

---

*Draft*

# **Cultural Resources Technical Report Stationing and Training of Increased Aviation Assets within U.S. Army Alaska Environmental Impact Statement**

**Contract Number: W91ZLK-06-D-0009  
NEPA Delivery Order: 0001**

Prepared for  
**U.S. Army Alaska**



Prepared by  
**CH2MHILL**

January 2009

---

*Draft*

# **Cultural Resources Technical Report Stationing and Training of Increased Aviation Assets within U.S. Army Alaska Environmental Impact Statement**

**Contract Number: W91ZLK-06-D-0009  
NEPA Delivery Order: 0001**

Prepared for  
**U.S. Army Alaska**



January 2009

---

**CH2MHILL**

# Contents

---

<b>Acronyms and Abbreviations .....</b>	<b>vi</b>
<b>1.0 Introduction.....</b>	<b>1-1</b>
1.1 Background .....	1-2
1.1.1 History of the Fairbanks Area Prior to 1940 .....	1-2
1.1.2 History of Ladd Field/Fort Wainwright 1940 to 1991 .....	1-2
1.1.3 Ladd Field National Historic Landmark.....	1-3
1.2 Regulatory Framework.....	1-3
1.2.1 Federal Regulations.....	1-3
1.2.2 State and Local Regulations.....	1-5
1.3 Scope of Cultural and Visual Resources .....	1-5
<b>2.0 Project Description.....</b>	<b>2-1</b>
2.1 Purpose and Need for Action.....	2-1
2.1.1 Furthers Army Transformation and Army Transformation in Alaska .....	2-2
2.1.2 Supports Integrated Training in Alaska.....	2-2
2.1.3 Provides Sufficient Military and Civilian Infrastructure.....	2-3
2.2 Project Alternatives .....	2-6
2.2.1 Proposed Action .....	2-9
2.2.2 Alternatives Screening Criteria .....	2-9
2.2.3 Alternatives .....	2-10
<b>3.0 Aviation EIS Investigations of Cultural Resources at Fort Wainwright.....</b>	<b>3-1</b>
3.1 Cultural Resource Investigations .....	3-2
3.1.1 Cold War Historic Context Summary .....	3-4
3.1.2 Building Evaluations Summary .....	3-8
3.1.3 Determining the Cold War Historic District Boundary .....	3-11
3.2 Visual Resource Characterization .....	3-12
<b>4.0 Impacts Assessment.....</b>	<b>4-1</b>
4.1 Alternative 1: No Action.....	4-1
4.2 Alternative 2: Aviation Task Force .....	4-1
4.2.1 Aviation Personnel (and Others).....	4-1
4.2.2 Facilities Construction and Demolition.....	4-1
4.3 Alternative 3: Combat Aviation Brigade.....	4-3
4.3.1 Aviation Personnel (and Others).....	4-3
4.3.2 Facilities Construction and Demolition.....	4-3
4.4 Impacts to NHL and Cold War Historic District .....	4-4
4.4.1 Materials and Methods.....	4-5
4.4.2 Potential Impacts to the NHL.....	4-5

4.4.3	Potential Impacts to the Cold War Historic District.....	4-8
4.4.4	Cultural and Visual Resources Cumulative Effects.....	4-8
4.4.5	Summary of Impacts to the NHL and Cold War Historic District.....	4-10
4.5	New Construction Visual Impact Assessment.....	4-10
4.5.1	Materials and Methods.....	4-10
4.5.2	Viewshed Analysis.....	4-11
4.5.3	Summary of Visual Impacts.....	4-20
<b>5.0</b>	<b>Mitigation Recommendations .....</b>	<b>5-1</b>
5.1	Mitigation Recommendations .....	5-1
5.1.1	Impacts to NHL and Development of Alternative/Mitigation Measures.....	5-1
5.1.2	New Construction Visual Impact Assessment Alternatives and Mitigation .....	5-2
5.1.3	Conclusions .....	5-2
<b>6.0</b>	<b>References .....</b>	<b>6-1</b>

## Tables

1	Key Components of Alternatives
2	Alternative 2 Aviation Task Force Construction Footprint at Fort Wainwright
3	Alternative 3 Combat Aviation Brigade Construction Footprint at Fort Wainwright
4	Results of the Buildings Survey
5	Evaluation Criteria for Cultural Resources
6	Visual Resources Significance Criteria
7	Comparative Summary of Impacts by Alternative for Visual Resources

## Figures

- 1 General Study Area Features
- 2 Alternative 2 Construction Projects
- 3 Alternative 3 Construction Projects
- 4 Fort Wainwright Area of Potential Effect
- 5 Locations of Representative Viewpoints at Fort Wainwright
- 6 Panoramic Characterization from East Side of Ladd Field
- 7 Characterization Photo from South Side of Ladd Field
- 8 Panoramic Characterization from West Side of Ladd Field
- 9 Ladd Field, 1949
- 10 Existing Panoramic Viewpoint 1 from North Side of Ladd Field
- 11 Existing Panoramic Viewpoint 2 from Southwest Side of Ladd Field
- 12 Existing Viewpoint 3 from South Side of Ladd Field
- 13 Simulation of Panoramic Viewpoint 1 with Alternatives 2 and 3 from North Side of Ladd Field
- 14 Simulation of Panoramic Viewpoint 2 with Alternatives 2 and 3 from Southwest Side of Ladd Field
- 15 Simulation of Panoramic Viewpoint 3 with Alternatives 2 and 3 from South Side of Ladd Field

## Appendixes

- A Contributing and Noncontributing Elements to the Cold War Historic District
- B Fort Wainwright Building Survey Forms (Provided on Accompanying CD)
- C Fort Wainwright Boundary Map (Provided in Binder Pocket)
- D Summary of Condition Assessment and Rehabilitation Plan for Hangars 2 and 3 at FWA

# Acronyms and Abbreviations

---

6 <sup>th</sup> LID	6 <sup>th</sup> Infantry Division (Light)
AAC	Alaskan Air Command
AAF	Army Air Forces
AAL	Arctic Aeromedical Laboratory
AC&W	Aircraft Control and Warning
AFB	Air Force Base
AIRFA	American Indian Religious Freedom Act
ALCOM	Alaskan Command
ALSIB	Alaska-Siberia
AMF	Army Modular Force
ANG	Air National Guard
ANGB	Air National Guard Base
AOG	Air Operations Group
AF	Area of Focus
AR	Army Regulation
Army	U. S. Army
ARPA	Archaeological Resources Protection Act
ATF	Aviation Task Force
BCT	Brigade Combat Team
Bldg	building
BLM	Bureau of Land Management
ca	circa
CAB	Combat Aviation Brigade
CARP	Condition Assessment and Rehabilitation Plan (
CFR	Code of Federal Regulations
COF	Company Operations Facility
DEW	Distant Early Warning

DoD	U.S. Department of Defense
DTA	Donnelly Training Area
E.O.	Executive Order
EA	environmental assessment
EIS	environmental impact statement
FGA	Fort Greely, Alaska
FNSB	Fairbanks North Star Borough
FRA	Fort Richardson, Alaska
FTX	field training exercises
FWA	Fort Wainwright, Alaska
HABS	Historic American Buildings Survey
ICBM	intercontinental ballistic missile
ICRMP	<i>Integrated Cultural Resources Management Plan</i>
INRMP	<i>Integrated Natural Resources Management Plan</i>
ISER	Institute of Social and Economic Research
LID	light infantry division
MEDEVAC	medical evacuation
NEPA	National Environmental Policy Act
NHL	National Historic Landmark
NHPA	National Historic Preservation Act
NPS	National Park Service
NRHP	National Register of Historic Places
O&M	operations and maintenance
PA	Programmatic Agreement
PEIS	<i>Programmatic EIS for Army Transformation</i>
ROD	Record of Decision
ROTC	Reserve Officer Training Corps
RPMP	<i>Real Property Master Plan</i>
SBCT	Stryker Brigade Combat Team
SHPO	State Historic Preservation Office

---

TAB	<i>Tabulation of Existing and Required Facilities</i>
TC	Training Circular
TCP	traditional cultural property
TFTA	Tanana Flats Training Area
U.S.C.	United States Code
UAA	University of Alaska Anchorage
UAF	University of Alaska Fairbanks
UFC	Unified Facilities Criteria
USAAC	United States Army Air Corps
USAAF	United States Army Air Forces
USACE	U.S. Army Corps of Engineers
USAEC	U.S. Army Environmental Center
USAF	United States Air Force
USARAK	U.S. Army Alaska
USARAL	U.S. Army, Alaska
USSR	Union of Soviet Socialist Republics
VEC	valued environmental component
WWII	World War II
YTA	Yukon Training Area

# 1.0 Introduction

---

This Cultural Resources Technical Report (hereafter referred to as “technical report”) has been prepared to summarize the studies and analyses that have been performed for cultural and visual resources at Fort Wainwright (FWA), Alaska, in support of the *Stationing and Training of Increased Aviation Assets within U.S. Army Alaska Environmental Impact Statement* (Aviation EIS or EIS). Cultural and visual resources are considered a valued environmental component (VEC) for the Aviation EIS with a high potential for environmental impacts from the EIS Proposed Action. The studies and analyses conducted at FWA have been necessary to understand the existing conditions of cultural and visual resources, as well as to determine the effects of the Proposed Action on these resources. The studies and analyses, discussed in greater detail in this technical report, have included the following:

Preparing of a Cold War Context Study

Conducting building evaluations of facilities in and around Ladd Field at FWA

Evaluating the results of the building evaluations and the Cold War Context to support the reevaluation of a Cold War Historic District at FWA

Completing a visual characterization and visual simulations to support effects determination in the Aviation EIS

Evaluating the environmental effects of the No Action and Proposed Action alternatives for cultural and visual resources at FWA that will be included in the Aviation EIS

Providing mitigation recommendations for the Proposed Action alternatives for cultural and visual resources at FWA that will be included in the Aviation EIS

This technical report has been structured as follows:

**Section 1.0:** Provides background, history, regulatory framework, and scope of analyses for cultural and visual resources at FWA

**Section 2.0:** Briefly describes the No Action and Proposed Action alternatives for the Aviation EIS

**Section 3.0:** Describes the cultural and visual resources investigations performed at FWA for the Aviation EIS

**Section 4.0:** Describes the impacts assessment for cultural and visual resources at FWA for the Aviation EIS

**Section 5.0:** Provides mitigation recommendations for the Proposed Action alternatives at FWA

**Section 6.0:** Contains a listing of references cited in this technical report

- **Appendix A:** Provides a summary of the contributing and noncontributing elements to the Cold War Historic District for FWA

- **Appendix B:** Includes a compact disc of the FWA building survey database
- **Appendix C:** Provides a map that shows the contributing and noncontributing elements to the Cold War Historic District for FWA

## 1.1 Background

### 1.1.1 History of the Fairbanks Area Prior to 1940

Fairbanks, established because of a massive gold rush in 1903, saw its population and economy diminish during World War I (Bowers and Gannon, 1998). The opening of the Alaska Railroad in 1923 reinvigorated the local gold mining industry, and the area later successfully weathered the Great Depression. The initial construction of Ladd Field, begun in 1939, stimulated further growth. The U.S. entry into World War II (WWII) brought a second boom to Fairbanks, as Ladd Field grew in size and importance, and thousands of civilians and military personnel arrived in the community. This military activity faded when the war ended, but only briefly.

### 1.1.2 History of Ladd Field/Fort Wainwright 1940 to 1991

Ladd Field was originally established as a United States Army Air Corps (USAAC) cold weather testing station, beginning operations in 1940. Following the U.S. entry into WWII in December 1941, Ladd Field took on additional roles, serving both as an aircraft supply and repair depot, and as a busy cargo and passenger flight hub for the Air Transport Command. From 1942 to 1945, in a unique high-priority mission, the airfield was an aircraft repair station, forward command center, and transfer point for more than 7,900 Lend-Lease aircraft bound for the Union of Soviet Socialist Republics (USSR) on the Alaska–Siberia (ALSIB) route. Ladd Field was the location where the official handoff of these aircraft occurred. As a result, the installation hosted a contingent of Soviet representatives and mechanics, as well as transient air crews from both nations.

The Cold War began as WWII was ending and Ladd Field was a key component of the nation's defense. The United States Air Force (USAF) was formed as a separate branch of the military on September 18, 1947, with passage of the National Security Act of 1947, and Ladd Field was redesignated as Ladd Air Force Base (AFB). Air defense was a primary Cold War mission of Ladd AFB, and the installation served as command headquarters for the northern sector air defense for the Alaskan Air Command (AAC) 11<sup>th</sup> Air Division, Defense. It hosted or supported Aircraft Control and Warning (AC&W) and fighter intercept squadrons, and provided logistical support to the northwestern segments of the Distant Early Warning (DEW) Line. Weather reconnaissance crews also flew regular missions from Ladd AFB over the polar regions of North America.

In addition, Ladd AFB was the scene of significant Cold War Arctic research. The Arctic Aeromedical Laboratory (AAL) studied human adaptation to Arctic and sub-Arctic climates. The cold weather equipment testing program that began during WWII continued through the 1950s on a reduced scale. Research support grew to encompass ice station research on the polar ice pack as well as other USAF-contracted research in geophysics, communications, and similar disciplines.

By 1958, the space age was dawning. Intercontinental ballistic missiles (ICBMs) and satellites would eventually mean a smaller role for AC&W units, the DEW Line, and land-based communications. That same year, the Eisenhower administration drastically curtailed defense funding, and in September 1959, USAF Headquarters informed the AAC that Ladd AFB would be closed and its functions transferred to Eielson and Elmendorf AFBs. However, negotiations with the Army ensured that the base would have a new life as an Army post. On January 1, 1961, the Army assumed control of the installation and dedicated the post as Fort Jonathan M. Wainwright, in honor of a WWII hero of Bataan. By that time, the most significant period in the installation's Cold War history had passed.

From 1961 to 1986, the Army focus for FWA changed from primarily supporting and defending an Air Force installation to serving the other Army missions. The Army continued to emphasize ground and air defense, but also began using the post for its own aviation and training needs. When the 6<sup>th</sup> Infantry Division (Light) (6<sup>th</sup> LID) arrived in 1986, the previous missions continued, although the focus changed to the worldwide deployment mission, a mission that continues today.

### 1.1.3 Ladd Field National Historic Landmark

National Historic Landmarks (NHLs) are buildings, sites, districts, structures, and objects that the Secretary of the Interior has determined to be nationally significant in American history and culture because of their association with events, persons, and architectural styles that have had a significant effect on the nation's history. They must possess **exceptional** value and a high degree of integrity. National Historic Landmarks are listed in the National Register of Historic Places (NRHP), but are given a greater degree of significance and protection (National Park Service [NPS], 2007). The NHL list includes fewer than 2,500 historic places, and Ladd Field is included on this elite list.

Ladd Field was designated as an NHL in 1985 for its significance at the national level during the period 1940 through 1945, and for its association with aviation and the changing role of the United States in the world community during WWII. Specifically, Ladd Field was nominated for the following three themes: cold weather aviation research, support during the WWII Aleutian Campaign, and Alaskan headquarters for the Lend-Lease program.

The difference between an NHL and an NRHP historic district is gauged on the level of national significance. The NHL is an elite group that illustrates the best of the nation's history, while a historic district must still meet the criteria of the NRHP, but the qualifications as are less rigid than those for the NHL. Impacts to an NHL, as a result of a proposed action, would be reviewed more closely than the potential impacts to a historic district.

## 1.2 Regulatory Framework

### 1.2.1 Federal Regulations

The foundation of broad legislation for preservation of cultural resources is the National Historic Preservation Act (NHPA) of 1966 (Title 36 of the *Code of Federal Regulations* [CFR] Section 800 [36 CFR 800]). Section 110 of the NHPA requires federal agencies to institute programs to identify and evaluate NRHP-eligible historic properties under their care.

Historic properties are defined under the NHPA as “any prehistoric or historic district, site, building, structure, or object included in, or eligible for inclusion on the National Register.” Section 106 requires federal agencies to consider the effects of undertakings on historic properties through a process of consultation. Evaluative studies constitute the mechanism by which inventoried resources are assessed against criteria of the NRHP and upon which all subsequent management actions are based. Regulations in 36 CFR 800 provide a process for satisfying the requirements of Section 106. This process includes resource identification (inventory), significance evaluation, assessment of adverse effects on significant historic properties, and resolution of adverse effects.

Federally funded projects are required by law to consider the effect of projects on the quality and character of the visual landscape early in the planning process (National Environmental Policy Act [NEPA]; 42 United States Code [U.S.C.] 4231-4335, Section 101[b][2]). In addition, federal regulations related to the NHPA require that projects avoid, replace, or enhance vital visual resources, such as historic and recreational areas.

Other federal statutes relevant to cultural resources for this study include the following:

**American Indian Religious Freedom Act (AIRFA) of 1978 and Executive Order (E.O.) 13007, Sacred Sites, 1996.** With this Act, it is the policy of the United States to protect and preserve for American Indians their inherent right of freedom to believe, express, and exercise the traditional religions of the American Indian, Eskimo, Aleut, and Native Hawaiians. This includes, but is not limited to, access to sites, use and possession of sacred objects, and the freedom to worship through ceremonials and traditional rites. Executive Order 13007 is explicit in its guidance against adversely affecting the physical integrity of such sacred sites and the need for confidentiality of sacred sites.

**The Antiquities Act of 1906.** Under this Act, the President has the authority to restrict the use of particular public land owned by the federal government by E.O., bypassing congressional oversight (NPS, 2007).

**Archaeological Resources Protection Act (ARPA) of 1979, as amended (Public Law 96 95; 16 U.S.C. 470 aa-mm).** The purpose of this Act is to secure, for the present and future benefit of the American people, the protection of archaeological resources and sites that are on public and Indian lands, and to foster increased cooperation and exchange of information between governmental authorities, the professional archaeological community, and private individuals having collections of archaeological resources and data that were obtained before October 31, 1979 (the date of the enactment of this Act).

**Government-to-Government Tribal Consultation Policy (Office of the Attorney General, 1994).** This policy directs each executive department and agency, to the greatest extent practicable and to the extent permitted by law, to consult with tribal governments prior to taking actions that have substantial direct effects on federally recognized tribal governments. All such consultations are to be open and candid so that tribal governments may evaluate for themselves the potential impact of relevant proposals.

**Department of Defense (DoD) American Indian and Alaska Native Policy (DoD, 1998).** This policy establishes a process for DoD to follow when interacting and working with federally recognized American Indian and Alaska Native governments on issues that affect their tribes. These principles are based on tribal input, federal policy, treaties, and other

federal statutes. The DoD policy supports tribal self-governance and government-to-government relations between the federal government and tribes.

## 1.2.2 State and Local Regulations

The Alaska Office of History and Archaeology implements the Alaska Historic Preservation Act (Alaska Statute 41.35.70, 1970) and works to preserve sites and buildings that reflect Alaska's heritage. Locally, the Joint Fairbanks North Star Borough (FNSB)/City of Fairbanks Historic Preservation Commission reviews major construction projects at FWA and Eielson AFB.

## 1.3 Scope of Cultural and Visual Resources

The scope of the cultural resources investigations and analyses contained in this technical report focuses on architectural resources in the cantonment area at FWA. Similarly, the scope of visual resources is limited to the cantonment area at FWA, most specifically addressing the Cold War Historic District and the NHL at FWA. This technical report does not address visual resources for the FWA training areas or other installations. The scope of the visual resource assessment is consistent with the federal requirements for such analysis. The cantonment is defined as the area of the post where the primary mission and administrative buildings and structures for FWA are located. The cantonment at FWA is the area of the North Post, which includes the buildings located on Marks Road and the buildings immediately adjacent to Marks Road. Marks Road, the horseshoe-shaped road, and the parade ground that it encompasses are part of the post's Beaux Arts plan.

Both of the Proposed Action alternatives included in the Aviation EIS involve facility demolition at FWA as well as the construction of new buildings and facilities, all of which have the potential to impact cultural resources. The Proposed Action alternatives would also involve increasing the number of personnel and equipment at FWA, Fort Richardson (FRA), and Eielson AFB to support the new Army mission in Alaska, but no construction or demolition is planned at installations other than FWA under the Proposed Action.

Surveys and research focused on the built environment at FWA. Thirteen previous archaeological surveys have been conducted in FWA's cantonment. The surveys focused on areas with a high potential for finding archaeological resources on FWA or were related to construction projects. Survey sites included the southern slopes of Birch Hill, various barrow sources just south of the cantonment area, and small arms ranges between Richardson Highway and the Tanana River. Six archaeological sites were found on FWA's Main Post. These sites were located north of the Chena River and along the southern slopes of Birch Hill, well outside the area of potential effect for the Proposed Action (defined later in this technical report). The probability of discovering unknown archaeological resources is low because many buildings were demolished and new buildings constructed to support Cold War activities. Therefore, the likelihood of impacts to archaeological resources in the FWA cantonment area from the Proposed Action is considered very low.

The likelihood of impacts to cultural resources from the proposed training activities at FWA, Yukon Training Area (YTA), Tanana Flats Training Area (TFTA), Donnelly Training Area (DTA), and FRA is anticipated to be very low because the training activities would be predominantly air-based and would use existing highly disturbed training areas and ranges

where the likelihood of finding newly identified archaeological resources is very low. The increased U.S. Army Alaska (USARAK) helicopter takeoffs and landings included in the Proposed Action are not anticipated to impact cultural resources; these activities are consistent with the existing use of the airfields at FWA, FRA, Eielson AFB, and Fort Greely, Alaska (FGA). The increased use of flight corridors between installations and training areas would also not affect cultural resources. Although existing known cultural resources and potential traditional cultural properties (TCPs) are located within the boundaries of the training areas, existing agreements with the Army, the Alaska State Historic Preservation Office (SHPO), and Alaska Native Tribes define the areas where training and flight are prohibited. The USARAK and USAF contracted with Tanana Chiefs Conference, Inc., to identify potential TCPs on lands managed by the military in the interior of Alaska. This study did not identify any TCPs that would be relative to the Proposed Action. Therefore, this technical report focuses on the historic properties of the NHL and the Cold War Historic District.

## 2.0 Project Description

---

The U.S. Army is preparing the Aviation EIS to assess the potential environmental impacts associated with the proposed reorganization of existing aviation assets in Alaska. The EIS will study the impacts of increasing the local aviation capacity to a level capable of providing integrated aviation support training for USARAK Brigade Combat Teams (BCTs).

The Army proposes to reorganize and augment its aviation assets in Alaska (currently, about 490 personnel and 32 helicopters) to become a front-line aviation unit with an increased combat-readiness capacity. The Proposed Action includes stationing of additional Soldiers and helicopters, construction of a number of facilities in USARAK cantonment areas, and increased aviation training on Army lands and within airspace in Alaska. The Aviation EIS will analyze the impacts of the proposed action and a full range of reasonable alternatives upon Alaska's natural and manmade environments.

For this technical report, a summary is provided of Chapters 1 and 2 of the EIS that outline the purpose and need for the action and the alternatives for the Proposed Action. For additional information, please refer to the EIS.

### 2.1 Purpose and Need for Action

On the basis of the Army's adherence to the Army Transformation and Installation Sustainability objectives, USARAK has already converted its light infantry unit into a Stryker BCT (SBCT) and its airborne assets into an Airborne BCT. The Aviation EIS will evaluate a USARAK proposal for a third phase of local transformation, converting existing aviation assets into a reorganized unit with increased aviation assets that would serve to enhance the training capability of USARAK's two BCTs.

The purpose of the Proposed Action is to enhance USARAK aviation capabilities, improve training opportunities for existing USARAK forces, and improve the Army's ability to support worldwide military operations. The Proposed Action would further support the Army and the DoD mission requirements, transformation goals, and future combat missions, and would provide a combat multiplier—a capability that, when added to and employed by a combat force, significantly increases the combat potential of that force.

The types and numbers of aviation assets currently available to USARAK are not sufficient to employ the full range of integrated tactical combat support options or provide the full range of integrated tactical training needs required by the modern BCT. To support current and future national defense requirements, USARAK needs to reorganize and augment its existing aviation assets to create a front-line aviation unit. Such a unit would provide the needed local capability for integrated training and the needed force capacity for deployment abroad with the type of Army aviation assets and units that support BCTs in an actual combat environment.

The needs for the Proposed Action are explained in detail in Section 1.3 of the EIS, and summarized in this technical report. They include the following:

Furthering Army transformation and Army transformation in Alaska  
Supporting integrated training in Alaska

- Providing sufficient military and civilian infrastructure

### 2.1.1 Furthers Army Transformation and Army Transformation in Alaska

In 1999, the Army initiated a service-wide transformation process to restructure and transform its active-duty forces to respond more rapidly to modern enemy threats. These changes affect most, if not all, aspects of the Army's doctrine, training, leader development, organizations, installations, materiel acquisition and fielding, and Soldiers. The Army's program of transformation is planned to occur in three phases over a 30-year period, as stated in the *Army Transformation Campaign Plan*, the *Programmatic EIS for Army Transformation* (PEIS), and the *PEIS Record of Decision* (ROD). Transformation of USARAK's 172<sup>nd</sup> Infantry Brigade (Light) into the 1/25 SBCT and the stationing of additional assets to expand the 1-501<sup>st</sup> Parachute Infantry Regiment into an Airborne Task Force (and eventually into an Airborne BCT) have occurred under Army transformation.

The U.S. Army Alaska has been at the forefront of Army transformation, converting its light infantry unit (the 172<sup>nd</sup> Infantry Brigade [Light]) into the 1/25 SBCT as evaluated in the *Final Environmental Impact Statement for Transformation of U.S. Army Alaska* (USARAK, 2004), and converting its airborne assets into the 4/25 Airborne BCT, as described in the *Conversion of the Airborne Task Force to an Airborne Brigade Combat Team Environmental Assessment* (USARAK, 2005a). Two premier training facilities are under construction at the DTA, as described in the *Final Environmental Impact Statement for the Construction and Operation of a Battle Area Complex and a Combined-Arms Collective Training Facility within U.S. Army Training Lands in Alaska* (BAX CACTF FEIS) (USARAK, 2006). These facilities, in combination with 1.5 million acres of Army training lands in Alaska, are currently used to support Army transformation and training.

The proposed expansion of USARAK's aviation assets and capabilities to support both integrated training and deployment abroad would continue the process of Army transformation in Alaska. Aviation units are expected to fight and train as members of combined-arms teams. The new aviation unit in Alaska would enhance the integrated training of the SBCT and Airborne BCT to achieve proficiency in the execution of combined-arms, joint, and coalition operations under realistic and challenging conditions.

### 2.1.2 Supports Integrated Training in Alaska

While USARAK has historically supported unit training with helicopters, the types and numbers of current aviation assets are not sufficient to provide the full range of integrated tactical training required by the modern BCT. The 1/25 SBCT and 4/25 Airborne BCT need additional aviation assets to conduct realistic training that complies with Army training doctrines.

An essential element of USARAK capabilities is the development of modern war-fighting skills. Chief among these skills is the ability to integrate 1/25 SBCT and 4/25 Airborne BCT efforts with the vital support offered by modern Army aviation units. This requires frequent training with an aviation unit equipped with the full spectrum of aviation assets, typically deployed to support a BCT during wartime.

Army Training Circular (TC) 25-8, *Training Lands*, requires Soldiers to practice combined-arms teamwork and synchronization to prepare units for wartime operations. Combined-arms teamwork is defined as the coordination of various Army units (that is, mechanized infantry, airborne paratroopers, and assault or support aviation) on a battlefield working together towards a common objective. At present, the 1/25 SBCT and the 4/25 Airborne BCT train separately or in combined training exercises on Army training lands. These training exercises currently lack the critical element of air support from Army aviation assets. Aviation unit integration is necessary to increase local training complexity and realism by simulating actual combat conditions and allowing units to practice their combined-arms teamwork skills prior to wartime deployment.

The incorporation of aviation assets into existing operations, in accordance with the requirements of TC 25-8, is necessary to expand multi-echelon training and provide the 1/25 SBCT and 4/25 Airborne BCT with better training opportunities. Multi-echelon or collective training allows unit commanders to integrate training among different unit sizes (platoon to brigade) and across branches (Army and Air Force). It also allows each military unit to achieve required training and proficiency on multiple tasks, to include ground maneuvers with Stryker vehicles, airborne support activities, and the incorporation of aviation assets simultaneously.

Coordinated training requires the stationing of aviation assets near USARAK training lands. Under current USARAK training strategy, companies and smaller-sized units must practice collective tasks at their home stations (that is, FWA or FRA). The 1/25 SBCT and 4/25 Airborne BCT conduct the larger combined-unit field training exercises (FTXs) at the DTA, where sufficient maneuver land and airspace exist to accommodate large multi-echelon exercises to train combined-arms teamwork skills.

Training needs under the Proposed Action do not require any changes to existing airspace or regulations to be fulfilled. Training activities would comply with applicable airspace requirements both on and off military installations. Army aerial training also complies with Army Regulation (AR) 95-1, *Aviation Flight Regulations* (2004), which governs training on USARAK installations and provides minimal altitudes of helicopter operations off military installations.

### 2.1.3 Provides Sufficient Military and Civilian Infrastructure

The proposed stationing of additional aviation assets in Alaska requires the construction, demolition, and usage of Army real property. The Proposed Action requires that adequate support infrastructure either currently exists or that the potential for new support infrastructure to accommodate helicopter basing, maintenance, and storage at a reasonable cost be constructed. In addition, the location of new facilities, as well as the usage of existing facilities, needs to be adjacent to an operational military airfield to adequately support aviation training needs. Siting of new facilities and demolition of existing facilities would be undertaken in accordance with relevant Army installation planning documents such as the *Real Property Master Plan* (RPMP), *Installation Design Guide*, *Integrated Cultural Resources Management Plan* (ICRMP), and the *Integrated Natural Resources Management Plan* (INRMP), as well as the Federal Facility Agreement under CERCLA Section 120, various real property, airfield construction and management, and environmental regulations.

The need to maintain “unit cohesion” within the Army is an important factor in obtaining the military mission. Unit cohesion is defined as the bonding together of members of a unit or organization in such a way as to sustain their will and commitment to each other, their unit, and the mission. Cohesion is fostered in a military unit when the primary day-to-day goals of the individual Soldier, the small group with which the Soldier identifies, and the unit leaders are parallel. The ultimate goal is for Soldiers to give their primary loyalty to the group so that it trains and fights as a unit with all members willing to train and achieve a common objective. The colocating of a Soldier’s living and working quarters (to include barracks, office space, maintenance facilities, helicopter storage and parking, etc.) will further support the concept of unit cohesion.

Army Resolution 210-20, *Real Property Master Planning for Army Installations*, sets forth the requirements for the installation RPMP. The RPMP is the process used by the Army to plan for the identification of facility requirements, design and construction of new facilities, and reuse or disposal of obsolete facilities. The RPMP includes long- and short-range plans such as *Tabulation of Existing and Required Facilities (TAB)*, capital investment strategies, mapping of land use constraints within the installation and surrounding areas, and *Installation Design Guides* that unify the appearance of installation facilities.

Unique local conditions at FWA, particularly along Ladd Army Airfield (AAF), require consideration of various land use constraints when siting new infrastructure. The Army needs to accomplish its facility and land use planning actions to ensure that land is used efficiently for the benefit of the wider economy and population, as well as to protect the environment. Master Planners at FWA take into consideration the following during facility siting along Ladd AAF:

Ladd Field NHL boundary and buildings

Active runway safety buffers to include taxiway setbacks and runway clear zones

Existing live ammunition storage points and associated safety setbacks

Antiterrorism/force-protection facility safety buffers

Wetlands, floodplains, and other waters of the United States

Permafrost and other geological hazards

Known (and potentially unknown) contaminated areas protected by existing agreements between the Army and other State of Alaska and federal entities

Existing land use and users, and ability to modify current use

Existing utility infrastructure and ability to support proposed land use

Existing Installation Master Plan and potential for conflicts with other sited facilities

Adequate physical space in desired location to accommodate Army standard design for a facility

These factors must be taken into consideration when planning and siting infrastructure to support aviation stationing at FWA.

Army Resolution 420-1, *Army Facilities Management*, describes the management requirements of public works activities, housing, and other facilities operations; military construction program development and execution; military installation master planning; utilities services and energy management; and fire and emergency services on Army installations.

Construction, maintenance, and operation of facilities – such as roads, utilities, and buildings, on USARAK lands – presents special challenges because of the arctic and subarctic environment, including vast areas of permafrost; frozen soil, rock, and ice; intense cycles of freezing and thawing temperatures; and limited daylight in fall and winter. The U.S. Army Alaska employs appropriate construction techniques, as outlined in Unified Facilities Criteria (UFC) 3-130-01, *General Provisions: Construction in Arctic and Subarctic Construction*, to ensure safe and efficient construction and operation of facilities.

Army Regulation 200-3, *Natural Resources – Land, Forest, and Wildlife Management*, sets forth the requirements for the installation INRMP, which guides the implementation of the natural resources programs for USARAK lands. The INRMP is designed to support the military mission, manage USARAK's natural resources, and ensure compliance with related environmental laws and regulations. The plan also ensures the maintenance of quality training land, allowing USARAK to accomplish its critical military missions.

Army Regulation 200-1, Chapter 6, *Cultural Resources Management*, requires each installation to prepare and implement an ICRMP. The legal foundation for AR 200-1, Chapter 6, is the body of federal laws that address historic preservation. The ICRMP establishes explicit responsibilities, standard operating procedures, and long-range goals for managing cultural resources on USARAK lands.

United Facilities Criteria 3-260-01, *Airfield and Heliport Planning and Design*, provides standardized airfield, heliport, and airspace criteria for the layout, design, and construction of safe and standard runways, helipads, taxiways, parking aprons, and related permanent facilities to meet sustained aviation operations. The criteria in UFC 3-260-01 pertain to all DoD military facilities. Integration of aviation facilities planning with NEPA will assist Army planners when considering environmental factors, land use considerations, airspace constraints, and surrounding infrastructure. The planning process must consider the mission and use of the aviation facility and its effect on the general public, as well as the requirement to comply with standardized design and safety criteria. Existing facilities have been assessed as inadequate to meet the mission and, thus, new facilities are required. However, construction of an entirely new aviation facility is not needed because space is present around existing airfields to accommodate new facilities required for aviation assets.

Helicopter storage requirements in Alaska differ from those in temperate regions. As a general practice, helicopter maintenance occurs inside aircraft hangars at all Army installations. Aircraft maintenance hangars are sized (according to the Army Criteria Tracking System, Category Code 21110 and UFC 3-260-01) to house approximately 20 percent of an installation's helicopter inventory. At most installations, helicopters not requiring maintenance are parked outdoors near the maintenance hangar and mobilize from these parking areas. Currently, USARAK has obtained a waiver to construct aircraft maintenance hangars to accommodate 100 percent of FWA's proposed helicopter inventory. Because USARAK and the USAF Alaska airfields experience cold-climate extremes and the

challenge of operating helicopters in the arctic, USARAK needs to be able to store its entire helicopter inventory indoors. The indoor storage need translates into larger hangars than would be required at other Army installations. In addition, some of the helicopters stationed in Alaska, such as medical evacuation (MEDEVAC) helicopters that must be ready for operation around the clock, must be parked indoors at all times. Currently, helicopters parked outdoors are “cold soaked” (which occurs when equipment is exposed to low temperatures for an extended period) and require preheating before use. Maintaining aircraft readiness creates a shuffle of aircraft in and out of hangars, requiring hangar doors to be opened frequently, which increases heating costs and introduces operational inefficiencies and logistical challenges.

In addition to the indoor storage requirements, each airfield in Alaska serves as a landing area to support up to brigade-size training operations; therefore, the number of outdoor, flight-ready parking spaces is greater than the total number of helicopters stationed at each airfield at a time. Outdoor parking for helicopters is designed for the unique maneuvering capabilities of each aircraft as well as appropriate rotary-wing tie-downs or grounding points (UFC 3-260-01). Currently, FWA does not have any of these facilities on the parking apron because Ladd AAF was designed for fixed-wing aircraft. Common activities on the rotary-wing apron include takeoffs, landings, hovering, taxiing, washing, and cold soaking (which will be eliminated once maintenance hangars are constructed). Parking must be directly adjacent to the airfield restricted movement area and cannot be blocked by buildings.

The Chinook CH-47 also has unique operating and storage requirements due to safety. The size, number of rotary blades (twin, three-blade), space requirements for maneuvering, and creation of noise and wind turbulence of the Chinook CH-47s require buffering of other helicopter or administrative operations from the Chinook helicopters. (Kiowa and Blackhawk helicopters are more flexible in terms of their size, increased maneuverability on the airfield, and quieter, less-turbulent operation.) The preferred safety buffering technique is to be able to physically separate the Chinook helicopters from the Kiowa and Blackhawk helicopters by constructing a physical barrier to block rotary-wing turbulence.

The proposed stationing of additional aviation assets in Alaska requires existing civilian infrastructure to support Soldiers and their dependents. The Proposed Action requires that adequate civilian infrastructure either currently exists or that the potential for new civilian infrastructure for Soldiers and their dependents be constructed at a reasonable cost. The need for adequate civilian infrastructure is consistent with the welfare and morale requirements of the Army by providing the same quality of life afforded the society they protect.

## 2.2 Project Alternatives

A No Action and two action alternatives are proposed as possible scenarios for the reorganization and augmentation of existing USARAK aviation assets. Multiple alternatives, however, were considered within the process of the Aviation EIS, some of which were not carried forward because they were deemed not viable.

The study area for the EIS includes the military installations and other lands or airspace in Alaska that could be affected by implementing the Proposed Action, as shown in Figure 1. The EIS provides additional figures to illustrate the military installations, training areas, and flight corridors currently used by USARAK (EIS Figures 2.2.a, 2.2.b, 2.2.c, and 2.2.d). Activities contemplated under the Proposed Action would use these same areas because no change to flight corridors, airspace, or land areas is proposed.

The military installations included in the study area are:

Fort Wainwright, Alaska  
Fort Richardson, Alaska  
Eielson AFB

The study area includes the cantonment and training areas associated with each of these installations to include the TFTA, YTA, DTA East and West, Gerstle River Training Area, and the Black Rapids Training Area. Eielson AFB is included as a potential location for some stationing alternatives under the Proposed Action. The 611<sup>th</sup> Air Operations Group (AOG) would continue to manage real property at Eielson AFB under the Proposed Action.

Section 2.2 of the Aviation EIS includes additional information regarding these military installations.

**FIGURE 1**  
General Study Area Features

## 2.2.1 Proposed Action

The Army proposes to reorganize and augment its aviation assets (currently, about 490 personnel and 32 helicopters) to become a front-line aviation unit with an increased combat-readiness capacity. The new aviation unit would require additional Soldiers, helicopters, and support vehicles. The Proposed Action includes stationing of additional Soldiers and helicopters, construction of a number of facilities within USARAK cantonment areas, and increased aviation training.

The following are the key components of the Proposed Action:

Stationing of aviation personnel, which includes the number of additional Soldiers, dependents, and support personnel at the affected installations

Increasing aviation assets, including additional helicopters, generators, and ground-based vehicles.

Constructing and demolishing facilities to support the expanded force

Increasing training activities, which would result in an increased frequency of helicopter flights on and around USARAK training lands, and increased use of existing training facilities

Section 2.3 of the Aviation EIS provides additional information regarding each of these components of the Proposed Action.

## 2.2.2 Alternatives Screening Criteria

The Army developed screening criteria to develop a reasonable range of action alternatives for the Proposed Action. Reasonable alternatives are those that meet the purpose and need to support the increase and reorganization of aviation assets, provide facilities that meet Army standards and the requirements of installation master plans, can be accomplished within USARAK's existing lands, and do not require relocation of USARAK's existing aviation assets and personnel.

The Army considered the following criteria when developing action alternatives to be evaluated in the EIS, which were based on the purpose and needs for the Proposed Action:

1. Furthers Army transformation
2. Supports integrated training needs and requirements of BCTs in Alaska:
  - a. Augments USARAK's existing force to provide additional aviation capability (in accordance with TC 25-8 training requirements)
  - b. Uses airfield and support facilities located within a reasonable distance of USARAK training lands to minimize refueling of aircraft supporting BCT training
  - c. Supports training that is compatible with existing airspace designations and uses (that is, does not require modification of airspace)
  - d. Uses existing military training range infrastructure and targetry to support USARAK mission training needs

- e. Does not require relocation of USARAK's existing assets and personnel
3. Has infrastructure or the potential for new infrastructure construction to accommodate helicopter basing, maintenance, and storage at a reasonable cost, adjacent to an operational military airfield, and in accordance with relevant installation planning documents (as outlined by the criteria in Section 1.3.4 of the EIS)
4. Has civilian infrastructure capable of providing lifestyle needs of Soldiers and dependents

These criteria relate to the primary needs of the Proposed Action – training and stationing of Soldiers and equipment. They apply to potential spatial and infrastructure constraints of cantonment and non-cantonment areas.

### 2.2.3 Alternatives

Possible scenarios for the reorganization and augmentation of existing USARAK aviation assets include the No Action and two action alternatives. These are the three alternatives evaluated in the EIS and in this technical report for cultural and visual resources. Additional information for each of the alternatives is provided in Section 2.5 of the EIS.

- **Alternative 1: No Action.** Under the No Action alternative, USARAK would continue to use existing units and assets to support aviation and integrated training requirements. USARAK's current aviation assets consist of 490 Soldiers and 32 helicopters.
- **Alternative 2: Aviation Task Force (ATF).** This alternative would convert existing USARAK aviation assets into a task force. An ATF consists of approximately 1,200 personnel and 72 helicopters. An additional 710 Soldiers and 40 helicopters would augment USARAK's existing aviation assets. The Kiowa helicopter would also be added to the current inventory of Chinooks and Blackhawks. Additional Soldiers and helicopters would be stationed only at FWA, and increased aviation training would be conducted on existing USARAK lands. New infrastructure would be required at FWA.
- **Alternative 3: Combat Aviation Brigade (CAB).** This alternative would expand existing USARAK aviation assets into a Brigade. A CAB consists of approximately 2,850 personnel and 116 helicopters. An additional 2,360 Soldiers and 84 helicopters would augment USARAK's existing aviation assets. The Kiowa and Apache helicopters would also be added to the current inventory of Chinooks and Blackhawks. Although USARAK would prefer to station all new Soldiers and helicopters at FWA, it is unlikely that FWA would have the capacity to accommodate the additional aircraft, support staff, and dependents. For this reason, Alternative 3 includes stationing of a portion of Soldiers and helicopters at FRA and Eielson AFB. Of the 2,360 additional Soldiers, an estimated 1,476 would go to FWA, and 442 each would go to FRA and Eielson AFB. Dependents and civilian workers associated with these Soldiers would be divided proportionately among the three installations. An additional 40 helicopters would be stationed at FWA, 20 helicopters would be stationed at FRA, and 24 helicopters would be stationed at Eielson AFB. Increased aviation training would occur on existing USARAK lands. Additional infrastructure would be required at FWA.

Table 1 provides a summary of the key elements for each alternative in the EIS.

TABLE 1  
Key Components of Alternatives  
Cultural Resources Technical Report

Component	Alternative 1: No Action (Pre-2006)			Alternative 2: Aviation Task Force			Alternative 3: Combat Aviation Brigade		
	Fort Wainwright	Fort Richardson	Eielson AFB	Fort Wainwright	Fort Richardson	Eielson AFB	Fort Wainwright	Fort Richardson	Eielson AFB
<b>Army Aviation Personnel and Others</b>							5,515	1,235	1,235
Total (+ increase from No Action)	1,390 (+0)	0 (+0)	0 (+0)	3,395 (+2,005)	0 (+0)	0 (+0)	(+4,125)	(+1,235)	(+1,235)
Soldiers	490 (+0)	0 (+0)	0 (+0)	1,200 (+710)	0 (+0)	0 (+0)	1,966 (+1,476)	442 (+442)	442 (+442)
Family Members	690 (+0)	0 (+0)	0 (+0)	1,685 (+995)	0 (+0)	0 (+0)	2,694 (+2,004)	598 (+598)	598 (+598)
Civilian Support Personnel	210 (+0)	0 (+0)	0 (+0)	510 (+300)	0 (+0)	0 (+0)	855 (+645)	195 (+195)	195 (+195)
<b>Helicopters</b>	32 (+0)	0 (+0)	0 (+0)	72 (+40)	0 (+0)	0 (+0)	72 (+40)	20 (+20)	24 (+24)
Total (+ increase from No Action)									
Blackhawk UH-60	18 (+0)	0 (+0)	0 (+0)	18 (+0)	0 (+0)	0 (+0)	18 (+0)	20 (+20)	0 (+0)
Blackhawk HH-60	2 (+0)	0 (+0)	0 (+0)	12 (+10)	0 (+0)	0 (+0)	12 (+10)	0 (+0)	0 (+0)
Chinook CH-47	12 (+0)	0 (+0)	0 (+0)	12 (+0)	0 (+0)	0 (+0)	12 (+0)	0 (+0)	0 (+0)
Kiowa OH-58	0 (+0)	0 (+0)	0 (+0)	30 (+30)	0 (+0)	0 (+0)	30 (+30)	0 (+0)	0 (+0)
Apache AH-64	0 (+0)	0 (+0)	0 (+0)	0 (+0)	0 (+0)	0 (+0)	0 (+0)	0 (+0)	24 (+24)
<b>Construction and Demolition</b>									
New Construction Footprint	0 ft <sup>2</sup>	0 ft <sup>2</sup>	0 ft <sup>2</sup>	2,375,434 ft <sup>2</sup> (54.5 acres)	0 ft <sup>2</sup>	0 ft <sup>2</sup>	3,175,063 ft <sup>2</sup> (72.9 acres)	0 ft <sup>2</sup>	0 ft <sup>2</sup>
Demolition	0 ft <sup>2</sup>	0 ft <sup>2</sup>	0 ft <sup>2</sup>	41,639 ft <sup>2</sup>	0 ft <sup>2</sup>	0 ft <sup>2</sup>	41,639 ft <sup>2</sup>	0 ft <sup>2</sup>	0 ft <sup>2</sup>
<b>Training</b>									
Type of Training	Existing aviation personnel and equipment at FWA would conduct limited integrated training to support the SBCT and Airborne BCT, as well as individual and crew proficiency training. No training would be conducted at FRA or Eielson AFB.			Aviation personnel and equipment at FWA would conduct Task Force-level integrated training with the SBCT and Airborne BCT, as well as individual and crew proficiency training. Training would be conducted at FWA and its training areas, DTA, and FRA. No training would be conducted at Eielson AFB.			Aviation personnel and equipment from FWA, FRA, and Eielson AFB would conduct Brigade-level integrated training with the SBCT and Airborne BCT, as well as individual and crew proficiency training. Training would be conducted at FWA and its training areas, DTA, and FRA. Training at Eielson AFB would be limited to takeoffs and landings at the airfield.		
Number of Takeoffs and Landings	5,432 (+0)	4,800 <sup>a</sup> (+0)	0 (+0)	8,472	6,592 <sup>a</sup>	0 (+0)	8,472	8,592 <sup>a</sup>	960 (+960)
Total (+ increase from No Action)				(+3,040)	(+1,792)		(+3,040)	(+3,792)	

**NOTES:**

<sup>a</sup> For all alternatives, 4,800 annual takeoffs and landings from FRA are included. These are associated with the Alaska Army National Guard and are not associated with USARAK operations. In addition to the total number of takeoffs and landings from FWA, FRA, and Eielson AFB, all three alternatives include an additional 188 USARAK takeoffs and landings from Allen AAF.

Sources:

USARAK, 2007; Reid, 2006 .

### **Alternative 1: No Action**

The No Action alternative is analyzed in accordance with NEPA as a benchmark against which to compare the expected environmental impacts of the action alternatives. The No Action alternative does not meet the purpose and needs for the Proposed Action or the screening criteria established for reasonable alternatives.

Under the No Action alternative, the proposal to increase the Army's aviation assets in Alaska would not be implemented. No additional Soldiers and helicopters would be permanently stationed in Alaska, and no new facilities would be constructed. Existing helicopters would continue to be stored outside and in Hangars 2 and 3, and no new hangars would be constructed. Existing aviation assets would continue to use current training locations and transportation corridors, and USARAK lands would continue to support SBCT and Airborne BCT training. Stryker BCT and Airborne BCT support facilities, ranges, and training would remain unchanged (USARAK, 2004; USARAK, 2005). The U.S. Army Alaska would continue to conduct mission-sustaining training activities, but integrated aviation support training to USARAK BCTs would be limited and critical wartime mission-oriented training could not take place.

### **Alternative 2: Aviation Task Force**

Alternative 2 would form an ATF by augmenting USARAK's existing aviation unit with 40 additional helicopters and 710 additional Soldiers. Table 2 provides a summary of the equipment, personnel, construction, and training by location under Alternative 2. The task force would be stationed at the FWA Main Post. Alternative 2 would include construction to support indoor storage of 100 percent of the task force's aviation inventory as well as other required facilities (see Table 2 and Figure 2 for a listing and illustration of Alternative 2 construction projects). Demolition of three facilities would occur under Alternative 2: Building 3475 (shipping/receiving and administrative facility), Building 3477 (vehicle maintenance shop), and Building 3011 (Water Treatment Building). Training would occur on current USARAK training lands and use existing flight corridors. Implementing this alternative would provide integrated first-line air transport, air reconnaissance, and close air support during training exercises with the existing 1/25 SBCT and 4/25 Airborne BCT. This would increase the complexity and realistic nature of training exercises to simulate actual combat conditions.

**FIGURE 2**  
Alternative 2 Construction Projects

**TABLE 2**  
 Alternative 2 Aviation Task Force Construction Footprint at Fort Wainwright  
*Cultural Resources Technical Report*

<b>New Facilities</b>	<b>Footprint (square feet)</b>
Fire Deluge System – New Well	8,000
Company Operations Facility	31,878
Barracks	114,072
Vehicle Maintenance Facility (Motorpool)	37,290
Aircraft Parts Storage Building	20,001
Chinook CH-47 Hangar	108,736
Kiowa Hangar	124,215
Organizational Unit Storage (Secure Storage Area)	14,350
Battalion Headquarters	16,015
Kiowa Company Operations Facilities	48,345
Chinook Company Operations Facilities	75,151
Warm Storage Facility	52,000
Ravens Roost	401,364
Rotary Wing Apron	729,000
Organizational Vehicle Parking 1	476,136
Organizational Vehicle Parking 2	118,881
Airfield Fencing <sup>a</sup>	[29,750 feet]
<b>Total Footprint</b>	<b>2,375,434 (54.5 acres)</b>

**NOTES:**

<sup>a</sup> Measured in linear feet and, therefore, not counted towards the total square footage.

Sources:

White, 2007; USARAK, 2007

**Alternative 3: Combat Aviation Brigade**

Alternative 3 would form a CAB by augmenting USARAK’s existing aviation unit with 84 additional helicopters and 2,360 additional Soldiers. Most (60 percent) of the Brigade would be stationed at FWA, with the remaining Soldiers distributed evenly between FRA and Eielson AFB. Aircraft also would be distributed among the three installations. All of the construction and demolition described in Alternative 2, as well as some additional new facilities, would be required for Alternative 3. Table 3 provides a listing of all facilities that would be constructed under Alternative 3, and these are illustrated in Figure 3. Training would occur on all USARAK training lands and use existing flight corridors, as described for Alternative 2. Implementing this alternative would provide USARAK with the capability to train up to three full Brigades simultaneously.

**FIGURE 3**  
Alternative 3 Construction Projects

**TABLE 3**  
Alternative 3 Combat Aviation Brigade Construction Footprint at Fort Wainwright  
*Cultural Resources Technical Report*

<b>New Facilities</b>	<b>Footprint (square feet)</b>	<b>New Facilities</b>
Fire Deluge System – New Well	8,000	Organizational Vehicle Parking 1
Company Operations Facility	31,878	Organizational Vehicle Parking 2
Barracks	114,072	Airfield Fencing <sup>a</sup>
Vehicle Maintenance Facility (Motorpool)	37,290	Vehicle Maintenance Facility
Aircraft Parts Storage Building	20,001	Battalion Headquarters
Chinook CH-47 Hangar	108,736	Brigade Headquarters
Kiowa Hangar	124,215	UPH Barracks (540 persons)
Organizational Unit Storage (Secure Storage Area)	14,350	CAB Administration
Battalion Headquarters	16,015	Land Vehicle Fuel Storage (Diesel) <sup>b</sup>
Kiowa Company Operations Facilities	48,345	Aviation Operations Building
Chinook Company Operations Facilities	75,151	Company HQs
Warm Storage Facility	52,000	Battalion Operations Facilities
Ravens Roost	401,364	Secure Storage Area (SSA)
Rotary Wing Apron	729,000	Organizational Parking
<b>Total Footprint</b>		

**NOTES:**

<sup>a</sup> Measured in linear feet and, therefore, not counted towards the total square footage.

<sup>b</sup> Storage of 67,020 gallons of aircraft fuel in a 30-foot-tall, 20-foot-diameter vertical steel tank is estimated to have a 4,225-square-foot area around the tank.

Sources: White, 2007; USARAK, 2007

## 3.0 Aviation EIS Investigations of Cultural Resources at Fort Wainwright

---

This study's Area of Focus (AF) is historic properties whose character could be directly altered by this undertaking. The FWA AF is shown in Figure 4 and includes areas within and adjacent to the existing Ladd Field NHL where construction and demolition would occur under the Proposed Action. The FWA AF includes the areas on both sides of the flight line, Hangar 1, and the buildings in the core of the NHL, the North Post. Physically, the AF boundary starts in northwest corner of the airstrip where Gaffney Road and the North Taxiway meet. The AF then follows the North Taxiway to Building 1595, north up to Front Street, east to the end of Building 1579. At Building 1579, the AF turns north to Apple Street, and follows Apple Street to Chena Road. The AF follows Chena Road southeast to Marks Road, and then follows along the NHL boundary east, then south along Ketcham Road and west along Montgomery Road. Directly after Hangar 6, the AF follows a southwest path down to Oak Avenue, and then turns west on Oak Avenue, north on Meridian Road, then west on Neely Road. At Neely Road, the AF follows the path line of the NHL up around several of the Butler buildings, proceeding towards Meridian Road where the AF meets the starting location of Gaffney Road and the North Taxiway.

The AF shown in Figure 4 is also appropriate for the evaluation of potential impacts of visual changes to cultural resources at FWA. The AF includes the viewshed from which physical changes associated with the Proposed Action (for example, the construction of new buildings) would be seen. The viewshed primarily includes the areas within the Ladd Field NHL. The Ladd Field portion of FWA is located within several miles of non-Post-affiliated residential areas and several major highways and arterials (Richardson Highway, the Steese Highway, and the western end of Airport Road). However, viewers in areas off Post would not be able to see the changes to the existing landscape near Ladd Field that would be associated with the action alternatives. The relatively flat terrain and the presence of trees and buildings screen views of Ladd Field from those in areas off Post.

Auditory impacts associated with the proposed action alternatives would be those that would directly or indirectly affect the historic integrity elements of setting, location, and association. The Post is located in an open flat plain, bounded by a river and wooded hills to the north and wooded areas to the east, west, and south. The post is located in an area that was once a remote area of Alaska. Since Ladd Field was established, Fairbanks has grown up around it, reflecting the economic impact of a military post to the local economy. Its location now is semirural, with the military mission (to include training) providing the only significant auditory impacts to the area. The mission of Ladd Field and now FWA includes auditory impacts resulting from aircraft and aviation takeoffs and landings and firearms training. The intensity of impacts had changed as the mission has changed.

As outlined in Section 1.3, the focus of this technical report is the area generally near or within the NHL at FWA where construction would occur as part of the Proposed Action;

therefore, the FWA AF is the focus of the cultural and visual resource investigations that have been performed to support the Aviation EIS and this technical report.

### 3.1 Cultural Resource Investigations

In anticipation of the Aviation EIS, USARAK initiated a number of efforts to gather the information needed to proceed with the evaluation and determination of effects for the EIS.

The U.S. Army Alaska prepared a Cold War Context Study, surveyed the areas within the AF, reviewed the existing conditions of the NHL, reevaluated the Cold War Historic District at FWA, and reviewed the existing boundaries of the NHL and the potential boundaries of the Cold War Historic District.

The following sections provide a summary of each of the cultural resource investigations.

**FIGURE 4**  
Fort Wainwright Area of Potential Effect

### 3.1.1 Cold War Historic Context Summary

The purpose of the Cold War Context Study (Context Study) was to prepare a Cold War historic context of FWA to evaluate the potential historic significance of cantonment properties based on the most comprehensive information available. It was not intended to function as a complete history of the installation/post during the Cold War. The context was used in conjunction with the NRHP criteria to determine if any Cold War resources exist at FWA that are eligible for the NRHP and if they are sufficient in number to create a Cold War Historic District. The following is a summary of the Cold War Context Study.

#### Materials and Methods

A historic context was developed through the Cold War Context Study to evaluate Cold War properties at FWA that were more than 50 years of age. Although the timeframe for the Cold War is 1946 to 1991, the years 1946 to 1961 were selected for the purposes of defining a period of significance for the study. The 1961 date was selected as an end point because it represented the transfer of the installation from the USAF to the Army, with its subsequent change in missions. In addition, most construction on FWA was completed by this time, so a review of Cold War properties follows a logical change in mission and ownership. This date also allows the findings of the Study to remain valid for management purposes through 2011. As the remaining buildings constructed after 1961 (but during the Cold War era) reach 50 years of age, their integrity and potential significance will be evaluated for eligibility to the district.

In accordance with DoD guidance for evaluating Cold War properties, the primary focus of the study was on the installation's Cold War missions and support. The context study focuses on Cold War activities on the FWA Main Post. Within the Cold War Context Study, Main Post refers to the contiguous parcel bounded by the Richardson Highway on the south, the ridge of Birch Hill on the north, and the installation borders on the east and west.

The context study followed standard methodology for researching the topics identified. A literature review was conducted of published material, including previous cultural resource studies, NRHP documentation, and DoD guidance documents. Because some Alaska military and local history does not yet appear in standard literature, research was also conducted using primary sources, including archival and oral history collections, contemporary newspaper reports, and unit histories. Property records, military history Web sites, installation maps, and inventories rounded out the sources.

#### Overview of Major Cold War Periods

The Cold War was a multidimensional worldwide conflict between the United States and the USSR that lasted from the end of WWII until the political collapse of the USSR in 1991. The two ideologically opposed superpowers never engaged each other directly in a hot war, but prepared militarily and geopolitically for that contingency. The Cold War began as a confrontation over postwar Europe and quickly expanded into Asia and the Third World. It was characterized by a high-tension standoff in Europe; technological competition; a nuclear arms race; and proxy wars in Korea, Vietnam, Afghanistan, and smaller nations.

The Cold War can be divided into the following chronological periods:

**Containment/Korean War (1946 to 1953).** A period marked by the extension of the USSR sphere of influence in Eastern Europe, the advent of Maoist China, and the outbreak of war on the Korean peninsula. United States policy focused on “containment” of Soviet expansionism.

**New Look/Massive Retaliation (1953 through 1960).** A period marked by a rapid nuclear arms race and continuing tension over Europe and the Third World. Both superpowers possessed hydrogen bombs and the means to deliver them by either manned, long-range bombers or, by the end of the decade, ICBMs. United States policy changed to a threat of “massive retaliation” for Soviet expansion, and inevitably, a greater reliance on strategic nuclear weapons over conventional forces.

**Flexible Response (1961 through 1968).** A period marked by a continued arms and space race and increased conflict in the Third World over the allegiance of developing nations. The Cuban Missile Crisis of 1962 brought the world close to the brink of nuclear war. United States policy moved to include a wider role for conventional forces. The U.S. also became significantly more involved in the Vietnam Conflict during this period.

**Détente (1969 through 1979).** A period marked by increasing diplomatic rapprochement and arms control negotiations to reduce tensions. The Vietnam War ended in 1975. Détente ended with the Iranian Hostage Crisis and Soviet invasion of Afghanistan in 1979.

**Reagan/Gorbachev and the End of the Cold War (1980 to 1991).** A period marked by an initial increase in tension, followed by summit meetings between President Ronald Reagan and Soviet leader, Mikhail Gorbachev. Eventually, political change within the USSR and the Eastern Bloc resulted in the collapse of the communist regimes in the region. Notable events included the dismantling of the Berlin Wall in 1989 and the dissolution of the USSR in 1991.

### **The Cold War at Ladd Field/Fort Wainwright**

In September 1945, the Lend-Lease program at Ladd Field concluded and the Soviet representatives departed. Before the year was out, the same airfield that the two nations had shared in a joint struggle against a common wartime enemy would be used as an aerial reconnaissance outpost in the new Cold War era of competition and confrontation. After WWII, the expedient alliance between the United States and the USSR rapidly ended. The Cold War standoff took its place, reshaping the mission and infrastructure of Ladd Field.

Ladd AFB served as the northern sector air defense command headquarters for the AAC's 11<sup>th</sup> Air Division (Defense). From 1946 to 1961, Ladd AFB played a significant role in the Cold War. It hosted or supported AC&W and fighter intercept squadrons and provided logistical support to the northwestern segments of the DEW Line. Weather reconnaissance crews also flew regular missions from Ladd AFB over the polar regions of North America.

Ladd Field was originally constructed as a cold weather testing station for the USAAC just before the United States entered WWII. Much of its historical importance in developing U.S. military aviation capability in the Arctic dates to the WWII period. This detachment tested every aircraft in the USAAC and United States Army Air Forces (USAAF) inventory, and recommended upgrades to make the aircraft functional in extreme cold conditions. In 1947, however, the primary USAF cold weather testing effort was moved to a cold-climate hangar

at Eglin AFB in Florida. Ladd AFB no longer played the lead role in that testing, although units at the installation conducted operational tests on aircraft and aviation equipment on a reduced but continuing basis throughout the 1950s.

In addition to its significant cold weather aviation equipment research, Ladd AFB supported other USAF-sponsored research programs, including ice station research on the polar ice pack, projects at the University of Alaska Geophysical Institute and Institute of Arctic Biology, and others.

To support Ladd AFB's Air Force and Army missions, a major construction program was initiated in the 1950s. To make room for the new infrastructure, several hundred WWII temporary buildings were removed. Bassett Hospital, the AAL, family housing on the North and South Posts, new barracks, a missile multicube ammunition storage complex, and an Air Defense Command Center were part of this new buildup.

From 1947 to 1959, the USAF constructed more than 300 new buildings on the installation to support its Cold War missions and personnel. The majority of these buildings were family housing, barracks facilities, and utility infrastructure. Mission-related construction included hangars, ammunition storage, shops, communications facilities, and airfield improvements. Construction began with a few barracks and an Air Defense Command Center in 1947, and a series of eight-plex family housing units in 1948. Family housing and barracks continued to comprise the majority of construction each year through 1959. Mission-related construction occurred primarily between 1952 and 1957.

By 1958, the introduction of ICBMs and satellites resulted in a reduced role for AC&W units, the DEW Line, and land-based communications. Also that same year, defense funding was substantially curtailed, and in 1959, Ladd AFB was closed. The Air Force decided to transfer the functions of Ladd AFB to Eielson AFB and Elmendorf AFB, but negotiations with the Army ensured that the Base would have a new life as an Army post.

On January 1, 1961, the Army assumed control of the installation, and Ladd AFB was redesignated Fort Wainwright. When FWA came under Army control, the early Cold War construction was essentially complete. During the next 20 years of Army use, fewer than 20 new buildings were constructed.

During the USAF years of Ladd AFB, Army units were present on the Base in a support capacity, reporting to the U.S. Army, Alaska (at that time familiarly known as USARAL), which was the Army component of the Alaskan Command (ALCOM). From the formation of USARAL in 1947, until 1955, Army operations in Interior Alaska reported directly to USARAL headquarters at FRA. In 1955, USARAL activated the Yukon Command at Ladd AFB as a subordinate command, overseeing Army operations north of the Alaska Range. The Yukon Command controlled artillery, infantry, ordnance, quartermaster, and signal units at Ladd AFB as well as at nearby Eielson AFB.

The USARAL overall missions during the period 1946 to 1960 were as follows:

Providing for the ground and air defense of Alaska, in particular Anchorage and Fairbanks

Developing cold weather and mountain warfare doctrine

Conducting a cold weather and mountain training school at FGA

Providing logistical support for the USAF and U.S. Navy in Alaska

Conducting National Guard and Reserve training, and supervising Reserve Officer Training Corps (ROTC) activities

Providing for internal security, including nuclear attack recovery plans (U.S. Army Alaska, 1962)

From 1961 to 1986, the Army focus for FWA changed from primarily supporting and defending a USAF installation to serving the other Army missions. The Army emphasized ground and air defense, and also used the post for aviation and training needs. Fort Wainwright, Alaska was the home of the 6<sup>th</sup> Light Infantry Division (LID) from 1986 to 1994, and served as the division's headquarters from 1990 to 1994. Fort Wainwright, Alaska is currently the home post for the 1st Stryker Brigade Combat Team (SBCT), 25th Infantry Division (1/25 SBCT). The Bureau of Land Management's (BLM's) Alaska Fire Service is an FWA tenant. The BLM currently occupies a number of buildings on the eastern end of the North Post in the NHL. Their occupation of the buildings does not change the buildings' eligibility to either the NHL or the Cold War Historic District. As a tenant, BLM is responsible for the maintenance of the buildings they occupy.

Overall, the Cold War resulted in long-term militarization of Alaska that had a tremendous impact on Alaska history. As one military geographer explained, "Alaska's geographical position, climate, and training environment gave it the highest priority for enormous military investment during the Cold War. The militarization of Alaska ... changed both the cultural and natural landscapes. ... Alaska was profoundly shaped by its status of northern sentinel during the Cold War" (Hummel, 2002).

### Cold War Themes

Beginning in 1988, cultural resource studies began addressing the built legacy of surviving Alaska Cold War properties. In 1996, the Alaska SHPO prepared a draft study in conjunction with the DoD Legacy Resource Management Program that identified the following major themes for Alaska Cold War military properties:

- Detect and Monitor
- Intercept and Respond
- Guard and Defend
- Communicate
- Research

In addition to the themes identified by the Legacy study, the Alaska SHPO has identified two other Cold War themes for FWA: (1) Support and Logistics and (2) Training and Readiness. Some of the themes are more closely associated with either the USAF or the Army. For example, Detect and Monitor is a USAF-associated theme while Guard and Defend is an Army theme.

The Context Study identified properties that are associated with the Cold War themes, and many of the property types fall into more than one theme. For example, hangars are associated with Guard and Defend and Detect and Monitor. The Cold War property types include the following:

Hangars, airfields, and flight lines

Transmitters, radar and communication shops, airways communication facilities, and air defense command centers

Combat Alert Cells, firing ranges, ammunition storage, and classrooms/training centers

Research facilities (the AAL and the Cold Regions Research and Engineering Laboratory [CRREL])

Major infrastructure projects during the early years of the Cold War included family housing, barracks, and utilities for military and support personnel. These buildings are not considered historically significant to the Cold War. Infrastructure, which is essential for the operation of an installation, is not directly mission-related; every post has similar infrastructure. Because these types of properties are common to every post, they are viewed as noncontributing to the potential Cold War Historic District.

In addition to the buildings constructed specifically for the Cold War, USARAK continued to use a number of the WWII-era buildings to support Cold War missions. Most of these buildings within the NHL have been altered. Over time, changes and additions were made to these buildings, including new siding, roofs, doors, and windows.

### Summary of FWA's Cold War History

Fort Wainwright, Alaska and its predecessor, Ladd AFB, had multidimensional Cold War histories. The installation, located in the heart of Interior Alaska during a time when Alaska itself was a front line in the Cold War, played a role in that front-line defense. Ladd AFB was the scene of significant strategic aerial reconnaissance, air defense operations, and Arctic research. When the Army assumed control of the installation in 1961, FWA became devoted to Army Cold War missions such as aviation, training, and ground defense. As the Cold War neared its conclusion in the late 1980s, the Army added a worldwide deployment mission with the arrival of the 6<sup>th</sup> LID. Although the tenure of the 6<sup>th</sup> LID at the installation was short-lived, the worldwide deployment mission continues.

### 3.1.2 Building Evaluations Summary

Following completion of the Cold War Context Study, a field survey of the historic resources, of those currently listed on the NRHP or NHL, and those that are not listed, was conducted to obtain the information needed to describe the affected environment for the Aviation EIS. The survey was based on the identified AF, to focus on the specific areas at FWA that could be affected by the proposed action (see Figure 1).

#### Buildings Survey

As noted previously in Section 3.0, the AF was delineated to be the buildings generally near the NHL. The field survey was conducted by Northern Land Use Research, Inc. in October 2006. Appendix B, Survey Forms, is provided on the CD within the pocket of this binder. The team evaluated buildings within the existing NHL to record existing conditions and their architectural integrity. The survey also included buildings within the AF but not part of the NHL or individually listed.

In October 2006, a total of 132 properties were surveyed. The buildings survey collected existing conditions for those buildings that contribute to the NHL. The survey **did not re-evaluate** the buildings' continuing eligibility to the NHL. Properties previously identified as potential Cold War resources were also documented. The survey included photographing and completing building survey sheets of all buildings in the AF. A database was created with the information collected from the field survey and will be used in the future to track changes to the buildings and demolitions.

### Building Descriptions/Architectural Recordation

From the database, building recordation forms conforming to Alaska SHPO standards were generated on each building. In addition, Alaska Architectural recordation forms were also completed in accordance with Alaska SHPO requirements.

### Defining the Cold War Historic District

To be listed in the NRHP, a property must have historic significance and integrity, and generally be at least 50 years old. Certain properties are exempt from the 50-year rule if they possess exceptional importance. Historic significance may be present in districts, sites, buildings, structures, and objects that possess integrity. A property must demonstrate significance in at least one of the following areas, each of which describes an NRHP criterion (NPS, 1997a):

Association with events that have made a significant contribution to the broad patterns of our history

Association with the lives of persons significant in our past

Embodiment of the distinctive characteristics of a type, period, or method of construction or representative of the work of a master, or possessing high artistic value, or representative of a significant and distinguishable entity whose components may lack individual distinction

Yielding, or likely to yield, information important in prehistory or history

Historic significance is the importance of a property to a community, state, or the nation. In addition to the NRHP criteria previously cited, significance is defined by the area of history that the property made important contributions (in this case, the Cold War) and by the period of time during which those contributions were made (Cold War 1946 to 1991) (NPS, 1997b).

In determining whether a property at FWA is historically significant to the Cold War, the following items were considered:

Which types of properties were associated with the Cold War historic context and its associated themes

The ways in which the properties represent the Cold War theme(s)

An evaluation of the integrity of the potential Cold War properties

Although the Cold War period of historic significance is 1946 to 1991, the year 1961 was selected as the cutoff date for evaluating properties for the Cold War Historic District because the properties being evaluated would be at least 50 years of age.

Properties less than 50 years old were evaluated to determine whether they contribute to the historic district. Criterion G of the NRHP requires that a building less than 50 years old must be exceptionally significant to be considered eligible. Buildings at FWA, if less than 50 years old, must be exceptionally significant examples of one or more of the Cold War themes to be eligible for the NRHP. The building survey determined that there are currently no structures that would be considered exceptionally significant according to NRHP criteria. Future studies can determine whether properties constructed after 1961 (as they reach the 50-year mark) are eligible for the district, reflecting the Cold War era between the years 1961 and 1991.

To be listed on the NRHP, a property must not only be significant under the criteria, but must also have integrity. The evaluation of integrity is grounded in an understanding of the physical features of a property and how they relate to its significance (NPS, 2007). To retain historic integrity, a property will always possess several, and usually most, of these aspects. A property is defined as having integrity of (1) location, (2) design, (3) setting, (4) materials, (5) workmanship, (6) feeling, and (7) association. The retention of specific aspects of integrity is required for a property to convey its significance. Integrity, combined with one or more NRHP criteria, will determine if a property is eligible for the NRHP. Determining which of these aspects are most important to a particular property requires knowing why, where, and when the property is significant.

Properties, particularly DoD properties, change over time as their uses and missions change. For a property to have integrity, it is not necessary for it to retain all of its historic physical features or characteristics. However, according to the NPS, a “property must retain the essential physical features that enable it to convey its historic identity. The essential physical features are those features that define both why a property is significant and when it was significant” (NPS, 2007).

### **Cold War Historic District: Which Buildings Are Eligible?**

When determining the potential for a historic district, an evaluation is made on what buildings would be associated with the district. A building “contributes” to the historic district if it is associated, in this case, with the Cold War themes at FWA. If a building does not fit the criteria for the NRHP and is not associated with a Cold War theme at FWA, then building is “noncontributing.” For example, the hangars and flight line are contributing elements to the Cold War missions at FWA. Support facilities such as housing and barracks would not be considered contributing since all military installations/bases/posts have these kinds of buildings; therefore support buildings are not part of the Cold War Historic District.

Based on an evaluation of the 132 properties surveyed in October 2006, 31 were determined to be contributing properties to the potential Cold War Historic District. Constructed between 1946 and 1961, these structures were used to fulfill the Cold War missions at FWA. Nineteen structures constructed during WWII, and contributing buildings to the Ladd Field NHL, were also used during the Cold War and were determined to contribute to the Cold War Historic District. A complete list of contributing and noncontributing structures is presented in Appendix A. Table 4 details the number of properties that are considered contributing to the NHL, the Cold War Historic District, or both. Continued consultation with the AK SHPO is needed prior to these findings being finalized.

TABLE 4  
 Results of the Buildings Survey

Contributing Buildings/Structures	Number of Properties
Contribute to the NHL	11
Contribute to the Cold War Historic District	31
Contribute to Both the NHL and the Cold War Historic District	19
Do not contribute to the NHL or Cold War Historic District	71

### Summary of the Buildings Survey

Fort Wainwright, Alaska is composed of structures associated with WWII. It also has a collection of Cold War resources that convey part of the history of the Cold War in Alaska and the missions of Ladd Field/FWA. The properties are considered as eligible for inclusion in the Cold War Historic District because of their association with themes identified in the Cold War Context Study: Detect and Monitor, Intercept and Respond, Guard and Defend, Communicate, Research, Support and Logistics, and Training and Readiness. The historic district's resources span the range of Cold War themes and make it a good example of changes over time as the Cold War evolved, reflecting the political tensions and military mission.

Continued consultation with the AK SHPO is needed prior to these initial findings concerning the Cold War Historic District being finalized.

### 3.1.3 Determining the Cold War Historic District Boundary

Based on the information gathered during the buildings survey and the determination of which buildings and structures to the NHL, the Cold War Historic District, or both a map was created to visually illustrate these different groups of resources. This map is provided in Appendix C of this technical report.

#### Existing NHL

The original 1984 Ladd Field NHL nomination included 22 buildings and structures at Ladd AFB that were historically significant to WWII. Between the 1984 and 2000, eight WWII buildings were demolished and two double hangars (Hangars 4 and 5 and Hangars 7 and 8) were removed from the NHL. In 2000, a revised Ladd Field NHL nomination was prepared that included 34 buildings and structures. Hangars 4 and 5 and Hangars 7 and 8 were originally included in the NHL, but they were actually constructed after WWII so this correction was made with the 2000 revised nomination. The 2000 nomination added buildings to the NHL and the boundary was revised to reflect the new additions and demolitions. Since 2000, 5 of the 34 buildings in the revised 2000 NHL nomination and boundary have been demolished.

Of the buildings demolished within the NHL, several were large structures. Structures demolished between 2000 and 2008 include the former power plant (located in the North Post area), two Kodiak hangars on the eastern end of the north side of the flight line, and

Hangars 4 and 5 on the south side of the flight line. In 2005, Hangar 6, a Birchwood hangar, burned. A new Hangar 6 has been constructed on this site.

The boundary of the NHL has changed over time, much like the military mission. The original nomination included 22 buildings. In 1997, a new boundary was proposed but never accepted. In 2000, a new boundary for the NHL was proposed, based on the revised nomination, illustrating that the boundaries have been more fluid. Of the buildings that comprise the NHL, the buildings on the North Post have always been the core of the NHL.

### Cold War Historic District Boundary

Based upon the results of the building survey, the boundaries of the Cold War Historic District would include the entire NHL as well as additional buildings and structures immediately adjacent to the NHL and south of the flight line. One building, the “new” power plant, is also included in the Cold War Historic District. The power plant is included in the district because of its monumental size. The landscape of FWA and the surrounding area is flat and open, and the power plant is equally as visible as Hangars 1, 2, and 3. In addition to its contribution to the historic landscape of FWA, the physical integrity of the structure is high, reflecting the architecture of industrial buildings during the 1950s.

Continued consultation with the AK SHPO is needed prior to these initial findings concerning the Cold War Historic District being finalized.

### Summative Graphics/Maps

A large (30- by 40-inch) map was developed for this study to visually illustrate the boundaries of both the NHL and the Cold War Historic District. It provides the user with a convenient visual tool to illustrate the boundaries of each district, which buildings contribute to the NHL, which buildings contribute to the Cold War Historic District, those buildings that contribute to both districts, and those buildings that lie within the boundaries of the districts but do not contribute to either. For visual clarity, the map is colored-coded for each classification. The map, presented as Appendix C, is found in the pocket of the binder for this report.

## 3.2 Visual Resource Characterization

To assess the potential visual effects of the Proposed Action alternatives included in the Aviation EIS, an initial visual characterization of the AF was performed. The AF shown in Figure 1 is also appropriate for assessment of visual resources at FWA, and includes the viewshed from which physical changes associated with the Proposed Action (for example, the construction of new buildings) would be seen. The Proposed Action viewshed primarily includes Ladd Field and the areas within the Ladd Field NHL boundary and Cold War Historic District. The Ladd Field portion of FWA is located within several miles of non-Post-affiliated residential areas and several major highways and arterials (Richardson Highway, the Steese Highway, the eastern end of Airport Road and Badger Road). However, viewers in areas off Post would not be able to see the changes to the existing viewed landscape near Ladd Field that would be associated with the action alternatives. The relatively flat terrain and the presence of trees and buildings screen views of Ladd Field from those in areas off Post.

Figure 5 shows three locations around Ladd Field that were used for an initial visual characterization. The initial characterization of visual conditions at FWA is focused within and near the Ladd Field NHL boundary and the Cold War Historic District areas adjacent to Ladd Field. These parts of FWA would potentially be most affected by the Proposed Action alternatives from a visual impact perspective. As mentioned previously, despite its relatively close proximity to potential viewers, Ladd Field is not visible from many areas outside of FWA. Even views of Ladd Field from within many parts of FWA are obscured by the trees and buildings that are scattered across the flat terrain of the main part of the Post. As viewers within FWA get closer to Ladd Field, its openness and expansive views create a visual contrast to most areas surrounding the airfield that have been developed. The runway and taxi portions of Ladd Field are approximately 0.6 mile (2 kilometers) wide by approximately 1.8 miles (4.75 kilometers) long. Even though the great expanse of the airfield facilities are visually dominant, the buildings and other structures and improvements that surround them help to visually define the boundaries of Ladd Field, adding to its visual character. Figures 6, 7, and 8 are photographs taken from each of the three initial characterization locations. In these photographs, labels of the visually and historically significant buildings are identified. Views from the west side of Ladd Field (and changes to those views as a result of the Proposed Action alternatives) are depicted and analyzed in Section 4.0 of this technical report.

**FIGURE 5**  
Locations of Representative Viewpoints at Fort Wainwright

**FIGURE 6**  
Panoramic Characterization from East Side of Ladd Field

**FIGURE 7**  
Characterization Photo from South Side of Ladd Field

**FIGURE 8**  
Panoramic Characterization from West Side of Ladd Field

# 4.0 Impacts Assessment

---

Section 4.0 of this technical report identifies the No Action alternative and two Proposed Action alternatives considered in the Aviation EIS for the reorganization and augmentation of existing USARAK aviation assets. Additional detailed information about these alternatives is provided in the Aviation EIS. Following is a discussion of the potential effects to cultural and visual resources from each of these alternatives.

Because the scope of cultural and visual resources is limited to the FWA AF as described in Section 1.3, this impacts assessment is also limited to the AF with the potential for impacts from the Proposed Action alternatives.

## 4.1 Alternative 1: No Action

Under the No Action alternative, USARAK would continue to use existing units and assets to support aviation and integrated training requirements. No demolition or new construction would take place and the existing number of USARAK Soldiers in Alaska engaged in aviation activities would remain the same under the No Action alternative. A Potential Adverse Effect of No Action alternative would be the loss of an undertaking that would continue the historic aviation use of the airfield. The No Action alternative, however, does not meet the purpose and need for the proposed action or the screening criteria established for reasonable alternatives. Therefore, the No Action alternative is analyzed in accordance with NEPA as a benchmark against which to compare the expected environmental impacts of the action alternatives.

## 4.2 Alternative 2: Aviation Task Force

### 4.2.1 Aviation Personnel (and Others)

Alternative 2 would convert existing USARAK aviation assets into a Task Force, and would involve construction of new infrastructure at FWA as well as some minor facility demolition. Under Alternative 2, additional Soldiers and helicopters would be stationed at FWA only, and increased aviation training would be conducted on existing Alaska military lands and ranges. New facility construction at FWA would be required to accommodate the increased number of Soldiers.

### 4.2.2 Facilities Construction and Demolition

The construction of new barracks, hangars, helicopter and vehicle parking and support facilities would occur at FWA to accommodate the increased aviation assets and associated housing needs. Under Alternative 2, the following three existing structures would be demolished: Building 3475 (shipping/receiving and administrative facility), Building 3477 (vehicle maintenance shop), and Building 3011 (Water Treatment Building). No construction or demolition is planned at installations other than FWA under Alternative 2.

None of the three buildings to be demolished are listed on or considered eligible for the NRHP. Buildings 3475 and 3477 lie outside the boundaries of both the Ladd Field NHL and the Cold War Historic District. Neither building is considered individually eligible for the NRHP under any criterion. Building 3011, constructed in 1949, lies within the boundary of the Cold War Historic District but is a noncontributing element to the district. Demolition of these three structures would not result in any direct or adverse impacts to any historic structures or districts.

Approximately 2,375,434 square feet (54.5 acres) of new facilities would be built, including barracks, hangars, helicopter and vehicle parking and support facilities. All new construction would be south of the Ladd Field flight line. Specifically, construction of new hangars and maintenance facilities would be located on the Ladd Field flight line and within the NHL. These actions would result in direct impacts to the historic integrity of the NHL, affecting its setting, feeling, and association with WWII. The size of the new hangars would be out of scale with many of the existing historic buildings located in the Ladd Field NHL. Construction of new hangars would have a direct affect to the viewshed of the NHL. The impact would be considered a “moderate” impact to the NHL. A discussion of the impacts to the viewshed is found in Section 4.5 of this technical report.

Areas immediately adjacent to structures within the Ladd Field NHL would be used as outdoor parking for Chinook and Blackhawk helicopters. This use of the existing flight line for parking would not result in direct impacts to any historic structures as the historic use would be maintained.

Construction of many of the additional new facilities would be outside of the Cold War Historic District. The new construction would be similar in size, massing, and materials as many of the existing structures in the Cold War Historic District and the areas for proposed new construction. There would be no historic integrity impacts to the Cold War Historic District.

Construction at FWA would require the use of heavy machinery throughout the site for site preparation, to include vegetation clearing and site grading for building foundations, as well as material transport and delivery. Construction-related ground disturbance would not result in direct impacts to archaeological resources because the location of the new facilities would be in areas that have a low probability for archaeological resources. Potential impacts to archaeological resources through inadvertent discovery, however, could occur during construction. In addition, digging and pile driving during construction could result in temporary direct effects to historic buildings immediately adjacent to the construction site due to vibration, but the effects would not be significant.

Auditory impacts to both the NHL and the Cold War Historic District would be minor for Alternative 2. The area bounded by the NHL has experienced thousands of takeoffs and landings associated with the military missions of WWII. During the Cold War, the missions changed, but the flight line and structures in the NHL and the Cold War Historic District continued to be used for aircraft operations. Currently, more than 5,000 estimated annual takeoffs and landings occur at Ladd Field. Under Alternative 2, annual takeoffs and landings would increase by approximately 3,000. Therefore, there would not be any changes to the auditory impacts to the NHL and the Cold War Historic District. Additional helicopter use of Ladd Field would be compatible with the current mission of FWA and its

original use as a military airfield. The proposed increase in takeoffs and landings under Alternative 2 would not alter the integrity of the NHL.

No adverse impacts to cultural resources at FWA would occur under Alternative 2 as a result of construction-related O&M activities. Historic properties are protected by existing USARAK guidelines for O&M of facilities and infrastructure within the NHL. Under Alternative 2, USARAK will continue to apply these guidelines.

## **4.3 Alternative 3: Combat Aviation Brigade**

### **4.3.1 Aviation Personnel (and Others)**

Alternative 3 would expand existing USARAK aviation assets to a Combat Aviation Brigade (Brigade). It is estimated that most (60 percent) of the Brigade would be stationed at FWA, with the remaining Soldiers split evenly between FRA and Eielson AFB. Increased aviation training would occur on existing Alaska military lands and ranges, and additional infrastructure would be required at FWA. The new facility construction at FWA would accommodate the increased number of Soldiers stationed at the facility under this alternative. Construction, O&M, and auditory impacts for Alternative 3 would be the same as for Alternative 2.

### **4.3.2 Facilities Construction and Demolition**

Building demolition and the construction of new barracks, hangars, helicopter and vehicle parking and support facilities would occur at FWA to accommodate the increased aviation assets and associated housing needs under Alternative 3. Approximately 3,175,063 square feet (72.9 acres) of new construction would occur under this alternative. All construction described in Alternative 2 would be the same for Alternative 3. However, Alternative 3 would also require the construction of additional vehicle parking, headquarters, operational and administrative, barracks and storage facilities. In most cases, the facility footprints identified for the Task Force would be enlarged to include the greater area required to support the Brigade. No construction or demolition is planned at installations other than FWA under Alternative 3. Alternative 3 also includes the demolition of the same three buildings described in Alternative 2.

Impacts to the NHL and the Cold War Historic District under Alternative 3 would be the same as those for Alternative 2. A discussion of the impacts to the NHL viewshed is found in Section 4.5 of this technical report.

Construction-related impacts to archaeological resources under Alternative 3 would be the same as those for Alternative 2. No new construction would occur under Alternative 3 at either FRA or Eielson AFB; therefore, impacts to cultural resources at these installations would not occur.

Construction-related O&M impacts under Alternative 3 would be the same as those identified for Alternative 2. The U.S. Army Alaska has established procedures that protect historic properties during ongoing O&M activities.

## 4.4 Impacts to NHL and Cold War Historic District

With the implementation of any of the Proposed Action alternatives, a potential exists to affect the overall historic integrity of the NHL. An evaluation was conducted to determine the potential impacts to the NHL. Considerations of impacts to the Cold War Historic District were also evaluated. The evaluation of the impacts to the Cold War Historic District considered the Cold War missions at FWA and the existing resources associated with the Cold War.

The NHL and the Cold War Historic District have boundaries that overlap in several areas, however the impacts associated with the Proposed Action would result in different impacts to these two different cultural resource areas. More clearly, this statement means that the Proposed Action could moderately impact the NHL but would not impact the Cold War Historic District, even though their boundaries overlap.

The evaluation criteria for cultural resources include historic integrity, visual, and auditory (see Table 5). These criteria are the basis of the significance criteria used to assess the potential impacts of the action alternatives compared with the No Action alternative. The following discussion provides an analysis of the Proposed Action alternatives compared to the significance criteria.

Historic integrity is a critical component of a historic resource. The historic integrity of a building is defined as the ability of the building to convey its historic significance. Based on the eligibility criteria for the NRHP, a building must be significant to an event (Criterion A), a person (Criterion B), an architectural style (Criterion C), or be able to provide information that adds to our history (Criterion D). To be considered significant, in addition to the previous four criteria for the NRHP, a building must have all or some of the seven elements of integrity that help convey its history – setting, location, association, materials, workmanship, design, and feeling.

The visual criterion evaluates the impacts of new construction to the NHL. The visual criterion focuses on the existing NHL historic district and its character defining elements of setting, feeling, design (including scale and massing), and association. New construction, either in scale or number, could be such that the NHL no longer conveys its setting of a WWII post. Too much new construction could affect the original design of the Post. The feeling and association of the Post could be affected with new construction materials and scale impacting the NHL such that it no longer conveys its sense as a WWII Post.

Auditory criterion evaluates the impacts of new uses within the NHL and the surrounding areas that could impact the setting, feeling, and association of the NHL. Through the decades, the NHL has had numerous military missions with increases and decreases in use and new larger, smaller, and louder aircraft. If new missions of the action alternatives greatly increase what have been the historic noise levels of the Post’s flight line, then that could impact the setting, feeling, and association of the NHL.

TABLE 5  
Evaluation Criteria for Cultural Resources

Topic	Criteria		
	Severe	Moderate	Minor
Historic Integrity	Historic resources within the NHL are demolished; the integrity of most of the individual buildings has been substantially altered; or there are so many new buildings in the NHL district that it no longer conveys its WWII period of significance	Scale and number of new construction affect integrity of setting, feeling, and association	New construction increases the density of the NHL; will affect historic integrity of setting and association
Visual	The integrity of most of the individual buildings has been substantially altered or there are so many new buildings in the NHL district that it no longer conveys its WWII period of significance	Scale and number of new construction affect integrity of setting, feeling, association, and materials	New construction increases the density of the NHL; will affect setting and association
Auditory	Dramatic increase in the number, size and sound of new military equipment and training missions	Increase in the number and sound of new military equipment and training missions	New military equipment, few in number

#### 4.4.1 Materials and Methods

Evaluation of the impacts to the status of the NHL included reviewing the NHL nomination and supporting documentation on the significance of the landmark to U.S. history. A review of the existing condition of the properties within the NHL was also conducted. Careful consideration was given to the impacts of new construction within the boundaries of the NHL.

Investigation of the impacts to the Cold War Historic District included reviewing the Cold War context statement and the integrity of the existing properties within the potential district that could be affected by implementation of any of the proposed alternatives.

#### 4.4.2 Potential Impacts to the NHL

The impacts to the NHL would moderately affect the historic integrity and viewshed associated with the NHL’s WWII history. The NHL has had numerous changes over time. Many of the buildings within the NHL have been rehabilitated with original materials

including doors, windows, siding, and roofs replaced. Additions were added to some WWII buildings. These changes have affected the NHL's historic integrity of design, materials, workmanship, and location. In addition, demolitions have reduced the density of the NHL, affecting setting, association, and feeling of the NHL.



Building 1555



Building 1565



Building 1562



Building 1557, Hangar 1

### Contributing Properties in the NHL

To be listed as an NHL means that the historic resources are the best representatives for the themes for which they have been nominated. National Historic Landmarks are a very small, elite group of historic resources when compared to those properties listed in the NRHP. While there may be 100,000 resources listed on the NRHP, there are fewer than 2,500 NHLs. An NHL must have a high degree of integrity (NPS, 2007) and, therefore, changes and alterations to an NHL, either in the past or into the future, must be monitored carefully.

The Proposed Actions would result in moderate impacts to the NHL. New construction for the Proposed Actions would increase the density of the structures within the NHL. The new construction would be on the south side of the flight line, not directly affecting the historic integrity of the North Post of the NHL; however, there would be visual impacts. The south side of the NHL has had numerous changes as buildings were demolished under a

Memorandum of Agreement with AK SHPO and NPS and new hangars and other mission-related Cold War structures were constructed.

Historically, the south side of the flight line had more large-scale structures. In addition to Hangars 2 and 3, Hangar 6, a Birchwood hangar, was located on the south side of the flight line. On the eastern end of the North Post there were two Kodiak hangars. Hangar 6 has since burned down and the two Kodiak hangars have been demolished. After WWII, Hangars 4 and 5 and Hangars 7 and 8 were constructed on the south side of the flight line as part of the Cold War build-up. Hangars 4 and 5 were demolished but the combined Hangars 7 and 8 remain. A new Hangar 6 was just recently constructed.

The design of the new Hangar 6, approved by the Alaska SHPO, is larger than the original Birchwood hangars. While the installation has had more hangars in the past, none were to the scale of the hangars in the Proposed Actions. As can be seen in Figure 9, since this 1949 FWA aerial, the number of structures on the south of the flight line has changed. Hangars 2 and 3 were the largest structures, with Hangar 6 being slightly smaller. Smaller structures were also in this aerial that have since been demolished. Hangars 4 and 5 and the combined Hangars 7 and 8 were not constructed until the mid-1950s.

Many of the buildings included in the 2000 NHL nomination were classified as WWII temporary "Butler buildings." Buildings constructed during WWII were classified as either permanent or temporary, or in some cases even semi-permanent. Permanent buildings were constructed of concrete and metal while temporary buildings were constructed of wood. During WWII, with the scarcity of metal for construction, many of the buildings constructed for mission support, barracks and warehouses, were constructed of wood. A nationwide Programmatic Agreement (PA) for the demolition of WWII temporary buildings was signed in 1986 and amended in 1990. The PA defined the stipulations for the demolition of WWII temporary buildings, including documentation of each building type and a historic context defining the construction during the war. Several of the buildings constructed during WWII and within the NHL were demolished under this PA.

FIGURE 9  
Ladd Field, 1949



With these changes to the NHL in previous years, the impacts associated with action alternatives would be moderate. There would be no auditory impacts to the NHL.

#### 4.4.3 Potential Impacts to the Cold War Historic District

Construction of new hangars and mission-related structures planned for the south side of the flight line would be constructed within the boundaries of the Cold War Historic District. Also, a portion of the construction for any of the Proposed Actions would lie outside the boundaries of the Cold War Historic District in South Post. The Cold War Historic District's boundaries are similar to those of the NHL, however the criteria for integrity and eligibility for the Cold War Historic District is less stringent than that for the NHL. The period of significance for the Cold War is 1946 to 1991. While most Cold War construction occurred before 1961 and much of it occurred on the south side of the flight line, construction of new structures continued in the 1970s and 1980s. Within the Cold War Historic District, there is no overall plan for design, materials, and setting as there was with the NHL. Buildings and structures were constructed as needed in the areas determined to be most efficient or available.

New construction for any of the Proposed Actions would not affect the integrity of the Cold War Historic District because more modern construction, associated with the Cold War, already lies within the district and the AF. The Cold War Historic District is considered historically significant for events associated with the Cold War and the Cold War mission, not with the architecture of the district. The number of buildings within the Cold War Historic District has increased, but as with the NHL, there have been demolitions and new construction over the years. The Cold War Historic District has changed over time, reflecting the military mission, therefore new construction would not impact the Cold War Historic District's historic integrity.

#### 4.4.4 Cultural and Visual Resources Cumulative Effects

Military development in Alaska during WWII and the Cold War is central to Alaska's modern history, and Alaska's vast land and airspaces continue to provide unique opportunities for military training and mission operations. Military threats, however, have continued to change. As Army and USAF missions evolved to meet current threats and requirements, much of the early infrastructure became outdated or obsolete, as well as difficult and expensive to maintain. The Army and USAF demolished many of the physical remnants of the WWII and Cold War eras despite their significance to Alaskan and, in some cases, national history. The cumulative loss of resources places more importance on those that remain and retain historic integrity.

As noted in Section 4.3 of the Aviation EIS, both of the action alternatives result in moderate impacts to historic properties associated with the WWII era at FWA. New hangars would be out of scale to the remaining historic buildings and the NHL. Other previous and foreseeable actions were reviewed to determine if any of these actions have affected or would cumulatively affect cultural resources associated with the WWII and Cold War eras. The other actions determined to be relevant to this analysis were those that involved construction or demolition of facilities on military lands.

Previous actions that have affected cultural resources within the NHL include the following:

- In 2001, demolition of 12 buildings, 3 of which (1050, 1560, and 3009) were contributing elements to the NHL. Resulted in significant adverse impact.
- In 2005, exterior signage to Building 1021,. Res Most new construction for any of the Proposed Actions would lie inside the boundaries of the Cold War Historic District. Resulted in adverse but temporary impact.
- In 2006, the BLM developed a Master Plan for the Alaska Fire Service. Resulted in no impact.
- In 2006, installation of fire alarm antennas within the NHL. Resulted in no adverse effect.
- In 2006, installation of roofs over the exterior fire escapes for Building 1557, Hangar 1. Resulted in no adverse impact.
- In 2007, construction of new family housing north of the NHL. Resulted in visual adverse impact to the NHL and specifically Building 1024.
- In 2008, construction of an Americans with Disabilities Act-compliant ramp for Building 1047. Resulted in visual adverse impact and visible alteration to the exterior of a contributing element.
- The demolition of buildings within the NHL adversely impacted historic properties and the historic integrity of the NHL.

The future actions listed as follows are not related to the proposed action:

- Construction of storage facilities
- Construction of new MP offices
- Construction of a new Provost Marshal office
- Construction of new Post office and distribution center

These are planned for construction south of the Ladd Field flight line. They all lie outside the boundaries of the NHL. Some of these projects are within or adjacent to the Cold War Historic District. Construction of these new facilities will not affect historic properties within the NHL or the Cold War Historic District. These actions do not contribute to potential cumulative effects.

In the future, the Army plans to evaluate the continued use or disposition of Hangars 2 and 3 at FWA. The hangars no longer are capable of meeting mission requirements at Ladd Field. The Army has evaluated several options for rehabilitation or reuse of the hangars, which is documented in the CARP. A summary of the CARP is provided in Appendix D of this technical report. At this time, a cumulative impacts analysis cannot be made for cultural or visual resources related to the future management of Hangars 2 and 3 as a preferred course of action for future management has not been selected. A variety of alternatives will be evaluated more thoroughly in the future to assist in the ultimate management decision.

Future actions on military lands other than FWA include the following:

- Construction associated with the beddown of C-17s at Elmendorf AFB (runway expansion at Allen AAF)
- Construction associated with the beddown of F-22s at Elmendorf AFB
- Construction associated with the relocation of the Air National Guard (ANG) 176<sup>th</sup> Wing
- Disposal of assets at Kulis ANG Base (ANGB) associated with the relocation of the ANG 176<sup>th</sup> Wing

Historic properties are not expected to be affected by the beddown of the C-17s (USAF, 2006). This project does not contribute to potential cumulative effects.

The F-22 beddown at Elmendorf AFB requires demolition of four buildings from the Cold War era. These buildings have not been evaluated for historic significance, but they were constructed during the period of significance for the Cold War. The environmental assessment (EA) for this action (USAF, 2006) notes that consultation with SHPO will be required prior to any demolition.

The relocation of the ANG affects historic properties on Elmendorf AFB. Historic properties could be affected by renovation of an NRHP-eligible structure, alteration of the setting of another NRHP-eligible structure, and renovation of seven buildings of the Cold War era that have not been evaluated for NRHP eligibility. As noted in the EA (USAF, 2007), SHPO consultation has been initiated and will be completed before renovations begin.

None of the properties at Kulis ANGB are eligible for the NRHP. Therefore, this project does not contribute to cumulative effects.

The foreseeable projects along with the Proposed Action represent a cumulative impact to historic properties of the WWII and Cold War eras.

#### 4.4.5 Summary of Impacts to the NHL and Cold War Historic District

Impacts to the NHL would be limited to the moderate effects associated with new construction within the existing boundaries of the NHL. Other proposed components of Proposed Action would not impact the NHL or Cold War Historic District.

### 4.5 New Construction Visual Impact Assessment

All of the changes to the existing visual environment associated with the alternatives would occur in the FWA AF, as noted throughout this technical report. The focus of visual impact assessment was limited to FWA because it is the location where varying combinations of new buildings would be constructed. This analysis is focused on the visual impacts to cultural resources as a result of implementing the action alternatives.

#### 4.5.1 Materials and Methods

To analyze the effects of the alternatives on visual resources, two types of assessments were used. The first was a highly general qualitative description of how each alternative would affect the existing visual setting of the cantonment area at FWA, other facilities and training

areas, and flight paths. The second type of assessment involved a more detailed examination of how the alternatives would affect views from specific representative viewing locations at FWA.

Three locations within or near the Ladd Field NHL were selected as representative viewpoints. Two of the three are located in areas that offer some of the most visually accessible and wide-open views of the NHL and the potential Cold War Historic District. The third viewpoint was selected from an area close to the NHL (and within the potential Cold War district) that has a high number of viewers because of nearby barracks and busy Neely Road. The existing visual condition of each viewpoint was compared with the view that would be seen from each viewpoint under each alternative. These three representative viewpoints are shown in Figure 5.

Computer-generated illustrations were developed to assist in the evaluation of what the view would look like with each alternative. The illustrations provided the mechanism for each alternative to be compared with the existing condition. The U.S. Army Corps of Engineers (USACE) evaluation criteria, *Evaluation Criteria for Visual Resources* (USACE, 1988), was used to determine the degree of impact from each alternative on the existing conditions of the three viewpoints. The evaluation criteria assessed whether an alternative would have a significant impact on visual resources in terms of whether the alternative affected the viewshed or vista scale or degree, a sensitive receptor, or a new physical feature (see Table 6).

TABLE 6  
Visual Resources Significance Criteria

Topic	Criterion
Viewshed or Vista Scale or Degree	Permanently alter a site so that a sensitive viewing point or vista is obstructed or adversely affected, or if the scale or degree of change appears as a substantial, obvious, or disharmonious modification of the overall view.
Sensitive Receptor	Prevent or substantially impair the view from a sensitive viewpoint for the duration of project construction.
New Physical Feature	Introduce physical features that are substantially out of character with adjacent developed areas.

## 4.5.2 Viewshed Analysis

### Alternative 1: No Action

Under the No Action alternative, no new buildings would be constructed. Therefore, the appearance of the southwest portion of NHL will not change under the No Action alternative. Figures 10, 11, and 12 show the view that would result from implementation of the No Action alternative, which is the same view as the existing conditions.

### Alternative 2: Aviation Task Force

Alternative 2 would result in the construction of new buildings, removal of existing buildings, and the addition of other facilities (parking, storage, wash apron, etc.) into the

viewed landscape. The most visible changes within and near the NHL would be the construction of two new hangars in the southwestern portion of the NHL. The proposed Chinook Hangar would be constructed approximately 200 feet east of Hangar 3. The Chinook Hangar would extend beyond the north face of Hangar 3, approximately 500 feet to the edge of the South Taxiway. It would form a visual barrier that would block existing views to the east and in some areas northeast from Hangar 3 (and areas west of it). By extending out to the South Taxiway, it would also block views to Hangar 3 (and to a lesser extent, Hangar 2) from the eastern and northern portions of the NHL. The proposed Kiowa Hangar would also introduce a large-scale structure within the NHL. The structure would be constructed approximately 1,500 feet to the east of Hangar 3. The presence of this building would not change the appearance of the NHL as much as the proposed Chinook Hangar would, but the Kiowa Hangar would be very visible from within the NHL. The two new hangar structures would be much larger in scale and different in design (rectangular with flat roofs rather than rectangular with barrel vaulted roofs) than existing Hangars 2 and 3. As can be seen in the simulated views from Viewpoints 1 (Figure 13), Viewpoint 2 (Figure 14) and Viewpoint 3 (Figure 15), the greatest change to the visual character of the NHL would be from the introduction of new hangars next to the South Taxiway. The presence of the new structures (particularly the proposed Chinook Hangar) would change the open, historic character of the southern central portion of the NHL near Hangars 2 and 3. Based on criteria, the Chinook Hangar would have a moderately significant localized (near Hangars 2 and 3) visual impact. They would have less than significant impacts from other areas of the NHL.

In addition to the new buildings near the South Taxiway that would be constructed within the NHL under Alternative 2, new outdoor parking areas for helicopters would be constructed. The southern-most parking area would be situated north of Hangars 2 and 3 and immediately west of the proposed Chinook Hangar and would be used for parking Chinooks. Part of this area is currently used for parking helicopters. Because the area for the potential outdoor parking is already paved and is used for parking helicopters, the introduction of a new, more formalized area and the presence of Chinooks would not change the character of the southwestern part of the NHL and would have less than significant impacts on the NHL. To the east of Hangars 2 and 3 and the proposed Chinook CH-47 Hangar, a parking area would be constructed for Kiowas. It would be located on either side of the proposed Kiowa Hangar. The parking area and presence of parked Kiowas would have less than significant impacts on the NHL. Helicopter parking for Blackhawks would be located at the east end of the South Taxiway near Hangar 6 and Hangars 7 and 8. As with the other potential helicopter parking area, these parking areas would not change the existing character of the areas where they would be built and would have less than significant impacts on the NHL.

**FIGURE 10**  
Existing Panoramic Viewpoint 1 from North Side of Ladd Field

**FIGURE 11**  
Existing Panoramic Viewpoint 2 from Southwest Side of Ladd Field

**FIGURE 12**  
Existing Viewpoint 3 from South Side of Ladd Field

**FIGURE 13**  
Simulation of Panoramic Viewpoint 1 with Alternatives 2 and 3 from North Side of Ladd Field

**FIGURE 14**  
Simulation of Panoramic Viewpoint 2 with Alternatives 2 and 3 from Southwest Side of Ladd Field

**FIGURE 15**  
Simulation of Panoramic Viewpoint 3 with Alternatives 2 and 3 from South Side of Ladd Field

Other new buildings and structures that would be built within the NHL would include a warm storage facility (for Kiowa helicopters), a deluge (new well), a building for unit level operations and classroom training, and a new aircraft parts storage building. A new barracks building would be built adjacent to the potential Cold War Historic District, east of a series of Cold War-era barracks. Designs for the new buildings are not available, but all would likely be utilitarian in appearance and would not be inconsistent with the wide variety of building types, styles, and scales found throughout most of FWA. The new “nonhangar” buildings would not have significant impacts on the character of the NHL and the potential Cold War Historic District.

Alternative 2 would also involve the demolition of the Water Supply Building (Building 3011), which is located south of Hangar 2. Removal of the Cold War-era building would have minimal impacts on the visual character of the NHL.

In addition to new buildings, one of the most visible additions to the viewed landscape associated with all of the alternatives would be security fencing around the airfield. The chain-link fencing would be approximately 12 feet in height and would be topped with security wire such as rolls of razor wire/concertina wire. Although the chain-link fencing would generally allow views of the NHL and potential Cold War Historic District, it would introduce a new element to areas near it from which it could be seen. The fence would not be out of character with a military installation and historically the airfield included a fence. It would not be a significant impact based on the three impact criteria described previously.

### **Alternative 3: Combat Aviation Brigade**

Alternative 3 would result in the construction of new buildings and the construction of other types of new facilities (parking, storage, apron washing, etc.).

New buildings associated with Alternative 3 to be constructed within the NHL boundary would include the two new hangars that are part of Alternative 2. The proposed Chinook Hangar and the proposed Kiowa Hangar would be built south of the South Taxiway east of Hangar 3. As is the case with Alternative 2, under Alternative 3, designs are not yet available for the new hangars. They would be much larger in scale than the existing hangars and would change the scale and character of the southern and western portions of the NHL and potential Cold War Historic District. The new hangars would have the same visual impacts on the NHL as those described for Alternative 2.

Although the hangars would be the most highly visible new buildings at FWA, other buildings and facilities associated with Alternative 3 would also be constructed and would influence the viewed environment, but would have little to no influence on the NHL or potential Cold War Historic District. Most of the new buildings and facilities would likely be highly utilitarian in appearance and would not be inconsistent with the variety of building types, styles, and scales found throughout FWA.

The following three groupings of buildings merit some discussion because of their visible locations:

Two new buildings would be located north of Montgomery Road and within the NHL boundary. They would be a Secure Storage Area (Building 29) and an aviation parts storage building (Building 5).

South of Montgomery Road would be several additional new buildings and facilities. Among them would be barracks (Buildings 3 and 18), various company and brigade headquarters buildings (Buildings 26 and 27), vehicle maintenance facility (Building 8) and new parking areas.

A third area that would be south of the Alder Avenue and would contain new brigade headquarters (Buildings 10 and 17), battalion headquarters (Building 11), and CAB administration (Building 22) buildings and parking areas located southwest and south of Montgomery Lake.

Although designs for the potential new buildings that are part of Alternative 3 have not been developed, it is assumed that they would be similar in scale and design detail to other buildings at FWA, and would not have a significant impact on visual resources.

Alternative 3 would result in some new facilities being constructed at FWA outside of the NHL or potential Cold War Historic District. These would include new outdoor parking and storage areas and a relocated Raven Roost (for recreational vehicle storage). These new or relocated facilities would have less than significant impacts on the viewed environment and to the visual quality of the NHA or potential Cold War Historic District.

Figures 13, 14, and 15 show how existing views from three locations would change from implementation of Alternative 3.

### **4.5.3 Summary of Visual Impacts**

Table 7 presents a comparative summary of how the alternatives would affect visual resources.

**TABLE 7**  
Comparative Summary of Impacts by Alternative for Visual Resources

	<b>Alternative 1 No Action</b>	<b>Alternative 2 Aviation Task Force</b>	<b>Alternative 3 Combat Aviation Brigade</b>
Number of hangars built in NHL or Cold War Historic District	0	2	2
Viewpoint 1	No impacts	New hangars and other buildings seen from this location. No significant impacts based on visual impact criteria.	Same as Alternative 2
Viewpoint 2	No impacts	Proposed Chinook Hangar would be most visible from this location and would block views to north. Would have moderate impact to character of area (Criterion 3), but no overall significant impacts based on visual impact criteria.	Same as Alternative 2
Viewpoint 3	No impacts	Proposed Chinook Hangar would be seen from this location as would new fencing. Neither would block views nor change character of area. No significant impacts based on visual impact criteria.	Same as Alternative 2

**NOTES:**

Visual Impact Criteria: *Criterion 1:* Permanently alter a site so that a sensitive viewing point or vista is obstructed or adversely affected or if the scale or degree of change appears as a substantial, obvious, or disharmonious modification of the overall view. *Criterion 2:* Prevent or substantially impair the view from a sensitive viewpoint for the duration of project construction. *Criterion 3:* Introduce physical features that are substantially out of character with adjacent developed areas.

# 5.0 Mitigation Recommendations

---

During the development of the Action Alternatives, the alternatives were modified to avoid and minimize effects to historic resources wherever possible. Proposed mitigation measures will be refined after the selection of the preferred alternative, discussions with consulting parties, and preparation of the Final EIS.

Mitigation measures will be part of an agreement document between the U.S. Army and consulting parties that will be specific to those resources for which the project results in an adverse effect. The specific historic structures and sites that will be permanently and adversely affected and mitigation measures for those effects are described as follows.

In the event that cultural deposits are discovered during construction, work will cease in the area of discovery, and the Alaska SHPO archaeologist will be notified. The SHPO archaeologist or a designated representative will evaluate any such discovery and, in consultation with consulting parties, complete proper mitigation measures before construction activities resume. Construction through any archaeological deposits must be mitigated through scientific data recovery or other suitable measures that would be determined by the Army in consultation with consulting parties as needed.

## 5.1 Mitigation Recommendations

### 5.1.1 Impacts to NHL and Development of Alternative/Mitigation Measures

If mitigation is required, potential mitigation measures could include the following:

- Evaluation of the current boundaries of the NHL
- Historic American Buildings Survey (HABS) documentation of Hangars 2 and 3
- Construction of a viewing platform from which visitors may view the historic elements of the airfield
- Preparation of a context statement for the Cold War in Alaska
- Preparation of design guidelines for renovations, maintenance and new construction within the NHL
- Preparation of a context study for cold weather research in Alaska with its beginnings at FWA

As a result of this new construction, the boundaries of the NHL may not reflect the WWII significance as originally intended. A study of the current boundaries to determine if the boundaries should be revised may be needed. While changing the boundaries of the NHL is not the most desirable action, it is recognized that the military mission changes as new technologies and mission needs change. Focusing the boundaries on the most significant portions of the existing WWII resources of the NHL, the flight line and the North Post, would ensure long-term protection of the NHL.

Historic American Buildings Survey documentation of Hangars 2 and 3 would provide documentation of current conditions of two of the last Birchwood hangars in Alaska. There are no direct impacts to the hangars with either of the action alternatives, however, the hangars could be placed in layaway. If this occurs, HABS documentation would be useful to document the hangars in their current state.

A Cold War Context Study would provide an understanding of resources associated with the Cold War in Alaska. The context could then be used to evaluate resources to understand what resources still remain in Alaska. A statewide context would be a very useful planning tool for the DoD.

New design guidelines would help preserve the integrity and the heart of the NHL. Design guidelines would be developed to ensure that new construction and renovations to existing buildings and structures within the NHL would be compatible and in keeping with the WWII landmark. Previous renovations and maintenance have not always been sympathetic to the landmark and its history. Design guidelines would emphasize maintaining the historic integrity of materials, design, and workmanship. It would also provide an opportunity for the Army to strengthen the NHL's integrity when maintenance of existing buildings requires replacement materials.

A context statement for cold weather research in Alaska, beginning with FWA, would provide the basis for evaluating the resources in Alaska that were involved in an important but relatively understudied historic military mission. Many facilities in Alaska were involved in this critical research program that resulted in improvements to maintenance of vehicles and clothing and equipment needed for cold weather missions. An understanding of the historic significance of the existing facilities in Alaska would help the Army fulfill its Section 110 requirements.

Mitigation is a tool used to help offset the impacts associated with a proposed action. If a historic property would be significantly affected by an action, such as demolition or construction of a very large addition, and there are no viable alternatives to the impact, mitigation can be required to offset the impact. Mitigation for impacts to historic properties typically enhances existing documentation or the understanding of the history of an area, building or structure. Mitigation measures suggested here would not change the impact of the proposed action, but by preparing HABS documentation or writing a context for cold weather research, the base of information for Alaska has been expanded. These suggested alternative mitigation measures would provide additional resources for FWA cultural resources staff as they continue to manage the cultural resources at FWA.

### **5.1.2 New Construction Visual Impact Assessment Alternatives and Mitigation**

A viewing platform would be construction from which visitors may view the historic elements of the airfield. Also, the impacts of the proposed action could be minimized by creating and enforcing design guidelines for the NHL.

### **5.1.3 Conclusions**

If mitigation measures are required, either of the alternative measures described in this section would be valuable additions to the existing documentation of FWA and Ladd Field.



## 6.0 References

---

- 172<sup>nd</sup> Infantry Brigade (Alaska), 1976. *The U.S. Army in Alaska*. Pamphlet 360-5. May 1976.
- 172<sup>nd</sup> Infantry Brigade (Alaska), 1979. *Draft Environmental Impact Statement Concerning Installation Utilization for 172<sup>nd</sup> Infantry Brigade Alaska at Fort Wainwright*. U.S. Department of the Army, Headquarters, Forces Command. July.
- Alaskan Air Command, Elmendorf Air Force Base, n.d. Annual economic impact brochures.
- Alyeska Pipeline Service Company Pipeline History Web Site.  
<http://www.alyeska.com/Pipelinefacts/PipelineConstruction.html>.
- Alyeska Pipeline Service Company, 1975. *Alyeska's Needs in Fairbanks Area*. Pamphlet ca 1975. Larry Carpenter Collection, University of Alaska Fairbanks Alaska (UAF) and Polar Regions Archives.
- All-Alaska Weekly*, 1975. "Alyeska's Presence Grows." January 24.
- All-Alaska Weekly*, 1974. "Officials Seek to Quell Fears of Post Mis-use." June 28.
- All-Alaska Weekly*, 1974. "Alyeska-Army Secret Talks Stirs Controversy Here." February 8.
- All-Alaska Weekly*, 1974. "The Secret Setup Behind the Scene." February 8.
- Bacon, G.H., 1979. *Final Report on the Archaeological Survey of the XM-1 Tank Range, Fort Greely, Alaska*. Alaskarctic, Fairbanks, Alaska.
- Bowers, Peter M., and B. Gannon, Editors, 1998. *Historical Development of the Chena River Waterfront, Fairbanks, Alaska: An Archaeological Perspective*. Northern Land Use Research, Inc., Fairbanks, and Hart Crowser Inc., Anchorage. Prepared for the Alaska Department of Transportation and Public Facilities, Fairbanks.
- Butler, Jaqueline, 1974 "Alyeska-Bechtel Give North Post a Face Lift." *All-Alaska Weekly*. June 7.
- Cole, Dermot, 1999. *Fairbanks: A Gold Rush Town that Beat the Odds*. Fairbanks: Epicenter Press.
- Community Research Quarterly*, 1990. "Population and Social Conditions." Vol. XIII, No. 3. Fall.
- Community Research Quarterly*, 1990. "Did the LID Cushion the Recession?" Vol. XIII, No. 2, Summer.
- Community Research Quarterly*, 1990. "The LID and Employment in the FNSB." Vol. XIII, No. 2. Summer.
- Community Research Quarterly*, 1990. "Fort Wainwright Construction Impacts, Summer 1989." Vol. XIII, No. 2, Summer.

- Davis, N.Y., 1994. *Draft Report – Ethnohistoric Land Use Patterns: Elmendorf Air Force Base (Knik Arm) Area, Alaska*. Prepared for the National Park Service and Elmendorf Air Force Base. Cultural Dynamics, Anchorage Alaska.
- Dixon, Mim, 1978. *What Happened to Fairbanks? The Effects of the Trans-Alaska Oil Pipeline on the Community of Fairbanks, Alaska*. Boulder, CO: Westview Press.
- Fairbanks North Star Borough Impact Information Center, 1974. *Pipeline Impact Information Center Report*, No. 11. December 18.
- Eielson Air Force Base, 2006. *Integrated Cultural Resources Management Plan. Eielson AFB, Alaska, 2006 to 2011*.
- Foster, Gaines M., 1983. *The Demands of Humanity: Army Medical Disaster Relief*. U.S. Army Center of Military History.
- Fried, Neil, 1988. "Fairbanks: 1987, The Year in Review." *Alaska Economic Trends*. Vol. 8, No. 3. March.
- Fried, Neal, 1996. "Defense: Still One of Alaska's Biggest Exports." *Alaska Economic Trends*. September.
- Gerlach, S.C., and P.M. Bowers, 1996. *Archaeological Survey and Assessment of Prehistoric Cultural Resources on Eielson AFB, Alaska, Management Summary*. Northern Land Use Research, Inc., Fairbanks, Alaska.
- Gerlach, S.C., S.J. McIntosh, P.M. Bowers, and O.K. Mason, 1996. *Archaeological Survey and Assessment of Prehistoric Cultural Resources on Eielson Air Force Base*. Alaska Northern Land Use Research, Inc., Fairbanks, Alaska.
- Goldsmith, Scott/Institute of Social and Economic Research (ISER), UAA. *Alaska Gross State Product 1961-1998*. "Table 1: Alaska Gross State Product by Sector and Payment Type." [http://www.iser.uaa.alaska.edu/publications/client/gsp/GSP\\_Table1.htm](http://www.iser.uaa.alaska.edu/publications/client/gsp/GSP_Table1.htm).
- Goldsmith, Scott, and Eric Larson, 2003. *Federal Spending and Revenues in Alaska*. University of Alaska Anchorage (UAA) Institute of Social and Economic Research (ISER). November 2003.
- "The Great Land: Ft. Wainwright Alaska," 1978. San Diego: American Publishers, Inc.
- "History of the 5001st USAF Hospital, 1 July 1956 – 31 December 1956." Original at Air Force Historical Research Agency, Maxwell AFB, AL. Copy in FWA cultural resources collection.
- Holmes, C.E., 1979. *Report of Archaeological Reconnaissance: Withdrawal Areas, Fort Greely, Alaska*. Alaskarctic, Fairbanks, Alaska.
- Hudelson, Gerald, 1966. *A Survey of Military Personnel Buying Habits at Fort Wainwright, Alaska for the Fiscal Year 1965*. M.A. Thesis, University of Alaska Fairbanks.
- Hummel, Laurel J., 2002. *Alaska's Militarized Landscape: The Unwritten Legacy of the Cold War*. Ph.D. Dissertation. University of Colorado.

- Jones, George M., 1968. *The Economic Impact of Fort Wainwright and Eielson Air Force Base on Fairbanks, Alaska*. M.A. Thesis. University of Alaska Fairbanks.
- Jones, Patricia, 1997. "What a Difference a Decade Makes." *Alaska Business Monthly*. May.
- Lease dated May 6, 1974. Larry Carpenter Collection, UAF, box 7.
- Louis Berger Group, Inc., 2008. *Condition Assessment and Rehabilitation Plans, Hangars 2 and 3, Ladd Field National Historic Landmark, Fort Wainwright, Alaska*. Final Submission. Prepared for U.S. Army Medical Research Acquisition Activity on behalf of U.S. Army Environmental Center. January.
- Malloy, Fran, 1950. "Air Command Urges Larger City Airport." *Fairbanks Daily News-Miner*. June 10.
- Mason, O., P. Bowers, and S.C. Gerlach, 1994. *Predictive Models for the Discovery of Cultural Resources on Eielson AFB, Alaska*. Northern Land Use Research, Inc. Fairbanks, Alaska.
- Moolin, F.P./Alyeska. Letter to Col. William L. Martin. February 13, 1975. Larry Carpenter Collection, UAF.
- National Park Service, 1991. *National Register Bulletin 16*. U.S. Department of the Interior, National Park Service, Interagency Resources Division, Washington, D.C.
- National Park Service, n.d. "Guidelines for Evaluating and Documenting Traditional Cultural Properties." *National Register Bulletin*. U.S. Department of the Interior, National Park Service, Interagency Resources Division, Washington, D.C.
- National Park Service. Antiquities Act. [http://www.nps.gov/history/local-law/FHPL\\_AntiAct.pdf](http://www.nps.gov/history/local-law/FHPL_AntiAct.pdf). Accessed June 20, 2007.
- Neely, R.J., 2001. *Early Mining History: Fort Wainwright and Fort Greely, Alaska*. Center for Ecological Management of Military Lands, Colorado State University, Fort Collins, Colorado.
- Nielson, Jonathan, 1988. *Armed Forces on a Northern Frontier: The Military in Alaska's History, 1867-1987*. New York: Greenwood Press.
- Reynolds, Georgeanne, 1988. *Historical Overview and Inventory, White Alice Communications System*. U.S. Army Corps of Engineers.
- Reynolds, G., 1996. *Survey of Moose Run Golf Course Expansion, Fort Richardson, Alaska*. Division of Parks and Outdoor Recreation, Anchorage, Alaska.
- Rogers, George, and Richard Cooley, 1963. *Alaska's Population and Economy: Regional Growth, Development and Future Outlook*. College, AK: University of Alaska.
- Rogers, George, 1962. *The Future of Alaska: Economic Consequences of Statehood*.
- Shaw, Robert D., 2000. *Historic Properties and Paleontological Resources Survey for Realignment of the Alaska Railroad Corporation Tracks Across Elmendorf AFB and Fort Richardson, Alaska*. Alaska Railroad Corporation, Anchorage, Alaska.

Steele, J.L., 1979. *Otter Lake Reconnaissance*. U.S. Army Corps of Engineers, Alaska District, Anchorage, Alaska.

U.S. Army Alaska, 1960. *Information Brochure for Civilian Advisory Committee*.

U.S. Army Environmental Center (USAEC), n.d. *For Want of a Home: A Historic Context for Wherry and Capehart Military Family Housing*. U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland.

U.S. Army Environmental Center (USAEC), n.d. *Thematic Study and Guidelines: Identification and Evaluation of U.S. Army Cold War Era Military Industrial Historic Properties*. U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland.

Woodman, Lyman, 1997. *Duty Station Northwest: The U.S. Army in Alaska and Western Canada, 1867-1987*. Vols. 2 and 3. Anchorage: Alaska Historical Society.

APPENDIX A

**Contributing and Noncontributing Elements to the  
Cold War Historic District**

---

APPENDIX A  
Fort Wainwright Buildings Reference Table

Army Building Number	AHRS Number	Site Name	Location	Date of Construction	Ladd Field NHL	Cold War HD
1001	FAI-01248	Building 1001: Enlisted 500 Man Barrack	On Gaffney Road at northeast end of runway	1951	Not in District	Noncontributing
1003	1003	Building 1003: BLM Barracks	East of 103 <sup>rd</sup> Avenue and north of Gaffney Road	2005	Not in District	Noncontributing
1004	FAI-01249	Building 1004: Enlisted 500 Man Barrack	Second-most eastern building on north side of Gaffney Road	1951	Not in District	Noncontributing
1021	FAI-00448	Building 1021: Nurses' Quarters	Northeast corner of Gaffney and Marks Roads	1943	Contributing	Contributing
1024	FAI-00449	Building 1024: MARS Radio Station	On Apple Street west of 102 <sup>nd</sup> Street	1943	Contributing	Contributing
1026	FAI-00450	Building 1026: Sewer Lift Station	North side of Apple Street, east of 100 <sup>th</sup> Street	1960	Noncontributing	Noncontributing
1040	FAI-01251	Building 1040: BOQ 5, BLM Firefighters Quarters	On Apple Street	1947	Not in District	Noncontributing
1041	FAI-01252	Building 1041: BOQ 4, BLM Firefighters Quarters	On Apple Street	1947	Not in District	Noncontributing
1042	FAI-01253	Building 1042: BOQ 3, BLM Firefighters Quarters	On Apple Street	1947	Not in District	Noncontributing
1043	FAI-00451	Building 1043: North Post Chapel	North of Marks Road at the top of the horseshoe	1944	Contributing	Noncontributing
1044	FAI-01319	Building 1044: Open Dining	Between Apple Street and Marks Road on North Post	1965	Noncontributing	Noncontributing
1045	FAI-00452	Building 1045: Murphy Hall/ VIP Housing	On the northwest corner of Gaffney and Marks roads	1944	Contributing	Contributing
1046	FAI-00502	Building 1046: Vehicle Storage	On the eastern side of the North Post's horseshoe	1941	Contributing	Contributing
1047	FAI-00453	Building 1047: Officers' Quarters	On east side of North Post's horseshoe between Freeman and Marks Roads	1941	Contributing	Noncontributing
1048	FAI-00446	Building 1048: Garrison Commander's Quarters	At the head of the horseshoe, North Post	1941	Contributing	Contributing
1049	FAI-00454	Building 1049: Officers' Quarters	Towards the western top of the North Post's horseshoe	1941	Contributing	Noncontributing
1051	FAI-00456	Building 1051: Officers' Quarters	Northeast corner of Gaffney and Marks Roads, west side of the North Post horseshoe	1941	Contributing	Noncontributing
1053	FAI-01254	Building 1053: Electric Shop/ Motor Repair Shop	Northwest corner of Gaffney and Marks Roads	1947	Not in District	Contributing
1054	FAI-01255	Building 1054: Motor Pool No.2	North side of Marks Road	1947	Not in District	Contributing
1056	1056	Building 1056: Sewage/Waste Treatment Building	Northwest of Apple Street near the top of the horseshoe	1947	Not in District	Noncontributing
1060	FAI-01257	Building 1060: Air Defense Command Center/ Communication Center	South side of Apple Street, west North Post	1945	Contributing	Contributing
1063	FAI-01316	Building 1063: BOQ	West of 100 <sup>th</sup> Street on north side of Apple Street	1948	Not in District	Noncontributing

APPENDIX A  
Fort Wainwright Buildings Reference Table

Army Building Number	AHRS Number	Site Name	Location	Date of Construction	Ladd Field NHL	Cold War HD
1064	FAI-01317	Building 1064: BOQ	North side of Apple Street, east of 100 <sup>th</sup> Street	1948	Not in District	Noncontributing
1070	FAI-01320	Building 1070: ACS Building	North side of Gaffney Road just east of Apple Street	1993	Not in District	Noncontributing
1428	1428	Building 1428: Family Housing	Northeast corner of 102 <sup>nd</sup> and Beechnut	2004	Not in District	Noncontributing
1500	1500	Building 1500: BLM Maintenance	Southeast end of Gaffney Road across from Building 1004	2005	Not in District	Noncontributing
1526	1526	Building 1526: BLM Warehouse	Northeast end of airfield, south of Gaffney Road in BLM Complex	Unknown	Not in District	Noncontributing
1533	FAI-00463	Building 1533: Butler Building	North side of the runway, in the eastern cluster of buildings	1944	Contributing	Contributing
1534	FAI-00464	Building 1534: Warehouse	North side of the runway, in the eastern cluster of buildings	1944	Contributing	Contributing
1535	FAI-01321	Building 1535: Warehouse/Garage	South side of Gaffney Road across from Building 1004 (FAI-01249)	1975	Noncontributing	Noncontributing
1537	FAI-00465	Building 1537: Warehouse	On the north side of the runway, in the eastern cluster of buildings	1942	Contributing	Contributing
1538	FAI-00533	Building 1538: Warehouse	North side of airfield, in North Post area, in BLM-leased building cluster	1942	Contributing	Contributing
1539	FAI-00510	Building 1539: Warehouse	North side of Fort Wainwright's runway, in the eastern cluster of buildings leased by BLM	1942	Contributing	Contributing
1540	FAI-00466	Building 1540: Warehouse	North side of Fort Wainwright's runway, in the eastern cluster of buildings	1942	Contributing	Contributing
1541	FAI-00503	Building 1541: Airways and Air Communication Services	South of Gaffney Road on the east side of horseshoe	1954	Not in District	Contributing
1544	FAI-01322	Building 1544: BLM Warehouse	Along the north side of the runways, just east of Building 1541	1995	Not in District	Noncontributing
1555	FAI-00467	Building 1555: Post HQ	Along the east leg of the North Post's horseshoe	1943	Contributing	Contributing
1556	FAI-00468	Building 1556: Warehouse/ Reciprocal Engine Shop	Along the east side of Hangar 1, North Post	1943	Contributing	Contributing
1557	FAI-00469	Building 1557: Hangar 1	In the North Post, central bottom of the horseshoe	1942	Contributing	Contributing
1558	FAI-00470	Building 1558: Airfield Operations	West side of Hangar 1, North Post	1942	Contributing	Contributing
1562	FAI-00472	Building 1562: Quartermaster/Judge Advocate General	On the west leg of the North Post's horseshoe	1942	Contributing	Noncontributing
1563	FAI-01323	Building 1563: Airfield Lighting Control Building	South side of the intersection of Marks Road and Front Street	1960	Noncontributing	Contributing
1565	FAI-01258	Building 1565: Maintenance Shop, General Purpose	North Post of Fort Wainwright, west of Hangar 1	1950	Not in District	Contributing

**APPENDIX A**  
Fort Wainwright Buildings Reference Table

<b>Army Building Number</b>	<b>AHRS Number</b>	<b>Site Name</b>	<b>Location</b>	<b>Date of Construction</b>	<b>Ladd Field NHL</b>	<b>Cold War HD</b>
1566	FAI-01324	Building 1566: Sewage Pump Station	West side of Freeman between Buildings 1560 and 1562	1988	Not in District	Noncontributing
1572	FAI-01325	Building 1572: Deluge System Building	North side of the runways near the Control Tower	1995	Not in District	Noncontributing
1579	FAI-01289	Building 1579: LM Warehouse Department No. 1/ General Purpose Warehouse	North of E-W runway, near west end, to the west of Hangar 1 (Building 1557, FAI-00469)	1955	Not in District	Contributing
1580	FAI-01326	Building 1580: Aircraft Control Tower	North side of the runways on the west end of the aprons	1984	Not in District	Noncontributing
1595	FAI-01338	Building 1595: Machine Shop	Western-most building on the south side of Front Street	1959	Not in District	Contributing
2062	FAI-00476	Building 2062: Warehouse	South side of the Montgomery and Ketcham roads' intersection	1945	Not in District	Contributing
2076	2076	Building 2076: Lubricant Storage Facility	At the southeast end of the airfield just west of Hangars 7 and 8 (Building 2077)	1988	Not in District	Noncontributing
2077	FAI-00504	Building 2077: Hangars 7 and 8	Southeast end of airfield, north of Montgomery Road	1956	Noncontributing	Contributing
2078	2078	Building 2078: Warm Up Shack	Southeast end of airfield, east of Hangars 7 and 8 (Building 2077)	1988	Not in District	Noncontributing
2079	FAI-01259	Building 2079: Radar Shop, Electronic Maintenance Shop	Southeast side of runway west of Hangars 7 and 8 (Building 2077)	1956	Noncontributing	Contributing
2080	FAI-01327	Building 2080: Deluge System Building	North side of Montgomery Road next to Hangars 7 and 8 (Building 2077)	1957	Noncontributing	Contributing
2097	2097	Building 2097: Flammable Materials Storehouse	Southeast end of runway, north of Montgomery Road and west of Hangars 7 and 8 (Building 2077)	1956	Noncontributing	Contributing
2104	FAI-01260	Building 2104: Armament and Electronics/ Falcon Missile	Southeast side of runway west of Hangars 7 and 8 (Building 2077)	1958	Noncontributing	Contributing
2107	FAI-01261	Building 2107: Flight Synthetic Trainer, General Education Development Center	South side of runway, west of intersection of Montgomery Road and Luzon Avenue	1955	Noncontributing	Contributing
2109	2109	Building 2109: Kennel	West side of Luzon Avenue, south of Montgomery Road	1990	Not in District	Noncontributing
2110	FAI-01336	Building 2110: Exchange Services	North side of Montgomery Road between intersections at Santiago Avenue and Luzon Avenue	1954	Noncontributing	Noncontributing
2116	2116	Building 2116: Alert Holding Area	North of the intersection of Luzon Avenue and Montgomery Road	2006	Not in District	Noncontributing

**APPENDIX A**  
Fort Wainwright Buildings Reference Table

<b>Army Building Number</b>	<b>AHRS Number</b>	<b>Site Name</b>	<b>Location</b>	<b>Date of Construction</b>	<b>Ladd Field NHL</b>	<b>Cold War HD</b>
2117	2117	Building 2117	North of Montgomery Road directly next to Building 2107	2005	Not in District	Noncontributing
2118	2118	Building 2118: Pallet Processing Facility	South side of the South taxiway, just north of Montgomery Road, and north of Building 2107	2006	Not in District	Noncontributing
2200	2200	Building 2200: Sentry Station	West side of Ketcham Road, south of intersection with Montgomery Road	1957	Not in District	Contributing
2201	FAI-01230	Building 2201: Ordnance Administration Building	Bunker complex at southeast corner of runway	1957	Not in District	Contributing
2202	FAI-01231	Building 2202: Special Weapons Magazine	Bunker complex at southeast corner of runway	1957	Not in District	Contributing
2203	FAI-01232	Building 2203: Special Weapons Magazine	Bunker complex at southeast corner of runway	1957	Not in District	Contributing
2204	FAI-01233	Building 2204: Special Weapons Magazine	Bunker complex at southeast corner of runway	1957	Not in District	Contributing
2205	FAI-01234	Building 2205: Special Weapons Magazine	Bunker complex at southeast corner of runway	1957	Not in District	Contributing
2206	FAI-01235	Building 2206: Special Weapons Magazine	Bunker complex at southeast corner of runway	1957	Not in District	Contributing
2207	FAI-01236	Building 2207: Special Weapons Magazine	Bunker complex at southeast corner of runway	1957	Not in District	Contributing
2208	2208	Building 2208: Ammo Supply Point	Bunker complex at southeast corner of runway	2005	Not in District	Noncontributing
2209	2209	Building 2209: Ammo Supply Point	Bunker complex at southeast corner of runway	2005	Not in District	Noncontributing
2296	2296	Building 2296: Range Support Building	South of Montgomery Road near entrance to MOUT Site	2002	Not in District	Noncontributing
2998	2998	Building 2998: Lubricant Storage Facility	Southwest end of airfield, east of Hangar 3 on the north side of Montgomery Road	1988	Not in District	Noncontributing
3000	FAI-01328	Building 3000: Flight Simulator	At the intersection of Montgomery Road and Santiago Avenue	1988	Not in District	Noncontributing
3003	FAI-00481	Building 3003: Water Pump House	South side of Montgomery Road just east of Santiago Avenue	1975	Not in District	Noncontributing
3004	FAI-01318	Building 3004: Fire Station	South of runways north of Montgomery Road and Santiago Avenue intersection	1952	Noncontributing	Contributing
3005	FAI-00482	Building 3005: Hangar 3	South side of runway, near the intersection of Montgomery and Meridian roads	1942	Contributing	Contributing
3008	FAI-00485	Building 3008: Hangar 2	On the south side of the runway towards the runway's eastern end	1942	Contributing	Contributing

**APPENDIX A**  
Fort Wainwright Buildings Reference Table

<b>Army Building Number</b>	<b>AHRS Number</b>	<b>Site Name</b>	<b>Location</b>	<b>Date of Construction</b>	<b>Ladd Field NHL</b>	<b>Cold War HD</b>
3010	FAI-01329	Building 3010: 4 <sup>th</sup> Battalion Headquarters	South side of Montgomery Road across from Hangar 3	1990	Not in District	Noncontributing
3011	FAI-01330	Building 3011: Water Treatment	South side of Montgomery Road across from Hangar 2	1949	Not in District	Noncontributing
3013	3013	Building 3013: Sludge Separator Facility	West side of Meridian between Montgomery and Neely Roads	1999	Not in District	Noncontributing
3014	3014	Building 3014: Self Help Building	On the northeast corner of Whidden and Montgomery Roads	1990	Not in District	Noncontributing
3015	3015	Building 3015: Military Real Property	On the north side of Montgomery Road between Whidden and Meridian Roads	1954	Not in District	Noncontributing
3017	FAI-01331	Building 3017: Lumber and Pipe Storage	West side of Meridian Road between Neely and Montgomery Roads	1985	Not in District	Noncontributing
3018	FAI-00487	Building 3018: Warehouse No. 4	West of Meridian Road between Neely and Montgomery Roads	1944	Contributing	Noncontributing
3019	FAI-00488	Building 3019: Warehouse/ FE Storehouse	West of Meridian Road between Neely and Montgomery Roads	1944	Contributing	Noncontributing
3020	FAI-00489	Building 3020: Warehouse/ FE Storehouse	West of Meridian Road between Neely and Montgomery Roads	1944	Contributing	Noncontributing
3021	FAI-00490	Building 3021: General Purpose Warehouse	West of Meridian Road between Neely and Montgomery Roads	1944	Contributing	Noncontributing
3022	FAI-00491	Building 3022: Warehouse No. 8	West of Meridian Road between Neely and Montgomery Roads	1944	Contributing	Noncontributing
3023	FAI-01731	Building 3023: Administration	Southwest of the runways, north of Neely Road, and east of 10 <sup>th</sup> Street.	1955	Not in District	Noncontributing
3025	FAI-01729	Building 3025: Dry Cleaning and Laundry Plant	Southwest of the runways, north of Neely Road, and east of 10 <sup>th</sup> Street	1955	Not in District	Noncontributing
3026	FAI-01332	Building 3026: Entomology Building	On southwest corner of Montgomery and Meridian Roads	1985	Not in District	Noncontributing
3028	FAI-00492	Building 3028: Provost Marshal	Northwest corner of the intersection of Meridian and Montgomery Roads	1944	Contributing	Noncontributing
3029	FAI-01539	Building 3029: Vehicle Storage	West side of Meridian, behind Building 3028	1986	Not in District	Noncontributing
3030	FAI-01730	Building 3030: General Purpose Administration	Southwest of the runways, north of Neely Road and east of 10 <sup>th</sup> Street	1954	Not in District	Noncontributing
3031	FAI-01337	Building 3031: Warehouse	Northeast corner of the intersection of Meridian and Montgomery Roads	1952	Noncontributing	Contributing
3033	FAI-00508	Building 3033: Storage General Purpose	Northeast corner of the intersection of Meridian and Montgomery Roads	1952	Noncontributing	Contributing
3034	3034	Building 3034: Hazardous Waste Storage	East of Meridian Road between Montgomery Road and Neely Road; west of Building 3017	1991	Not in District	Noncontributing

APPENDIX A  
Fort Wainwright Buildings Reference Table

Army Building Number	AHRS Number	Site Name	Location	Date of Construction	Ladd Field NHL	Cold War HD
3035	3035	Building 3035: Hazardous Waste Storage	East of Meridian Road between Montgomery Road and Neely Road; west of Building 3017	1991	Not in District	Noncontributing
3036	3036	Building 3036: Hazardous Waste Storage	East of Meridian Road between Montgomery Road and Neely Road; west of Building 3017	1991	Not in District	Noncontributing
3037	3037	Building 3037: Storage, General Purpose	Near the northeast intersection of Neely Road and Meridian Road; southwest of Building 3017	1993	Not in District	Noncontributing
3038	3038	Building 3038: Storage, General Purpose	In the yard of Building 3015	1993	Not in District	Noncontributing
3039	3039	Building 3039: Gravity Oil and Grease Separator	North of Montgomery Road and west of the intersection of Montgomery and Meridian roads	1998	Not in District	Noncontributing
3040	3040	Building 3040: Vehicle Storage	West of Meridian Road and North of Montgomery Road, next to Building 3028	2006	Not in District	Noncontributing
3203	FAI-00495	Building 3203: Ammo Storage Igloo	In "Ord. Area" east of Santiago Avenue and south of Montgomery Road	1942	Contributing	Contributing
3205	3205	Building 3205: Junior Enlisted Club/ Arctic Oasis	On the east side of the intersection of Neely Road and Santiago Avenue	1992	Not in District	Noncontributing
3206	3206	Building 3206: Barracks	East of Santiago Avenue and North of MacArthur Road	2001	Not in District	Noncontributing
3210	3210	Building 3210: CO HQ Building	Southeast intersection of MacArthur Road and Santiago Avenue	2003	Not in District	Noncontributing
3402	3402	Building 3402: Northern Lights Inn	North of Alder Avenue and west of Santiago Avenue	2004	Not in District	Noncontributing
3584	FAI-00497	Building 3584: DPW Chip Barn	West side of Meridian Road, south of Oak Avenue, in the vicinity of the power plant coal storage area	1945	Not in District	Noncontributing
3589	3589	Building 3589: Coal Preheat Building	Directly east of Power Plant	2000	Not in District	Noncontributing
3590	3590	Building 3590: KUK/BRS Alaska Venture, Alaska JOC Project	South of Neely Road and across from Engineer Place	1991	Not in District	Noncontributing
3593	3593	Building 3593: Storage, General Purpose	Near utility plant	1992	Not in District	Noncontributing
3595	FAI-01279	Building 3595: Heating/Electrical Power Plant	On railroad spur south of west end of Oak Avenue	1955	Not in District	Contributing
3597	FAI-01334	Building 3597: Cold Storage	South of Neely Road just north of the power plant.	1976	Not in District	Noncontributing
3598	FAI-01280	Building 3598: Vehicle Storage	On railroad spur south of west end of Oak Avenue	1955	Not in District	Contributing
3599	3599	Building 3599: General Purpose Warehouse	South side of Neely Road across from Building 3023	1949	Not in District	Noncontributing

APPENDIX A  
Fort Wainwright Buildings Reference Table

Army Building Number	AHRS Number	Site Name	Location	Date of Construction	Ladd Field NHL	Cold War HD
3600	3600	Building 3600: Water Plant Building/Well House	North of utility plant	1988	Not in District	Noncontributing
3700	FAI-01263	Building 3700: MAC Federal Credit Union/ Library	West side of Santiago Avenue, south of Oak Avenue	1954	Not in District	Noncontributing
3701	FAI-01264	Building 3701: Exchange Main Retail	West side of Santiago Avenue, south of Oak Avenue	1956	Not in District	Noncontributing
3702	FAI-01333	Building 3702: Bowling Alley	West side of Santiago Avenue, south of Neely Road	1969	Not in District	Noncontributing
3703	3703	Building 3703A/ 3703B/ 3703C: Commissary/ Clothing Store/ PX	South of Oak Avenue directly between Santiago Avenue and Meridian Road	1989	Not in District	Noncontributing
3707	FAI-01266	Building 3707: BN HQ Building	South side of east end of Neely Road	1956	Not in District	Contributing
3712	FAI-01269	Building 3712: BN HQ Building	North side of east end of Neely Road	1956	Not in District	Contributing
3717	FAI-01272	Building 3717: BN HQ Building	North side of east end of Neely Road	1956	Not in District	Contributing
3722	FAI-01277	Building 3722: BN HQ Building	North side of east end of Neely Road	1956	Not in District	Contributing
3724	3724	Building 3724: Sewer/ Waste Water Treatment Facility	South side of Neely Road next to Building 3728	1953	Not in District	Noncontributing
3726	FAI-00499	Building 3726: Post Office	Southeast corner of the intersection of Meridian and Neely Roads	1944	Not in District	Noncontributing
3727	3727	Building 3727: Skill Development Center	South side of Neely Road between Meridian Road and Santiago Avenue	1987	Not in District	Noncontributing
3728	3728	Building 3728: Arctic Talon Inn	South side of Neely Road between Meridian Road and Santiago Avenue	1989	Not in District	Noncontributing
3730	3730	Building 3730: Auto Skills Center	South side of Neely Road between Meridian Road and Santiago Avenue	1991	Not in District	Noncontributing

APPENDIX B

**Fort Wainwright Building Survey Forms  
(Provided on Accompanying CD)**

---

APPENDIX C

**Fort Wainwright Boundary Map  
(Provided in Binder Pocket)**

---

APPENDIX D

**Summary of Condition Assessment and  
Rehabilitation Plan for Hangars 2 and 3 at FWA**

---

As discussed in Section 4.4.4 of this technical report, the Army will consider the future use or disposition of Hangar 2 (Building 3008) and Hangar 3 (Building 3005) in the future. To support the Army's analysis and decision making, The Louis Berger Group, Inc. was tasked to produce a Condition Assessment and Rehabilitation Plan (CARP) for use by the Department of the Army to determine the feasibility and use of the hangars to meet current and future anticipated mission needs (Berger, 2008). The CARP divided the identified deficiencies for the hangars into four basic categories, as follows:

**Life Safety Issues** that directly and immediately affect the safety of the buildings' occupants. Life safety issues are critical in nature and include architectural issues, such as the lack of proper fire escapes; electrical issues, including as the lack of an National Fire Protection Association (NFPA) 72 fire detection system; and fire protection issues, such as the lack of a building sprinkler system in the lean-to attic spaces of the hangars (Berger, 2008). Life safety issues at Hangars 2 and 3 include items such as repairing/replacing the existing fire alarm detection system and components, upgrading and expanding the existing fire suppression system, installation of a new hangar bay slab drainage system, replacing the existing combustible hangar bay draft curtains, installing new fire hydrants, replacing the wood stair towers in the four corners of each hangar, and replacing all exit lights and augmenting the number of emergency lights in both buildings.

**Building Code Issues** that affect the general health and welfare of the buildings' occupants as well as the general wellbeing of equipment stored in the two hangars. Building code issues are conditions that are in violation of the 2003 International Building Code (IBC) or other supporting codes and standards referenced in the IBC, and the Department of the Army's Document ETL 1110-3-485, "Engineering and Design: Fire Protection for Helicopter Hangars" (Department of the Army, 1997). Numerous building code issues exist in both hangars, including structural deficiencies and damage in the roof trusses and framing, seismic deficiencies in the columns and roof framing, and ventilation inadequacies throughout both buildings (Berger, 2008). Building code issues include replacing outdated panel boards, overcurrent protection devices, and braided cloth-insulated feeders and branch circuit wiring; implementing a formal structural repair and upgrade program to fix broken, cracked, damaged, failed, and undersized joints and members in trusses, purlins, tension rods, columns, intercolumn bracing, and buttress web members; providing a 2-hour-rated wall between the hangar bays and the first floor, second floor, and attic area of both support bays; replacing all historically inappropriate (nonoriginal) doors and hollow-metal frames in all occupancy separation walls in both floors of both support bays; providing ventilation to the first and second floor offices, shops, restrooms, and sleeping rooms; upgrading lighting levels in the hangar areas, including new exterior lights; and installing perimeter fences for force protection.

**Energy Conservation Issues** that affect the retention of heat in the buildings, use of fuels to keep them heated, and the comfort of the persons using the hangar spaces. Energy conservation issues affect the ability of the hangars to effectively and responsibly use and conserve fuels and electricity for heating and illumination. Energy conservation is most effectively achieved with insulation appropriately placed in roofs and walls, and by upgrading the buildings' heating systems (Berger, 2008). Energy conservation issues include replacing the poorly or nonfunctioning hydronic heating units for the office, shop, and sleeping spaces, including pumps, piping, and terminal units; replacing the entire roof

assembly above the hangar bays; replacing the entire roof cover above both support bays; and replacing all insulation in the attic space beneath the roof of both support bays.

**Issues of General Preservation, Maintenance, and Upkeep** that include the materials and spaces within the buildings. Issues of general preservation and maintenance affect both the appearance of the hangars, including their general form and visual characteristics, as well as the upkeep of those materials and spaces within the buildings, including exterior materials, fenestration, and construction type (Berger, 2008). These issues include replacing all exterior windows, existing exterior wall assemblies, and all nonhistoric exterior mandors and frames at ground level; repairing or replacing all exterior doors and frame openings above the catwalks; installing topping slab in all concrete floor areas in first floor office and shop areas on both sides of the buildings; replacing all curbs at entry points into the office areas; repairing/replacing displaced floor areas on the second floor on both sides of buildings; repairing or replacing roofing and fascias on north/south canopies at exits to the buildings; repairing cracked and damaged areas of gypsum wall board and ceiling board on both floors of both support bays in the buildings; undertaking a wholesale replacement of all nonoriginal and nonhistoric interior, nonrated doors; replacing all worn and damaged nonoriginal and nonhistoric floor materials; replacing all damaged ceramic tile floors, walls, and equipment (but not fixtures) in all restrooms; relocating rack-mounted telecommunications equipment; replacing nonoriginal and nonhistoric fluorescent lighting in shop areas and offices; capping abandoned utilities and filling in existing unused service pits; replacing existing domestic water, compressed air, waste, vent piping, and plumbing fixtures; regrading, resurfacing, and repainting the parking area around both buildings; and repairing the large numbers above the hangar doors on both buildings.

### Layaway Plans

In the event Hangars 2 and 3 are no longer being used to carry out mission needs, both buildings would be placed in a layaway status under the No Action alternative. As part of the CARP, a Layaway Plan was developed for both hangars in accordance with military guidelines and procedures for buildings that do not currently meet mission needs. There are presently no known Layaway Plans for U.S. Army facilities; therefore, plans were developed based on a U.S. Navy UFC document, "Operation and Maintenance: Inactive Care and Closure of Shore Facilities" (January 2004), which defines four separate types of layaway – Inactive, Standby, Reserve, and Abandoned/Closed. For purposes of the CARP, it was assumed that the Reserve Layaway, with a reactivation time of 12 to 18 months and a length of inactivity of 5 to 7 years, was the appropriate layaway status for Hangars 2 and 3. Under Reserve Layaway, both buildings would be subject to minimal upkeep and limited maintenance to ensure weathertightness, structural stability, protection from fire or erosion, elimination of safety or health hazards, and to permit reactivation within the period prescribed.

For Hangars 2 and 3 to be effectively, safely, and properly placed into layaway, both buildings would need to be maintained at a "reasonable," above-freezing temperature. The CARP recommends that the temperature at the floor level of both hangar bays be kept at a minimum of 45 degrees Fahrenheit to provide the appropriate time to respond and effect repairs to the heating system in the event it malfunctions or breaks during the winter (Berger, 2008). If the hangars were placed in layaway without the required minimum heat during the winter months, the concrete foundations and floor slabs of both buildings would

be susceptible to heaving and cracking; thermal expansion and contraction in the roof framing system would place the trusses at risk of failure; and the architectural finishes on plaster and drywall surfaces would degrade, crack, and spall off the substrates due to the freezing of moisture within the materials. All fire protection elements, particularly the sprinkler systems serving the hangars, would need to be completely shut off and fully drained, which dramatically increases the buildings' exposure to fire. As part of the layaway, the CARP also recommends insulating the hangar bay doors with a temporary insulation system to reduce the amount of heat loss; and installing a direct digital control monitoring system, including low-temperature sensors placed along the floor in the hangar bays, to provide notification when the indoor temperature drops below a predetermined level (Berger, 2008).

A number of necessary work items are associated with Reserve Layaway, especially life safety (first-priority) and building code (second-priority) issues that directly affect the safety of any person who might be inside either hangar at any time during the layaway period. Third-priority (energy conservation) issues and fourth-priority (historic integrity, preservation, and maintenance) issues are not included or necessary considerations in a layaway plan, including Reserve Layaway.

According to the CARP, the following items are required for inactivation of Hangars 2 and 3:

### **Architectural**

Repair exit doors and frames, as well as rated walls, doors, and hardware to provide safe exiting from interior spaces into the hangar area and through at-grade exit doors to the outside (life safety). Exit doors to the stair towers to be permanently locked, and openings at base of stair towers closed to prevent entry or egress

Install barricades to catwalks and exterior balconies, with no unauthorized egress to these areas except for maintenance personnel (life safety)

Building Envelope: Repair any broken glazing and boards over exterior windows on the outside

Code Compliance: Close off all interior openings in the walls between the hangar bay and first or second floor support bay rooms or attics

Roofs: Inspect roof membranes and patch existing roof membranes where required. Acquire extended warranty from roof installer

Repair eaves, fascias, and canopies to provide correct drainage of water onto aprons

Patch all cracks in concrete slabs with appropriate mortar to maintain waterproof condition. Repair failed caulking at door and window frames, or other exterior joints

Construct a removable, temporary insulated thermal barrier on the interior of each large hangar door in both buildings to provide insulation and reduce heat loss

Identify, remove, and store all unused equipment and accessories from the buildings. All hazardous wastes, flammable materials, explosives, or fuels should be removed to an appropriate storage facility

**Civil**

Install new fire hydrants around exterior of the two hangars (life safety)

**Fire Protection**

Upgrade and expand the existing fire suppression system to include new coverage in the area above the second floor ceilings on both support bays for each hangar (life safety)

**Mechanical**

Provide direct digital control monitoring system, including low-temperature monitors  
Close all heating, ventilation, and air conditioning openings in the building envelope

**Electrical**

Replace all exit signs and increase the number of emergency lights employed throughout the building

**Reserve Layaway Caretaker Maintenance**

Caretaker's maintenance items under Reserve Layaway include roof repairs (as needed), regular security patrols, and deactivation of all building utility systems not used for minimal inspections, operation/maintenance, or fire protection. Steam heat, fire water, power, and communication services will be continued, maintained, and monitored. Cathodic protection for underground utility systems and tanks, and sanitary and storm sewer systems for active facilities will also be maintained. Additionally, pest management precautions will be taken, such as sealing openings, and installing self-closing access doors and utilidor control barriers. All roof soffits, eaves, vents, wall vents, or other openings will be enclosed or screened.

**Layaway Monitoring and Inspection**

In addition, a monitoring and inspection program will need to be developed that provides for a thorough examination of the building systems of each hangar on a regular basis. The CARP recommends that visual inspections be performed on a quarterly basis by a professional engineer or registered architect to assess the site around each building as well as the roofs, cornices, exterior walls, windows, and doors (Berger, 2008). Visual inspections of the buildings' exteriors should include structural roof framing and trusses, as well as the floor areas for evidence of water infiltration. Under Reserve Layaway, the CARP also recommends that the hangars' fire suppression and detection systems be inspected, cleaned, and tested annually in accordance with standards under NFPA 13 and 72 to ensure that those systems are fully maintained and up to date.

Maintenance on the buildings' general exterior elements should be undertaken on an as-needed basis, depending on the findings of the inspections. Generally, maintenance would include those measures necessary to keep the buildings watertight and sound, with all repairs to be executed in a manner that does not damage or further alter the historic character of the buildings.

For the interior of the buildings, maintenance should also be undertaken on an as-needed basis on those elements that affect the life safety of any persons entering the buildings, including replacing lamps, checking and cleaning emergency light systems and exit lights, and checking the operability of panic hardware on doors. Scheduled maintenance should also be performed on all furnaces, blowers, fan units, pumps, and operating components of the heating system. Inspections and maintenance should also include careful examination

for pests and other types of vermin that can damage wiring or insulation, or spread respiratory illnesses.