural Resources Management Plan would be consulted to assure all planned activities conform to the requirements of the plan.

Hazardous Materials

Under Department of Transportation (DOT) rules, hazardous materials are substances or materials that have been determined by the Secretary of Transportation to be capable of posing an unreasonable risk to health, safety, and property when transported in commerce. The term includes hazardous substances, hazardous wastes, marine pollutants, elevated-temperature materials, materials designated as hazardous under the provisions of 40 CFR 172.101, and materials that meet the defining criteria for hazard classes and divisions in 49 CFR 173. The hazard categories include: explosives, gases, flammable liquids, flammable solids, spontaneous combustibles and dangerous when wet; oxidizers and organic peroxides; poisons and infectious substances; corrosives, and all other hazardous materials.

Several Federal agencies oversee various aspects of hazardous material usage. DOT regulates the safe packaging and transporting of hazardous materials, as specified in 49 CFR parts 171 through 180 and Part 397. The Occupational Safety and Health Administration (OSHA) regulates the safe use of hazardous materials in the workplace in 29 CFR, primarily Part 1910. Other environmental, safety, and public health issues associated with hazardous materials are regulated by the EPA through specific criteria applied to areas such as air emissions and water discharge.

The Department of Defense has worked closely with the aerospace industry to adopt National Aerospace Standard (NAS) 411 "Hazardous Materials Management Program." NAS 411, adopted by DOD in March 1994, provides a flexible, systematic process for managing hazardous materials in the acquisition and life-cycle of a system. The standard will help reduce hazardous materials usage and the generation of pollutants, not only during manufacturing, but also during the operations and maintenance phases of the ER/MP UAVS over its life-cycle. NAS 411 provides a uniform method for a contractor to identify all hazardous materials and to manage, minimize, and eliminate them whenever possible. A critical element of NAS 411 is progress reports from the contractor detailing:

- Lists of hazardous materials the contractor must use because of military specifications and standards;
- Lists of hazardous materials the contractor must use because no alternative technology exits to meet performance requirements; and
- Trade-off analyses to determine alternatives that decrease environmental liabilities and decrease cost.

Hazardous Waste

Under the Resource Conservation and Recovery Act (RCRA), and defined in 40 CFR 261, a solid waste that, because of quantity, concentration, or physical, chemical, or infectious characteristics, causes or significantly increases mortality or serious irreversible or incapacitating reversible illness, or poses a substantial present or potential hazard to human health or the environment when improperly managed is determined to be a hazardous waste.

This can include both solid and containerized liquid materials. Hazardous waste is further defined in 40 CFR 261.3 as any solid waste not specifically excluded that meets specific concentrations or has certain toxicity, ignitability, corrosivity, or reactivity characteristics.

Oversight of hazardous waste issues is provided primarily by the EPA and state regulatory agencies, as mandated by RCRA and the Comprehensive Environmental Response, Compensation, and Liability Act/Superfund Amendments and Reauthorization Act (CERCLA/SARA).

Federal facilities where ER/MP UAVS activities occur would comply with the guidelines established by RCRA and other Federal or state regulations that administer guidelines for the proper handling and disposal of hazardous waste.

Health and Safety

Health and safety includes consideration of any activities, occurrences, or operations that have the potential to affect one or more of the following.

- The well-being, safety, or health of workers - Workers are considered persons directly involved with the operation or who are physically present at the operational site.

- The well being, safety, or health of members of the public - Members of the public are considered persons not physically present at the location of the operation, including workers at nearby locations who are not involved in the operation and the off-installation population.

OSHA is responsible for protecting worker health and safety in non-military workplaces. Relevant OSHA regulations are found in 29 CFR 1910. Protection of public health and safety is an EPA responsibility and mandated through a variety of laws such as RCRA, CERCLA/SARA, the Clean Water Act (CWA), and the CAA. EPA regulations are found in 40 CFR 265.382. Additional safety responsibilities are placed on the DOT in 49 CFR. Department of the Army program requirements are outlined in AR 385-10, *Army Safety Program*.

Infrastructure and Transportation

Infrastructure addresses facilities and systems that provide power, water, wastewater treatment, the collection and disposal of solid waste, fire, health, and police services. Transportation addresses the modes of transportation (air, road, rail, and marine) that provide circulation within and access to installations. Infrastructure and transportation issues are not expected to be significantly impacted by the Proposed Action. Installations where ER/MP UAVS are based would be required to address these issues under separate NEPA site-specific documentation.

Land Use

Land use describes the use of testing, training, and operational locations and the area surrounding these proposed locations. Federal and state facilities where ER/MP UAVS activities occur are generally established for similar land uses and therefore are not anticipated to be impacted by the Proposed Action. Any construction or expansion efforts pertaining to the ER/MP UAVS system would be evaluated by a site-specific NEPA documentation prepared by the Environmental Office of the respective facility.

Noise

The Noise Control Act establishes a policy to promote regulation of noise to achieve an environment free from harmful effects to the health and welfare of individuals and society as a whole. Noise can be defined as unwanted sound, occurring when a receptor has an appreciation for the sound received. Sensitive noise receptors can include both human beings as well as biological resources.

Through their Environmental Noise Management Program (ENMP) the Army evaluates and manages impacts on and off installations from noise producing activities. The purpose of the ENMP is to minimize encroachment into noise sensitive zones by noise-generating activities. All installations are expected to be in conformance with their associated ENMP.

Noise impacts from the ER/MP UAVS would be expected to be minimal. Testing and training activities would occur on ranges or installations that are cleared for these types of activities. Personnel involved with these activities would adhere to hearing protection requirements defined in health and safety plans and guidelines.

Geology and Soils

Geology refers to the structure and composition of the surface and subsurface materials that are characteristic of a particular area. Soils refer to the uppermost layer of residuum of a particular area. A number of federally mandated regulations are in place to protect the geology and soils of DoD facilities. Executive Order 12088, *Compliance with Pollution Control Standards*, ensures Federal Government compliance with applicable pollution control standards and conveys the responsibility for compliance to the head of each executive agency. The Federal Facilities Enforcement Office of the EPA audits compliance to these standards by means of its environmental auditing policy that is published in the Federal Register (51 CFR 25004). ER/MP UAVS activities would also be regulated by each installation's Hazardous Materials and Waste Management Plan and AR-200-1, *Environmental Protection and Enhancement.* Federal and state facilities where ER/MP UAVS activities occur would comply with the guidelines established by Federal or state regulations that administer guidelines for the protection of geology and soils.

Minor impacts to geology and soils could result from activities associated with the acquisition of the ER/MP UAVS. Primary impacts would be an increase in erosion potential. Testing and training activities would be conducted in areas specifically cleared for and routinely used for similar activities.

Socioeconomics

Socioeconomic impact regions typically include: current and projected population and relevant demographic characteristics; local government revenues, expenditures, and revenue-sharing arrangements; current and projected housing capacity; current and planned public service capacity (water, sewer, transportation, police, fire, health, education, and welfare); economic structure and labor force characteristics; local government characteristics; local organizations and interest groups; social structure and life styles and local support or opposition to the proposed project. It is not anticipated that the socioeconomic impact of the Proposed Action would be significant. Activities associated with the Proposed Action have occurred in areas where similar activities currently occur and no significant increases to existing activity levels are anticipated.

Water Resources

To protect both surface water and groundwater resources, and human health, Congress enacted the CWA and the Safe Drinking Water Act (SDWA). The EPA has also established water quality standards to protect water resources. Army Regulation 200-1, Chapter 3, implements the Army's Water Management Program. Federal and state facilities are under strict guidance in order to protect the water resources at the facilities. Ground water and surface water monitoring programs and wastewater management plans facilitate the ongoing assessment concerns regarding water resources.

4.3 Acquisition Process

Recent changes in the DoD acquisition process have streamlined the process and increased flexibility for acquisition programs. They established multiple acquisition process paths and established "entrance criteria" for entering the next acquisition phase.

The acquisition process is now divided into five phases – Concept Refinement; Technology Development; System Development and Demonstration; Production and Deployment; and Operations and Support. As mentioned, the acquisition process now allows for program entry at various points depending on concept and technology maturity. Milestones A, B, and C (formerly I, II, and III) occur at entry into Technology Development, System Development and Demonstration, and Production and Deployment phases respectively (Figure 4-1).

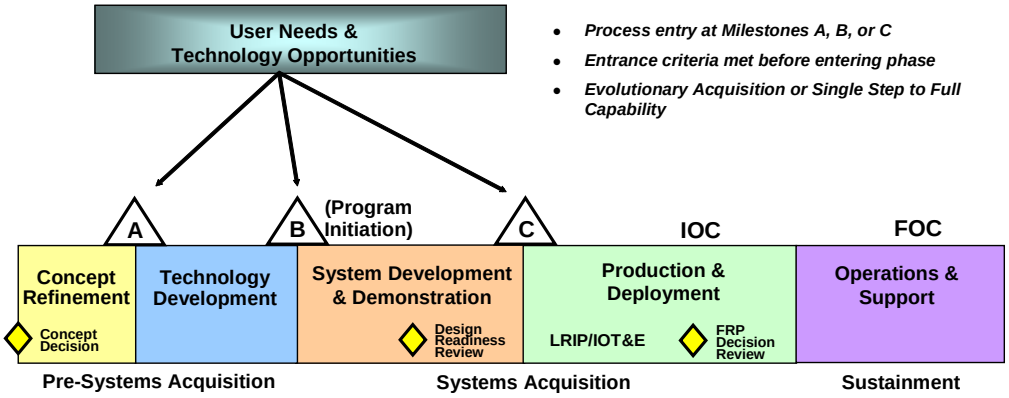


Figure 4-1: Defense Acquisition Management Framework

The ER/MP UAVS will follow a development process using a prioritized increment and technology spiraling approach for development. Capabilities will be developed and delivered in increments over time intended to support the warfighter's tactical and training requirements. These increments are prioritized. The initial increment is limited by available force structure, but provides for immediate warfighting needs. It provides the increased endurance and range required by the Corps/UE while maintaining the capability to support subordinate units. The initial increment will provide an EO/IR LRF/LD and SAR/MTI sensor suite capable of supporting RSTA missions. Additionally, this increment will provide an enhanced communications package designed to support the WCP mission, and a weapons ready AV platform, including internal cabling, capable of carrying future lethal/non-lethal external stores. Increment II provides a beyond threshold capability. Future increments will provide additional RSTA missions while enhancing the multi-purpose role by providing SIGINT, EA, future payloads/external stores (Lethal/Non-Lethal, Logistics Delivery, etc.), and multi-functional missions to provide mine, chemical and biological detection and support. (U.S. Army Aviation Center, undated)

The following sections are organized such that ER/MP UAVS can be addressed with regards to the current phase of acquisition in the life-cycle. A description of the activities and alternatives for each system is presented, followed by an assessment of the environmental impacts anticipated from those activities during the specific phases of the acquisition life-cycle. Where

appropriate, adverse effects and conflicts which cannot be avoided are listed, in addition to recommended mitigation procedures where required. The ER/MP UAVS is currently in the Technology Development phase, and is anticipating a Milestone B decision in the Second Quarter of Fiscal Year (FY) 2005 (2QFY05). A Low Rate Initial Production (LRIP) Decision will be sought at Milestone C, currently scheduled for 4QFY07. A Full Rate Production (FRP) Decision will be sought in 4QFY09. The Horizontal Technology Insertion (HTI) process will be utilized throughout the life of the program.

4.3.1 Concept Refinement

The purpose of this phase is to refine the initial concept and develop a Technology Development Strategy (TDS). Entrance into this phase depends upon an approved Initial Capabilities Document (ICD) resulting from the analysis of potential concepts across the DoD Components, international systems from Allies, and cooperative opportunities; and an approved plan for conducting an Analysis of Alternatives (AoA) for the selected concept, documented in the approved ICD.

Concept Refinement begins with the Concept Decision. The Concept Refinement phase includes concepts exploration that is primarily paper studies of concepts to meet a mission need. The focus of these efforts is to define and evaluate the feasibility of alternative concepts and to provide a basis for assessing the relative merits (i.e. advantages and disadvantages, degree of risk, etc.) of these concepts. An analysis of alternatives is used to facilitate comparisons of alternative concepts. The AoA shall assess the critical technologies associated with these concepts, including technology maturity, technical risk, and, if necessary, technology maturation and demonstration needs. To achieve the best possible system solution, emphasis shall be placed on innovation and competition. Existing COTS functionality and solutions drawn from a diversified range of large and small businesses shall be considered. Concept Refinement ends when the Milestone Decision Authority (MDA) approves the preferred solution resulting from the AoA and approves the associated Technology Development Strategy.

4.3.1.1 Description of Activities for Concept Refinement

The Concept Refinement Phase consisted of competitive, parallel short-term concept studies. The focus of these efforts was to define and evaluate the feasibility and disadvantages of these concepts. Analysis of alternatives were used, as appropriate, to facilitate comparisons of alternative concepts. The most promising system concepts were defined in terms of initial, broad objectives for cost, schedule, performance, software requirements, opportunities for tradeoffs, overall acquisition strategy, and test and evaluation strategy. Activities relating to this phase are generally paper studies and analytical in scope.

4.3.1.2 Environmental Impacts of Activities and Alternatives

No environmental impacts were recognized during this phase.

4.3.2 Milestone A: Technology Development

The purpose of this phase is to reduce technology risk and to determine the appropriate set of technologies to be integrated into a full system. Technology Development (TD) is a continuous technology discovery and development process reflecting close collaboration between the Scientific & Technical community, the user, and the system developer. It is an iterative process designed to assess the viability of technologies while simultaneously refining user requirements.

TD begins with Milestone A. Activities include examining alternative concepts, including cooperative opportunities and procurement or modification of systems or equipment, to meet a MNS. This phase ends when an affordable increment of militarily-useful capability has been identified, the technology for that increment has been demonstrated in a relevant environment, and a system can be developed for production within a short timeframe (normally less than five years).

Alternative system designs were solicited from private industry primarily. The most promising system concepts were defined in terms of initial, broad objectives for cost, schedule, and performance; identification of interoperability, security, survivability, operational continuity, technology protection, operational support, and infrastructure requirements within a family of systems; opportunities for tradeoffs, and an overall acquisition strategy and test and evaluation strategy (including Developmental Test and Evaluation (DT&E), Operational Test and Evaluation (OT&E), and Live Fire Test and Evaluation (LFT&E)). The work in Concept Exploration normally is funded only for completion of concept studies contracts. This work effort ends with a review, at which the MDA selects the preferred concept to be pursued for which technologies are available.

4.3.2.1 Description of Activities for Technology Development

In the Technology Development Phase, the MNS was defined as a requirement for a weapons-capable, long endurance RSTA, C4I UAV supporting the full spectrum of Army operations including offensive, defensive, stability, and support operations. It was determined that the ER/MP UAVS should be designed to give maneuver commanders superior situational awareness for improved wide-area target acquisition and tracking to conduct both shaping and decisive operations with greatly increased lethality. The need is for a day/night, adverse weather, multi-sensor collection system with improved connectivity to joint forces that provides needed, real-time battle information that cannot be observed from standoff airborne sensor systems, ground collection systems, and scouts.

During the TD phase, the source selection evaluation consisted of two phases. The first phase began with an evaluation to determine whether the offeror's proposal complies with the Government’s Request for Proposal. The second phase consisted of a Systems Capabilities Demonstration (SCD) (flight testing and associated supportability demonstrations) of the existing system against predetermined and published flight scenarios as well as evaluation of contractor submitted proposals. (UAVS, 2002) The two best-qualified vendors were selected to participate in a demonstration of their systems’ capabilities, as defined in their respective proposals.

The development, integration, and test strategy for ER/MP UAV will draw upon lessons learned from previous UAV programs, specifically Hunter and Shadow. DT&E will be structured to verify the status of the ER/MP UAV development effort and that design risks are minimized. The first testing of the ER/MP UAVS will be during the SCD. The SCD will be used to down select to the final System Development and Demonstration (SDD) contractor. Some of this data may be used to support the Milestone B decision. The primary purpose of the demonstration is to verify the design, performance, and technical maturity of the current AV configuration and to assess risk to achieve the maturity and performance of the contractors' proposed system (Increment I configuration), which will be the delivered SDD systems. The demonstration will correlate proposed capabilities with current demonstrated capabilities. This demonstration will lead to one of the contractors being competitively selected to continue into the SDD phase.

The SCD will consist of a 3-week demonstration by each contractor and will be conducted at Fort Huachuca, Arizona. The demonstration will consist of a ground demonstration phase and a flight performance/evaluation phase. During the ground demonstration phase, each contractor will demonstrate current capabilities as they relate to: Air and Ground Transportation (package, assembly and disassembly), system emplacement and displacement (operations and timeline), roles and operations of the contractor logistics support, field maintenance operations, performance of routine maintenance functions, emergency and safety procedures, performance of built-in-test capabilities, evaluation of Manpower and Personnel Integration domains, and logistics support operations with associated handling equipment and tools. During the flight demonstration phase, each contractor will demonstrate current capabilities as they relate to: endurance, service ceiling, dash and loiter speeds, payloads capacity, AV's ability to process and execute waypoint navigation, precision and accuracy of onboard avionics system, launch and recovery operations, and AV performance while accumulating a prescribed number of flight hours on a single AV. The contractor will present, or demonstrate in flight, their existing capability for Airborne Data Relay. In order to evaluate the AV's contribution to Target Location Error, the contractor shall perform target location operations using their integrated surrogate EO/IR payload. To demonstrate the AV's weapons capable performance, the contractor will include hard-points for adapting two contractor-furnished ballast fixtures (at 200 lbs each). The flight test phase will consist of 1 day for contractor familiarization/check flights, 4 days of demonstrations to established flight profiles, 1 day for contractor free demonstration, and 1 day for make-up flights. The flight profiles will evaluate the existing capabilities, including AV and payload performance, TLE, range and endurance, lost link capabilities, etc. Some of this data may be used to support the Milestone B decision.

4.3.2.2 Environmental Impacts of Technology Development Activities

There are no significant environmental impacts anticipated during this phase of the acquisition process.

4.3.3 Milestone B: System Development and Demonstration Phase

The purpose of SDD is to develop a system or an increment of capability; reduce integration and manufacturing risk (technology risk reduction occurs during TD); ensure operational supportability with particular attention to reducing the logistics footprint; implement human systems integration; design for producibility; ensure affordability and the protection of critical

program information by implementing appropriate techniques such as anti-tamper; and demonstrate system integration, interoperability, safety, and utility. Development and demonstration are aided by the use of simulation-based acquisition and test and evaluation integrated into an efficient continuum and guided by a system acquisition strategy and test and evaluation master plan.

4.3.3.1 Description of Activities for System Development and Demonstration

Following a successful Milestone B decision, the SDD contract will be awarded to the selected contractor to integrate the selected AV and associated equipment into the GCS and to continue development of other key systems. Completed Milestone B documentation and completed source selection to include SCD are the entrance criteria to enter SDD.

During SDD, the contractor will assist the Government in preparing joint and intra-Army interoperability documentation including Concept of Operations (CONOPS)-coordinated mission threads and Interface Control Documents (ICDs) that will define the interfaces necessary to comply with the current and future Army UAV Architecture and the Joint Technical Architecture (JTA). Concurrent development of Test-Analyze-Fix-Test (TAFT) and training assets will allow for component and system testing, correcting and retesting, along with training operators and pilots. The performance evaluation will include selected ground/flight tests at either a government or contractor (certified) test facility. Ground tests may include electromagnetic environmental, natural and induced environmental, vulnerability/survivability, transportability, and logistics evaluation. System level flight tests will be conducted to prove compliance with the performance specification and requirements documents.

SDD will include an evolutionary C4I development intended to fulfill Increment I critical IERs via both hardware and software enhancements to the GCS. This will allow ER/MP UAVS to demonstrate intra-Army and Joint interoperability in the Software Blocking 3 timeframe as required for a successful Milestone C decision.

Critical engineering reviews envisioned during the SDD phase include: System Requirements Review (SRR), Preliminary Design Review (PDR), System Functional Review (SFR), and Critical Design Review (CDR). A major program event during the SDD will be the Design Readiness Review (DRR) that marks the decision point for moving from system design into system development.

During the SDD Phase, the contractor will build TAFT; Modeling and Simulation (M&S); and training assets. The TAFT assets will be used to conduct Government Developmental Testing (DT), training, and the Limited User Testing (LUT). The system produced during SDD will support the performance and environmental testing. The system will go through two phases of DT. The first phase will be the Engineering Developmental Testing (EDT) where the contractor will qualify subsystems/components and perform integration testing. The second phase will be the Production Prove-out Testing where system level performance/qualification testing, to include environmental qualification and Joint Interoperability Test Command certification, will be completed. Some form of operational testing (i.e. Limited User Test) will also be completed during SDD to support an operational assessment. (PEO Aviation, 2004)

DT&E will be a combined contractor/Government effort and will be conducted to verify that the resulting Increment I delivered systems meet the size, range, endurance, and performance required by the ER/MP UAV ORD. DT will include EDT, which includes contractor subsystem and system level testing; interoperability testing; and a Production Prove-out Test (PPT). The strategy is to test the integrated system, once the AV and the GCS (with C4I capabilities) development and integration into the UAV system have matured sufficiently and the contractor-level testing has been satisfactorily completed. The basis for the DT effort will be the selected UAV contractor's proposed Coordinated Test Plan, which outlines the contractor's overall test strategy, including test support requirements. The minimum developmental tests and performance requirements that must be performed or demonstrated prior to Initial Operational Test and Evaluation (IOT&E) include:

- **Human Systems Integration** (HSI) will be addressed throughout the UAV program using commercial equivalent safety guidance. Where no commercial equivalent safety guidance exists, military safety standards will be used. Health Hazard Assessments (HHAs) will be part of the safety program to allow a safety release prior to training and IOT&E. Man-Machine Interface (MMI) requirements will be evaluated during early phases of development, using the SCD-demonstrated system configuration as the baseline. This will be used to verify equipment/operator/maintainer Human Factors Engineering (HFE) requirements are satisfied and provide an early indication of the ability to maintain the UAV Operations Mode Summary/Mission Profile (OMS/MP) tempo.

- **Safety**. System Safety analyses will be performed to include preliminary subsystem, system, software, operational, and support hazard analyses. The UAVS Project Office will be responsible for developing, maintaining and implementing the System Safety Management Plan (SSMP). The System Safety Working Group (SSWG) will review, evaluate and provide inputs to the SSMP. All identified hazards will be reviewed by the SSWG and residual hazards will be processed for risk management decision-making by the appropriate levels of management IAW AR 385-16. Safety evaluations of operations and maintenance hazards and procedural hazard controls, including those associated with man-machine interfaces will be conducted during the Logistics Demonstration. Failures related to safety or flight performance are critical failures and will be re-tested to verify corrective actions have been performed, and the Government has approved the final solution. The SDD contractor will prepare a Safety Assessment Report documenting the system safety program, system design with safety features, and hazard analyses. Safety data will be presented to the Army Test and Evaluation Command (ATEC) Developmental Test Command (DTC), and the U.S. Army Aviation and Missile Command (AMCOM) Safety Office. ATEC DTC will review the data and provide a safety release to support the use of operational personnel during ER/MP UAV testing conducted by the Army.

- **Airworthiness.** The contractor will present a schedule and Airworthiness approach at the PDR, CDR and Test Readiness Review (TRR) that details the resources required and actions needed to achieve airworthiness. The contractor

will present substantiating data to include drawings and relevant software requirements and design information for the purpose of airworthiness certification. The MIL-HDBK-516 will be used for guidance for the airworthiness certification criteria. Airworthiness Authority will be IAW AR 70-62 and Federal Aviation Association (FAA) 14 CFR.

The UAV System Level Performance Test (SLPT) will be conducted as a combined contractor/Government effort where practical. The contractor will perform system-level SLPT before the Government system-level SLPT. For the Government conducted flight test, the UAV contractor will support with necessary technical, operational, and maintenance support. Specific support tasks and roles for the contractor to perform have yet to be defined. SLPT will be conducted to verify that the AV and related ground control, data link, and launch/recovery hardware and software meet the appropriate specification and system requirements for ground operations (launch/recovery, emplacement/displacement); mission planning; flight; guidance, navigation and control; visual and acoustical survivability requirements; target detection, recognition, and location; TLE; data link, analysis, and storage; tactical communications; and other required interfaces.

After meeting the SDD exit criteria, supported by the System Evaluation Report (SER), the program will proceed to Milestone C for LRIP authority. The SDD and TAFT assets will be refurbished to production level configuration for Operational Tempo (OPTEMPO) and IOT&E.

4.3.3.2 Environmental Impacts of System Development and Demonstration Activities

The development, integration, and test strategy for ER/MP UAVS will draw upon lessons learned from previous UAV programs, specifically Hunter and Shadow. DT&E will be structured to verify the status of the ER/MP UAVS development effort and that design risks are minimized. In addition, DT&E will be used to substantiate achievement of the contract performance requirements, as well as certifying the ER/MP UAV system's readiness to achieve a successful IOT&E.

During this phase, the contractor will be required to prepare a System Safety Program Plan (SSPP), and. support the SSWG. The contractor will also prepare the System Safety Assessment Reports and System Safety Hazard Analysis Reports. Based on safety analysis findings and IAW the SSPP, the contractor will identify hazards, assess hazard risk, identify the hazard risk mitigation measures, eliminate hazards through design selection, incorporate safety devices/features, provide warning devices, and appropriately develop/update procedures and training following Program Executive Officer, Aviation Policy Memorandum Number 03-02.

All identified mishap risks will be reduced to acceptable levels and verification will be provided of mishap risk reduction. Hazards will be tracked through closure and residual mishap risk. Any residual mishap risk must be approved by the Government at the appropriate level as defined in Program Executive Office Aviation, Aviation Policy Memorandum Number 03-02, *Risk Management Process.* All safety critical software will be identified, tracked, and managed appropriately. The Supportability Integrated Product Team (SIPT) will review and assess on-going program flight and field operations regarding safety issues to include, but not be limited

to, reviews of operations, maintenance, and training procedures/documents. In case of an incident involving ER/MP UAVS assets, incidents will be reported to the UAVS PO. Other specific safety program requirements are outlined below:

- Administer Aviation Accident Prevention Program
- Serve as Point of Contact and administrator for Flight Line Operation Hazard Report
- Ensure compliance with Government Flight Representative requirements
- Coordinate and administer Accident/Mishap investigations
- Ensure and audit Flight Line and Hangar Safety compliance
- Serve as primary interface with Occupational Safety and Health Manager

During the review of existing environmental documentation including the *Environmental Assessment for the Operations, Training, and Testing of Unmanned Aerial Vehicles at Redstone Arsenal, Alabama* (May 2004), there were no significant impacts identified for this phase of the acquisition process. Limited quantities of prototype ER/MP UAVS would be acquired as necessary to prove concepts and support testing activities. No contradictory data was discovered that would indicate that this limited acquisition and testing produced significant environmental impacts. It is anticipated that these activities would occur at ranges and installations where similar activities routinely are conducted. Impacts to specific Federal installations would be evaluated under separate environmental documentation developed by the installations where these activities occur.

4.3.4 Milestone C: Production and Deployment Phase

The purpose of this phase is to achieve an operational capability that satisfies mission needs. The operational test and evaluation determines the effectiveness and suitability of the system. Milestone C authorizes entry into LRIP.

Entrance into this phase depends on the following criteria: acceptable performance in development, test and evaluation and operational assessment; mature software capability; no significant manufacturing risks; manufacturing processes under control (if Milestone C is Full-Rate Production (FRP)); an approved Initial Capabilities Document (if Milestone C is program initiation); an approved Capability Production Document (CPD); acceptable interoperability; acceptable operational supportability; compliance with the DoD Strategic Plan; and demonstration that the system is affordable throughout the life-cycle, optimally funded, and properly phased for rapid acquisition. The CPD reflects the operational requirements resulting from SDD or an Advanced Concept Technology Demonstration (ACTD) and details the performance expected of the production system. If Milestone C approves LRIP, a subsequent review and decision shall authorize FRP.

Low Rate Initial Production

This effort is intended to result in completion of manufacturing development in order to ensure adequate and efficient manufacturing capability and to produce the minimum quantity necessary to provide production or production-representative articles for IOT&E, establish an initial production base for the system; and permit an orderly increase in the production rate for the

system, sufficient to lead to FRP upon successful completion of operational (and live-fire, where applicable) testing.

Full-Rate Production Criteria

A Major Defense Acquisition Program (MDAP) may not proceed beyond LRIP without approval of the MDA. The available knowledge to support this approval shall include demonstrated control of the manufacturing process and acceptable reliability, the collection of statistical process control data, and the demonstrated control and capability of other critical processes. The decision to continue beyond low-rate to FRP, or beyond limited deployment of automated information systems or software-intensive systems with no developmental hardware, shall require completion of IOT&E, submission of the Beyond LRIP Report for Developmental Operational Test & Evaluation (D/OT&E) Oversight Programs, and submission of the LFT&E Report (where applicable) to Congress, to the Secretary of Defense, and to the Acquisition Technology and Logistics (AT&L) branch of the Undersecretary of Defense (USD).

Full-Rate Production and Deployment

Continuation into FRP results from a successful FRP Decision Review by the MDA (or person designated by the MDA). This effort delivers the fully funded quantity of systems and supporting materiel and services for the program or increment to the users. During this effort, units shall attain Initial Operational Capability.

4.3.4.1 Description of Activities for Production and Deployment

An integrated T&E approach will be used to merge developmental and operational T&E whenever practical to avoid redundancy. The T&E will address all Critical Test Parameters. The ER/MP UAVS testing ensures the hardware and software meets critical requirements, demonstrates design integrity, and operates safely. The T&E verifies progress of engineering and development; minimization of design risk; conformance to contract requirements; and readiness for an operational environment.

The OT&E program will use the System Evaluation Plan (SEP) as the foundation for system evaluation. The OT&E of the ER/MP UAVS will occur at several venues. Technical testing verified and validated during developmental testing will help to ensure readiness for testing in an operational environment. Data collected during testing will be accumulated for statistical analysis and used for assessing the issues and criteria. The operational effectiveness is expressed in terms of the capability of the ER/MP UAVS to support the Commander's RSTA and communications relay requirements. Operational suitability is expressed in terms of supporting the Corps/UE wartime OPTEMPO, Reliability, Availability, and Maintainability (RAM) requirements, and support burden as described in the ER/MP ORD.

OT&E for ER/MP will consist of several Operational Test (OT) events (such as an Operational Assessment, LUT), culminating in an IOT&E. Test events to support Increment I will include system level testing of ER/MP UAVS with the integration of threshold payloads (EO/IR/LD/LRF), SAR/GMTI, WCP, as they are available. In addition, DT and IOT&E will

determine if ER/MP UAVS has sufficient internal wiring and hard points to be considered weapons capable and support full-up weaponization as required. These efforts will culminate in an operational assessment that will verify system maturity and readiness for IOT&E. Trained UAV operators and maintainers will participate in the operational tests.

If new weapons are to be carried, then LFT&E may be required for these new weapon systems. If fielded weapons were carried, then lethality testing would only be conducted if insufficient data were available for the munition-target pairings of interest. Weapons having well-characterized lethality performance may preclude the need for additional testing provided information is available for the targets of interest. Weapons without lethality data for the targets of interest will require a plan to generate the information needed for the lethality evaluation.

Based on the D/OT&E report and the Beyond-LRIP (B-LRIP) report, the UAVS PO will seek a Full-Rate Production decision in 3QFY09. The B-LRIP report will address operational effectiveness, operational suitability and survivability of the ER/MP UAV.

LRIP of the first system will consist of five GCSs, five TCDL GDTs, two PGCS, two TCDL PGDTs, one ground SATCOM system, twelve AVs each equipped with multi-mission payloads, and SEP, and associated Ground Support Equipment (GSE). Six of the twelve AVs will be equipped with airborne SATCOM systems. This LRIP serves several purposes: establishes the production base; acquires production systems; supports tactics, techniques, and procedures development; and provides lessons learned from testing to incorporate into the production baseline. LRIP authority will be requested to include one (1) additional system, if required, to maintain forward momentum and production capabilities.

The Initial Operational Capability (IOC) for the ER/MP UAVS will be attained after the Army has fielded three systems with Integrated Logistics Support (ILS) procurement (training, spares and technical publications) and testing completed. The level of performance necessary to achieve IOC requires one system in a final configuration with operators and maintenance personnel trained and initial spares with interim repair support in place. Full Operational Capability (FOC) will be achieved when all maintenance and repair support, software support, test equipment and spares are in place and all systems are fielded. The IOC is required for First Quarter FY09 and the FOC is required for FY10.

During the Production and Deployment phase, a production qualification/verification test will be completed as well as an Initial Operational Test (IOT) to support the FRP decision. A logistics demonstration will be completed prior to the IOT.

4.3.4.2 Environmental Impacts of Production and Deployment Activities

The eleven broad environmental components previously described in Section 4.1 were considered to provide a context for understanding the potential effects of the Proposed Action. Federal and/or State environmental statutes that set specific guidelines, regulations, and standards regulate most of these environmental components. These standards provide benchmarks for determining the significance of environmental impacts. The potential for environmental impacts associated with the ER/MP UAVS during Production and Deployment

would be minimal. Impact potential associated with the ER/MP UAVS would be anticipated in: air quality, biological resources, hazardous materials and waste, health and safety, infrastructure and transportation, noise, and geology and soils. Impact potential would be associated with testing activities of the system. The environmental staff(s) of the installation(s) where the systems would be field-tested would evaluate these potential impacts. No potential impacts would be anticipated for the areas of land use and socioeconomics.

Impacts associated with production are those typically associated with manufacturing and testing. These include air emissions from painting and solvent use; water resources impacted from effluent produced during manufacturing; hazardous materials and resultant hazardous waste; and health and safety impacts. Production of the ER/MP UAVS components would be anticipated to occur at existing commercial contractor facilities and these manufacturing processes would be addressed by the production contractor's environmental and health and safety programs. Commercial production facilities would have environmental programs in place to ensure compliance with existing Federal, state, and local regulations, as well as any required environmental permits (e.g., water, air, and hazardous waste). The UAVS PO directs that toxic chemicals, hazardous substances, radioactive materials, and ODCs should be avoided where feasible.

Air Quality

Potential impacts to air quality from the system evaluated would be principally associated with emissions and fugitive dust from support vehicle operations. The effects of these hazards would be localized and of short duration due to the rapid disbursement of toxic airborne substances (e.g., lead and PM_{10}). Contractors that manufacture components of the system would be expected to be compliant with all Federal, state, and local regulations.

Biological Resources

Minor impacts to biological resources (disturbances to vegetation/habitat and wildlife) could occur at deployment locations for the described system. Strict adherence to local installation regulations and guidance concerning the protection of wetlands, and threatened and endangered species and their habitats must be observed.

Cultural Resources

Federal facilities where ER/MP UAVS activities take place would comply with the guidelines established by the NHPA, and other Federal or state regulations that administer guidelines to protect cultural resources through the NEPA process.

Geology and Soils

Minor impacts to geology and soils could result from the operation of the various support vehicles associated with the ER/MP UAVS. Primary impacts would be an increase in erosion potential from support vehicles. Training activities would be conducted in areas specifically cleared and routinely used for similar vehicular activities.

Hazardous Materials and Waste

The ER/MP UAVS will be constructed using best commercial/manufacturing processes and insuring quality workmanship per ISO 9001-2000. The system will not expose personnel to toxic and hazardous substances in excess of the limits specified in the Code of Federal Regulations, Title 29, Chapter XVII, Sub-part Z. Materials and processes will be selected on the basis of meeting environmental regulations and hazardous waste minimization requirements during production, maintenance and repair. (UAVS, 2004a)

The Heavy Fuel Engine (HFE) will meet and/or exceed, at a minimum, the ER/MP UAVS performance requirements. The HFE will be capable of achieving acceptable operational performance using JP-8 to meet the operational temperature and altitude extremes that are likely to be encountered by the AV, and within acceptable limits. All issues associated with safe operation of the HFE would be negligible. (UAVS, 2004a)

Certain components of the ER/MP UAVS would contain batteries and other hazardous substances including flammables and fluids such as hydraulic fluids, gasoline, diesel, oils, lubricants and antifreeze. When encountered, hazardous materials and wastes would be handled in accordance with the various installations' Hazardous Materials Management Plans (HMMPs), installation permits, spill contingency plans, and other applicable Federal regulations and guidance as well as state and local regulations. NAS 411 provides a uniform method for a contractor to identify all hazardous materials and to manage, minimize, and eliminate them whenever possible. Contractors would be expected to adopt procedures contained in NAS 411 "Hazardous Materials Management Program," and would prepare a Health Hazard Assessment Report per the SOW. Following the aforementioned procedures would ensure that the potential for impacting the environment as a result of the use of hazardous materials would be minimized.

Based on the DoD and/or DOT hazard classification (proper shipping name) of the system, mode of transportation and destination; hazardous materials will be prepared for shipment in compliance with the requirements of the United Nations (UN) Transport of Dangerous goods regulations, 29 CFR, 49 CFR, FR 71-4, the International Civil Aviation Organization (ICAO), Technical Instructions for the Safe Transport of Dangerous Goods by Air and the International Maritime Dangerous Goods (IMDG) code. (UAVS, 2004a)

Health and Safety

Existing environmental documents were reviewed to determine if public and occupational health and safety concerns would be an issue for ER/MP UAVS activities. Safety regulations were also reviewed with regard to hazardous materials storage, handling and disposal. Range procedures would be reviewed and closely followed by system operators. Established safety procedures would be followed in the manufacturing and operation of the system.

All equipment will be designed in such a manner as to allow the user to emplace, operate, and displace it safely, without damage to the user or the equipment. The AV will be designed to allow the operators to maintain safe separation from other aircraft and a safe altitude in civilian airspace per FAA rules. (UAVS, 2004a)

For all hardware, software, and personnel safety, the contractor will manage, analyze, identify, and perform hazard risk assessments. The System Engineering Management Plan (SEMP) will include the contractor's approach to management of system safety to include: the system safety organization, system safety milestones, and general system safety requirements and criteria. (UAVS, 2002)

The ER/MP UAVS will be designed to minimize the possibility of personal injury and equipment damage under all conditions of normal use (setup, operation, maintenance, tear-down, and transportation) and under typical fault conditions (e.g. human error, power failure, improper cabling, electrical overstress, etc.). Design of the ER/MP UAVS will be such that Category I and II hazards, Program Executive Office Aviation, Aviation Policy Memorandum Number 03-02, *Risk Management Process* as a guide, are eliminated/mitigated unless inherent to the operational effectiveness of the application. Safety, standardization, and mishap reporting procedures will be in accordance with service safety and standardization directives. (UAVS, 2002)

No unusual health hazards were noted in the previous NEPA assessments for similar UAV systems. Also, no unusual hazards were determined in the assessment of the conceptual design, performed to support preparation of this LCEA. However, during SDD the contractor will conduct a more detailed analysis of the developing systems will identify any health hazards that may cause injury, death, or reduce soldier performance with recommendations for elimination or control. All potential health hazards are to be identified (to include those anticipated from any GFE to be used) which are indigenous to and generated by the proposed system. Potential health hazards would be identified according to those found during the operation, maintenance, and training phases, and specific mitigation or corrective measures would be made at that time. Based on similar systems, potential health hazards may include (UAVS, 2002):

- Acoustical energy (steady-state noise, impulse noise, and blast overpressure)
- Biological substances (pathogenic microorganisms and sanitation)
- Chemical substances (weapon or engine combustion products and other toxic materials)
- Oxygen deficiency (crew/confined spaces and high altitude)
- Radiation energy (ionizing and nonionizing radiation, including lasers).
- Shock (acceleration/deceleration)
- Temperature extremes and humidity (heat and cold injury)
- Trauma (blunt, sharp, or musculosketal)
- Vibration (whole body and segmental)

Infrastructure and Transportation

All ER/MP UAVS equipment will be transportable using standard Army tactical vehicles and trailers. No equipment will be removed from integral systems for transit. All shipments via any method will meet applicable CONUS and OCONUS transport requirements. All equipment will be transported worldwide via ground, rail (including withstanding rail impacts), air (by U.S. Army and Air Force C-130 aircraft), and marine (cargo ship). The storage containers will have lifting and tie-down provisions for internal/external air transport.

Land Use

Federal facilities where ER/MP UAVS activities take place are generally established for similar land uses and, therefore would not be anticipated to be impacted by the Proposed Action. Any construction or expansion efforts pertaining to the ER/MP UAVS would be evaluated by a site-specific environmental assessment prepared by the environmental office of the respective facility.

Noise

Training activities are anticipated to occur on ranges or installations previously used for similar activities and cleared for these types of activities. Personnel involved with test activities would adhere to hearing protection requirements defined in health and safety plans and guidelines. All installations would be expected to be in conformance with their associated installation ENMPs.

Socioeconomics

It is not anticipated that the socioeconomic impact to regions of the Proposed Action would be significantly impacted. The activities associated with the Proposed Action are to occur in areas where similar activities currently occur and would not result in significant increases to existing activity levels.

Water Resources

Impacts to water quality could occur at manufacturing facilities and test sites. Adherence to state and local regulations, the CWA requirements, including specific permits (e.g., Water Quality Certifications, National Pollution Discharge Elimination System Permits and Dredge and Fill Permits) would mitigate potential effects to water resources.

4.3.5 Operations and Support (Sustainment)

The objective of this activity is the execution of a support program that meets operational support performance requirements and sustains the system in the most cost-effective manner over its total life-cycle. When the system has reached the end of its useful life, it shall be disposed of in an appropriate manner. Operations and Support has two major efforts: Sustainment and Disposal. Sustainment includes supply, maintenance, transportation, sustaining engineering, data management, configuration management, manpower, personnel, training, habitability, survivability, environment, safety (including explosives safety), occupational health, protection of critical program information, anti-tamper provisions, and Information Technology (IT), including National Security Systems (NSS), supportability, and interoperability functions.

Effective sustainment of weapon systems begins with the design and development of reliable and maintainable systems through the continuous application of a robust systems engineering methodology. As a part of this process, the Project Manager (PM) will employ human factors engineering to design systems that require minimal manpower; provide effective training; can be operated and maintained by users; and are suitable (habitable and safe with minimal

environmental and occupational health hazards) and survivable (for both the crew and equipment).

At the end of its useful life, the ER/MP UAVS would be demilitarized and disposed in accordance with all legal and regulatory requirements and policy relating to safety (including explosives safety), security, and the environment. During the design process, PMs are required to document hazardous materials contained in the system and shall estimate and plan for the system's demilitarization and safe disposal.

4.3.5.1 Description of Activities for Operations and Support Phase

The ER/MP UAVS, less AVs and UAV System unique equipment, will employ the Army maintenance system that, consists of a flexible two level system per Field Manual 4-30.3, *Maintenance Operations and Procedures*

The ER/MP UAVS will be supported by the Army's two level maintenance concept: "Field" level and "Sustainment" level maintenance as described in (1) and (2) below. While these are distinct levels, there is flexibility built into the system due to overlapping capabilities. Maintainers do not lock themselves into rigid levels of maintenance under this concept. When Mission, Enemy, Terrain, Troops, Time available, and Civilian considerations (METT-TC) permit, maintainers at the various levels may also repair selected components to eliminate higher echelon backlogs and maintain technical skills. It is envisioned all maintenance, The Army Maintenance Management System-Unmanned Aerial Vehicle (TAMMS-UAVS), ground crew/flight line operations, and fuel handling for the ER/MP UAVS be accomplished by Contractor Field Support Representative (CFSR) personnel.

(1) Field Maintenance. Field Maintenance includes those tasks that are performed "on system repair" at the point of breakdown or the point of repair. At this level of maintenance, operators and maintainers fix equipment through the replacement of major system components. Field maintenance is generally performed by soldiers and maintainers assigned to the Table of Organization and Equipment (TOE) units. However, when authorized, contractors may provide field maintenance support for low density, high technical, cost-prohibitive systems.

(2) Sustainment Maintenance. Sustainment Maintenance consists of those tasks that are normally performed "off system repair". At this level of maintenance, maintainers focus on the repair of component items and their return to the distribution system. Component repair includes items such as major assemblies, Line Replaceable Units (LRUs), and repairable line items. Sustainment maintenance can be performed by corps and theater maintenance activities, special repair activities, or by contractors on the battlefield. The theater sustainment maintenance manager coordinates workloads for sustainment maintenance activities.

The LRU design will facilitate easy installation and removal, requires no special tools, and shall not cause harm to the maintainer. All LRUs will be designed to prevent improper mounting and installation. The ER/MP UAVS design will give priority to discard in lieu or repair where cost is not unduly affected. Items that require routine inspections, adjustments, or replacements will be readily accessible without disassembly or use of special tools and/or fixtures. No equipment will require periodic calibration without government approval.

The ER/MP UAVS has no immediate demilitarization requirements as per DoD 4160.21-M-I. However, the PM will ensure that ER/MP UAVS materiel disposal is carried out in a way that minimizes DoD's liability due to environmental, safety, security, and health issues. Deployed equipment that cannot be retrieved will be destroyed when possible. (UAVS, 2002)

Specific locations for maintenance, demilitarization, and disposal activities and operations have not yet been identified. The Government is conducting a Depot versus Contractor Managed Supply and Support (CMSM) study. An informed decision on contractor versus organic support will be made. Additional NEPA analysis should be conducted prior to Milestone C to review potential impacts to the human environment associated with the storage and maintenance of the ER/MP UAVS.

4.3.5.2 Direct and Indirect Environmental Impacts of Activities for Operations and Support Phase

No direct or indirect environmental impacts are anticipated for sustainment activities. Maintenance support personnel would be required to follow procedures outlined in technical manuals for the ER/MP UAVS when performing maintenance. Also, personnel would be required to be trained on the maintenance procedures of their assigned system. Additionally, maintenance personnel would be required to comply with installation Hazardous Materials and Spill Contingency plans and any applicable range procedures.

4.4 Cumulative Impacts Summary

In accordance with implementing regulations for the NEPA (40 CFR 1508.7), cumulative impacts must be addressed in an Environmental Assessment. A cumulative impact was defined by the CEQ in 1971 as 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. No cumulative impacts have been identified in this LCEA. If as the ER/MP UAVS matures data indicates that potential for cumulative impacts, these impacts would be discussed in an update of this LCEA. Individual installation NEPA documentation would consider cumulative impacts resulting from ER/MP UAVS activities and other activities at their specific locations.

4.5 Mitigation Measures Summary

No specific mitigation measures have been identified for this Proposed Action for any of the eleven resource areas that have been specified in this LCEA. Adherence to Federal, state, and local regulations, range safety procedures, permits, and installation environmental policies and procedures would generally preclude the necessity for most foreseeable mitigative measures.

4.6 Individuals/Organizations Responsible for Obtaining Required Permits/Licenses/Entitlements

During production activities, testing, and deployment, responsible personnel would comply with the requirements of all required environmental permits as well as all Federal, state, and local laws and regulations during these activities.

4.7 Conflicts With Federal, State, or Local Land Use Plans, Policies, and Controls

The Proposed Action would have no impact on land use itself and presents no known conflicts with Federal, regional, state, or local land use plans, policies, or controls.

4.8 Energy Requirements and Conservation Potential

The primary energy impact resulting from the development, production and operation of the ER/MP UAVS is fuel consumption. Anticipated energy requirements of program activities can be accommodated within the energy supply of the region. Energy requirements would be subject to any established energy conservation practices.

4.9 Natural or Depletable Resource Requirements and Conservation Potential

Other than the use of fuels during support activities, the Proposed Action requires no significant use of natural or depletable resources.

4.10 Irreversible or Irretrievable Commitment of Resources

Although the Proposed Action would result in some irreversible commitment of resources such as fuel and labor, this commitment of resources is not significantly different from that necessary for regular activities taking place at the various locations associated with the Proposed Action.

4.11 Adverse Environmental Effects That Cannot Be Avoided

There are no significant adverse environmental effects that cannot be avoided as a result of this Proposed Action.

4.12 Relationship Between Short-Term Uses of the Human Environment and the Maintenance and Enhancement of Long-Term Productivity

The Proposed Action would take advantage of existing facilities and infrastructure as well as the use of non-developmental items where available. The productivity and future usage of the land would not be impacted, and no options for future use of the environment would be eliminated.

4.13 Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations

The Proposed Action would be undertaken in a manner that would not substantially affect human health or the environment. The Proposed Action would also be conducted in a manner that would not exclude persons from participation in, deny persons the benefits of, or subject persons to discrimination under, the program actions because of their race, color, or national origin.

4.14 Conditions Normally Requiring an Environmental Impact Statement

The potential impacts arising from the Proposed Action were evaluated specifically in the context of the criteria for actions requiring an Environmental Impact Statement, described in DoD Directive 6050.1, *Environmental Effects in the United States of Department of Defense Actions* (U.S. Department of Defense, 1979), and 32 CFR 651, *Environmental Analysis of Army Actions* (2002).

Specifically, the proposed project activities were evaluated for their potential to:

- significantly affect environmental quality or public health and safety;
- significantly affect historic or archaeological resources, public parks and recreation areas, wildlife refuge or wilderness areas, wild and scenic rivers, or aquifers;
- adversely affect properties listed or meeting the criteria for listing on the National Register or the National Registry of Natural Landmarks;
- significantly affect prime and unique farmlands, wetlands, ecologically or culturally important areas, or other areas of unique or critical environmental concern;
- result in significant and uncertain environmental effects or unique or unknown environmental risks;
- significantly affect a species or habitat listed or proposed for listing on the Federal list of endangered or threatened species;
- establish a precedent for future actions;
- adversely interact with other actions resulting in cumulative environmental effects; and
- involve the use, transportation, storage, and disposal of hazardous or toxic materials that may have significant environmental impact.

4.15 DOD 5000 SERIES REQUIREMENTS

In May 2003, changes were made to the DoD 5000 Series acquisition requirements. The new DoD Directive 5000.1 and DoD Instruction 5000.2 allow for a total system approach where acquisition programs are managed to maximize performance and minimize cost. This system includes assessing the prime mission equipment, the personnel who operate and maintain the systems, and the impact on the environment and environmental compliance.

The changes in the new DoD Directive 5000.1 and DoD Instruction 5000.2 directly impacting this LCEA for ER/MP UAVS activities include a heightened awareness of legal and regulatory requirements, Environmental, Safety, and Health (ESH) requirements in program

documentation; integration of ESH issues into the systems engineering process; and advisement of project management staff on mitigative measures available to reduce impacts from hazardous materials in all phases of the project including design, development, test, projection, maintenance support, and eventual disposal.

The UAVS PO will comply with NEPA, with support from the AMCOM G4, by analyzing actions proposed to occur in upcoming program phases that may require NEPA analysis. Any required analysis under NEPA must be completed before the appropriate official may make a decision to proceed with a proposed action that may affect the quality of the human environment.

To minimize the cost and schedule risks changing regulations represent, UAVS PO shall review environmental regulations and shall analyze the regulations and evaluate their impact on the program's cost, schedule, and performance. All safety and health hazards shall be managed consistent with mission requirements and shall be cost-effective. UAVS PO shall ensure that production contractors establish hazardous material management programs requiring appropriate consideration to eliminating and reducing the use of hazardous materials in UAVS PO components. UAVS PO will review the contractors' HMMP that should be designed in accordance with the NAS 411. Its purpose is to ensure that adequate consideration is given to the elimination or reduction of hazardous materials used or generated by the analyzed system, throughout its life-cycle phases. This plan provides a list of hazardous materials used, information on substitutes, subcontractor flow down requirements, and a strategy to eliminate the use of hazardous materials.

The UAVS PO helps to minimize environmental impacts and life-cycle costs associated with environmental compliance through the SIPT and SSWG. These teams identify the systems' impacts on the environment, wastes released to the environment, ESH risks associated with using new technologies, and other information needed to identify source reduction and recycling opportunities. The UAVS PO should also be knowledgeable of the individual contractor's Pollution Prevention Plan responsibilities and requirements such as: reporting releases and transfers of toxic chemicals, making Toxic Release Inventory (TRI) reports available to communities surrounding the facility, and complying with provisions set in section 301 through 312 of the Emergency Planning and Community Right-To-Know Act (EPCRA).

The UAVS PO should ensure, through the AMCOM Safety Office, that safety and health hazards of the various ER/MP UAVS components are evaluated through an established system safety and health program in accordance with Executive Order 12196, *Occupational safety and health Programs for Federal Employees,* and Department of Defense Instruction (DoDI) 6055.1, *DoD Safety and Occupational Health Program.*

5.0 CONCLUSION

Environmental risks from the ER/MP UAVS examined in this document appear to be minor and easily mitigated. It is expected that minor impacts to air quality, biological resources, cultural resources, hazardous materials and waste, health and safety, noise, and geology and soils could potentially occur at facilities where ER/MP UAVS are produced, tested, and/or deployed (Table 5-1). However, no significant environmental issues were determined through this LCEA that indicate a requirement to publish an Environmental Impact Statement (EIS) as required by AR 200-2 and NEPA. No cumulative impacts to the environment were identified and no mitigative measures are necessary for the ER/MP UAVS program.

Table 5-1: Potential Environmental Impacts from the Proposed Action

Environmental Factor	No Impact	No Significant Impact	Significant Impact
Air Quality		**X**	
Biological Resources		**X**	
Cultural Resources		**X**	
Hazardous Materials and Waste		**X**	
Health and Safety		**X**	
Infrastructure and Transportation		**X**	
Land Use	**X**		
Noise		**X**	
Geology and Soils		**X**	
Socioeconomics	**X**		
Water Resources		**X**	

Although a detailed review of available literature was accomplished in the preparation of this document, current information on environmental impacts of the ER/MP UAVS, both beneficial and adverse should be periodically reviewed during the remainder of the system's life-cycle and this LCEA should be regularly updated.

6.0 LIST OF PREPARERS

Larry W. Blackwell
SpecPro, Inc.
Vice President, Environmental Programs
M.A., Human Relations, Louisiana Tech University, 1988
BFA, Advertising, Louisiana Tech University, 1971

Michael J. Landers
SpecPro, Inc.
Senior Environmental Scientist
B.S., Environmental Science, Washington State University, 1995

Susan B. Pearsall
SpecPro, Inc.
Deputy Program Manager, Redstone Arsenal, AL
Senior Ecologist
M.S., Biology, University of Alabama in Huntsville, 1999
B.S., Zoology, Auburn University, 1993

Jeffery H. Scott, Ph.D.
SpecPro, Inc.
Director, Environmental Services, Southeast Region
Senior Fish and Wildlife Biologist
Ph.D., Aquatic Ecology/Limnology, Auburn University, 1990
M.S., Biology, Jacksonville State University, 1982
B.S., Biology, Jacksonville State University, 1977

7.0 AGENCIES/PERSONS CONSULTED

- Mr. Chuck Hawkinson, Senior Engineer, System Dynamics, Inc, In Support Of the UAVS Project Office, Huntsville, AL
- Mr. James R. Richards, Jr. Environmental Scientist, Environment, Engineering, and Logistics Oversight Office, Aviation and Missile Command, Redstone Arsenal, AL

8.0 REFERENCES

AMCCC-G, 1993. *Status of Eliminating Ozone Depleting Substances in Certain Military Procurement Contracts*.

Department of Defense Directive 5000.1, May 2003. *The Defense Acquisition System*.

Department of Defense Instruction 5000.2, May 2003. *Operation of Defense Acquisition System*.

Medium Altitude Endurance Systems (MAES) UAVS, 2004. *Test and Evaluation Master Plan (TEMP) for the Increment 1 Extended Range/Multi-Purpose (ER/MP) Unmanned Aerial Vehicle (UAV),* 16 September.

National Aerospace Standard (NAS)-411, Hazardous Materials Management Program, adopted in March 1994.

Program Executive Office (PEO) Aviation, 2004. *Acquisition Strategy Report, Extended Range/Multi-Purpose (ER/MP) Unmanned Aerial Vehicle (UAV),* July.

U.S. Army Aviation Center, undated. *Extended Range/Multi-Purpose (ER/MP) Unmanned Aerial Vehicle (UAV) Operational Requirements Document (ORD), ACAT Level II*.

U.S. Department of the Army, 1980. *Life Cycle Environmental Impact Assessment for the Remotely Piloted Vehicle System,* October.

U.S. Department of the Army, 1988. *Life Cycle Environmental Assessment (LCEA) for "DEEP" Unmanned Aerial Vehicle (UAV),* 20 January.

U.S. Department of the Army, 1989. *Record of Environmental Consideration (REC) for Nonlethal UAV Short Range Tests (Multiple Locations),* 4 August.

U.S. Department of the Army, 1989. *REC for RAVEN UAV,* November.

U.S. Department of the Army, 1989. *REC for Customer Concept Test, "Air Defense Against UAV-Assessment of Target Location Capability",* February.

U.S. Department of the Army, 1989. *Environmental Assessment (EA) for Unmanned Aerial Vehicles at Fort Huachuca, Arizona,* August.

U.S. Department of the Army, 1991. *LCEA for UAV Short Range Tests at Fort Huachuca Garrison Electronic Proving Ground,* February.

U.S. Department of the Army, 1991. *Categorical Exclusion for UAV-Short Range Flight Tests at Naval Air Station, Point Mugu, CA,* June.

U.S. Department of the Army, 1991. *LCEA for UAV Close Range,* November.

U.S. Department of the Army, 1992. *EA for Short Range Unmanned Air Vehicle Tests at Fort Huachuca,* February.

U.S. Department of the Army, 1992. *EA for the Construction and Operation of an Applied Instructional Building (AIB) to Accommodate Joint Service Training of Unmanned Aerial Vehicles, Fort Huachuca, Arizona,* November.

U.S. Department of the Army, 1993. *REC for Heavy Fuel Engine for UAV Short Range Vehicle,* April.

U.S. Department of the Army, 1993. *Comprehensive UAV Environmental Assessment,* November.

U.S. Department of the Army, 1993. Memorandum: *Elimination of Ozone Depleting Chemicals*; Implementation of the requirements of the National Defense Authorization Act for FY-93.

U.S. Department of the Army, 1994. *LCEA for Hunter Baseline System for Joint Tactical Unmanned Aerial Vehicle,* September

U.S. Department of the Army, 1994. *Final EA for the Redstone Arsenal Master Plan Implementation, Alabama,* December.

U.S. Department of the Army, February 1997. *Army Regulation 200-1, Environmental Protection and Enhancement.*

U.S. Department of the Army, 1999. *LCEA for Tactical Unmanned Aerial Vehicle,* 7 July.

U.S. Department of the Army, 2002. *Final LCEA for the Shadow 200 Tactical Unmanned Aerial Vehicle,* January.

U.S. Department of the Army, 2002. Army Regulation (AR) 200-2: *Environmental Analysis of Army Actions; Final Rule, March.*

U.S. Department of the Army, 2004. *Environmental Assessment for the Operations, Training, and Testing of Unmanned Aerial Vehicles at Redstone Arsenal, Alabama,* May.

Unmanned Aerial Vehicle Systems (UAVS), 2002. *Unmanned Aerial Vehicle Systems (UAVS) Extended Range/Multi-Purpose (ER/MP) Supportability Strategy,* November.

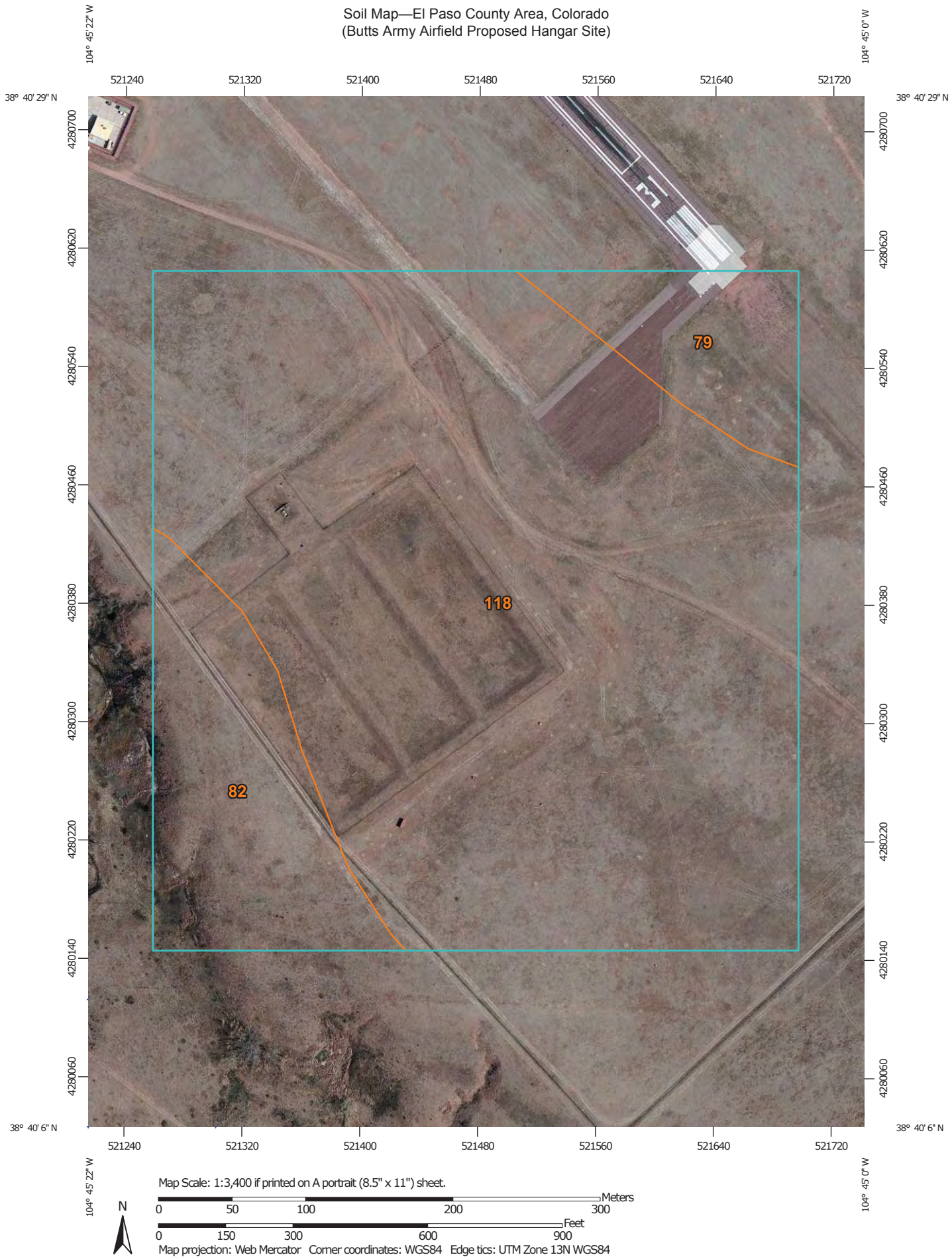
UAVS, 2004a. *Increment I Extended Range Multi-Purpose (ER/MP) Unmanned Aerial Vehicle (UAV) and Supporting Equipment Technical Requirements Document (TRD),* 30 August.

UAVS, 2004b *Extended Range Multi-Purpose (ER/MP) Unmanned Aerial Vehicle (UAV) System Design and Demonstration Statement of Work (SOW),* 27 August.

UAVS, 2004c *Extended Range Multi-Purpose (ER/MP) Unmanned Aerial Vehicle (UAV) System Capabilities Demonstration Statement of Work (SOW),* 04 August.

APPENDIX C
Fort Carson Butts Army Airfield Soils Data
USDA NRCS Web Soil Survey, 2014

Soil Map—El Paso County Area, Colorado
(Butts Army Airfield Proposed Hangar Site)



MAP LEGEND

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

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

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

Water Features
- Streams and Canals

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

Background
- Aerial Photography

MAP INFORMATION

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

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

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

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

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

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

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

Soil Survey Area: El Paso County Area, Colorado
Survey Area Data: Version 10, Dec 23, 2013

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

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

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

Map Unit Legend

El Paso County Area, Colorado (CO625)			
Map Unit Symbol	**Map Unit Name**	**Acres in AOI**	**Percent of AOI**
79	Satanta loam, 0 to 3 percent slopes	3.5	7.0%
82	Schamber-Razor complex, 8 to 50 percent slopes	6.8	13.6%
118	Fort loam, 1 to 5 percent slopes, cool	39.6	79.3%
Totals for Area of Interest		**49.9**	**100.0%**