Eielson Air Force Base Infrastructure Development in Support of RED FLAG-Alaska Environmental Assessment

Eielson AFB, Alaska

August 2007

ACRONYMS AND ABBREVIATIONS

°F	degree Fahrenheit
18 AGRS	18th Aggressor Squadron
18 FS	18th Fighter Squadron
168 ARW	168th Air Refueling Wing
354 CEV	354th Civil Engineer Squadron/Environmental Flight
354 FW	354th Fighter Wing
AAC	Alaska Administrative Code
ACM	Asbestos-Containing Material
ADEC	Alaska Department of Environmental Conservation
AFB	Air Force Base
AFI	Air Force Instruction
AICUZ	Air Installation Compatible Use Zone
Air Force	United States Air Force
AKANG	Alaska Air National Guard
AP	Accumulation Point
APZ	Accident Potential Zone
AQCR	Air Quality Control Region
BDA	Base Developed Area
BMP	Best Management Practice
BP	Before Present
BRAC	Base Realignment and Closure
CAA	Clean Air Act
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEV	Civil Engineer Environmental
CEVR	Civil Engineer Environmental Restoration
CFR	Code of Federal Regulations
CO	Carbon Monoxide
CW/STO	Coal Warfighter/Special Technical Operations
CZ	Clear Zone
dB	decibel
DoD	Department of Defense
EA	Environmental Assessment
EO	Executive Order
EPCRA	Emergency Planning and Community Right-to-Know Act
ESA	Endangered Species Act
EWP	Environmental Work Plan
FICON	Federal Interagency Commission on Noise
FOD	Foreign Object Debris
FONSI	Finding of No Significant Impact
FY	Fiscal Year
ICRMP	Integrated Cultural Resources Management Plan
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
INRMP	Integrated Natural Resource Management Plan
IRP	Installation Restoration Program
kg	kilograms
MFE	Major Flying Exercises
MILCON	Military Construction
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NO_2	nitrogen dioxide
NPS	National Park Service
NRHP	National Register of Historic Places
NSPS	New Source Performance Standard
O_3	Ozone
OSHA	Occupational Safety and Health Administration
PAA	Primary Assigned Aircraft
PARC	Pacific Alaska Range Complex
Pb	Lead
PCB	polychlorinated biphenyl
PM_{10}	particulate matter less than or equal to 10 micrometers in diameter
$PM_{2.5}$	particulate matter less than or equal to 2.5 micrometers in diameter
ppm	parts per million
PPWG	Pollution Prevention Working Group
PSD	Prevention of Significant Deterioration
QAPP	Quality Assurance Program Plan
RCRA	Resource Conservation and Recovery Act
RF-A	RED FLAG-Alaska
ROD	Record of Decision
ROI	Region of Influence
SAC	Strategic Air Command
SAP	Satellite Accumulation Point
SHPO	State Historic Preservation Office
SIP	State Implementation Plan
SO_2	sulfur dioxide
SOP	Standard Operating Procedure
SO_x	sulfur oxides
SRM	Sustainment, Renovation, and Modernization
SWMU	Solid Waste Management Unit
SWPPP	Storm Water Pollution Prevention Plan
TPY	Tons Per Year
US	United States
USACE	United States Army Corps of Engineers
USBC	United States Bureau of the Census
USC	United States Code
USEPA	United States Environmental Protection Agency
USFWS	United States Fish and Wildlife Service
$\mu g/m^3$	micrograms per cubic meter

Cover Sheet

EIELSON AIR FORCE BASE (AFB) INFRASTRUCTURE DEVELOPMENT IN SUPPORT OF RED FLAG-ALASKA (RF-A) ENVIRONMENTAL ASSESSMENT (EA)

a. *Responsible Agency:* United States Air Force (Air Force)

b. *Cooperating Agency:* None

c. *Proposals and Actions*: This EA analyzes the potential environmental effects of specific identified projects in support of RF-A at Eielson AFB, as well as infrastructure projects which meet specific project criteria within the developed portion of the base property (BDA) and are consistent with the development goals of Eielson AFB. For infrastructure projects to be included under this Infrastructure Development EA, each project must adhere to completely, or adopt the forms, guidance, criteria, and avoidance actions.

The Proposed Action would support RF-A and other missions by implementing infrastructure improvement projects with defined criteria and within specific thresholds in the current BDA; RF-A would be further supported through the transformation of the 18th Fighter Squadron (18 FS) to a dedicated aggressor squadron as part of the Proposed Action. Specific RF-A supporting infrastructure projects include: 1) renovation of Building 1141 to become a dedicated Coal Warfighter/Special Technical Operations (CW/STO) meeting and briefing center 2) resurfacing of specific taxiways and arming areas, 3) modernization of electronic range capabilities. The BDA identified for project siting under the Proposed Action is the area on the base which includes areas where construction and environmental disturbance have already occurred and environmental consequences have been thoroughly investigated and documented. The purpose of construction and renovation of Eielson AFB facilities within the BDA is to permit Eielson AFB to continue to support host and tenant missions. Facilities are needed to meet aircraft and personnel requirements as Eielson AFB continues its strategic mission in support of the United States Air Force's (Air Force) fight in the Global War on Terror.

No Action at Eielson AFB means no construction, renovation, or modernization to upgrade aging facilities and increase base capacity and capability within the BDA would occur. Existing Eielson AFB infrastructure would face increasing challenges to provide essential mission support to RF-A and other host and tenant missions.

d. *Comments and Inquiries*: Written comments on this document should be directed to Mr. James Nolke, 354 CER/CEV, 2310 Central Avenue, Suite 100, Eielson AFB AK 99702-2225. For additional information contact Eielson AFB Public Affairs at (907) 377-6116 or e-mail: info@eielson.af.mil.

e. *Designation*: Environmental Assessment

f. *Abstract*: This EA has been prepared in accordance with the National Environmental Policy Act. Potentially affected environmental resources were identified through communication with state and federal agencies, and review of past documentation. Specific environmental resources addressed include land use and visual resources, socioeconomics and environmental justice, cultural resources, infrastructure, physical resources, hazardous materials and waste management biological resources, air quality, and safety.

Primary environmental concerns associated with the Proposed Action are related to asbestos abatement, lead-based paint removal, and remediation of soil and groundwater contaminated with petroleum fuels, lubricants, and solvents. Secondary environmental concerns include those associated with air quality and cultural resources (particularly architectural resources and historic districts within the BDA), as well as the cumulative effect of increasing impervious surfaces for base runoff within the BDA. The BDA provides no wildlife habitat and supports no protected species. Following strict inclusion criteria, mitigation through avoidance, remediation, and adherence to existing guidance will alleviate negative environmental consequences. Implementation of infrastructure projects within the BDA under the Proposed Action will increase abatement of asbestos materials and lead-based paint during renovation of aging facilities, remediation of contaminated soils during some excavation, and increase base safety through modernization.

FINDING OF NO SIGNIFICANT IMPACT

NAME OF PROPOSED ACTION. Eielson Air Force Base (AFB) Infrastructure Development in Support of RED FLAG-Alaska (RF-A) Environmental Assessment (EA).

DESCRIPTION OF THE PROPOSED ACTION AND NO ACTION ALTERNATIVE. The United States Air Force (Air Force) at Eielson AFB proposes to implement infrastructure improvements to meet mission needs within the Base Developed Area. This EA provides a framework and programmatic approach to planning, environmental documentation, and tracking to support infrastructure improvements. Infrastructure improvement projects captured include those planned and anticipated to fulfill mission needs and those supporting the emergence of RF-A as a world-class Major Flying Exercise (MFE). General inclusion criteria for this EA include relevant projects that occur within the developed portion of the base; do not require wetlands permits or are located within the 100-year floodplain; and are not subject to a 30-day public review as detailed in Title 32 Code of Federal Regulations Part 989.15(e)(2). COPE THUNDER exercises were renamed RF-A (2006) and a course was set to create a training experience similar in structure and intensity to Air Combat Command's RED FLAG exercises currently conducted at Nellis AFB. The infrastructure improvements analyzed in this EA would provide quality facilities needed to support the mission conversion of Cooperative COPE THUNDER to RF-A MFEs and current and future mission needs of the 354th Fighter Wing and its tenant units. Additional RF-A support would be accomplished through the transformation of the 18th Fighter Squadron's F-16 aircraft to a dedicated aggressor squadron.

Within a programmatic framework, specific RF-A supporting infrastructure projects analyzed in this EA are: 1) renovation of Building 1141 to become a dedicated Coal Warfighter/Special Technical Operations briefing and meeting center, 2) resurfacing of arming areas, 3) high speed taxiway improvements, and 4) electronic range modernization. Additional projects falling within this document's programmatic siting and inclusion criteria would be implemented in response to specific mission demands on base infrastructure. Project implementation and cumulative effects would be tracked though a database tied to this document.

Under the No Action Alternative, construction, renovation, and demolition projects within the developed portion of the base would not be implemented. Selection of the No Action Alternative would result in continued use of deteriorating facilities. Eielson AFB would not adequately meet RF-A and future mission requirements or provide for improved quality of life for personnel.

SUMMARY OF ENVIRONMENTAL CONSEQUENCES. This EA provides an analysis of the potential environmental consequences under the Proposed Action and No Action Alternative. Environmental resources evaluated in detail for potential environmental consequences were land use and visual resources, noise, socioeconomics and environmental justice, cultural resources, infrastructure, physical resources, hazardous materials and waste management, biological resources, air quality, and safety.

Projects are consistent with base land use, noise, safety planning, and viewshed. Short-term socioeconomic benefits are expected in the region due to construction employment. Renovation

of historic structures would comply with the existing Integrated Cultural Resource Management Plan. Current infrastructure elements would adequately support project implementation, with some increase in vehicular traffic likely during some construction. Hazardous materials, such as asbestos and lead-based paint, and solid waste would be generated during associated demolition projects. All federal and state regulations regarding asbestos and lead will be followed. Removal of asbestos and lead-based paint from aging facilities would eliminate some existing environmental hazards. Solid waste would be recycled when possible; no appreciable amount of waste is expected. No impacts to biological resources are anticipated. Air pollutants and noise levels would increase during construction, but not to harmful levels; no long-term impacts are expected. Increasing base capacity may increase emissions but not significantly and well below established thresholds. Transformation of the 18th Fighter Squadron to a dedicated aggressor squadron would utilize existing facilities and not significantly alter airfield or airspace use. No cumulative effects or irreversible or irretrievable commitment of resources are expected to any of the resource categories if the Proposed Action were implemented.

CONCLUSION. Based on the findings of this EA conducted in accordance with the requirements of the National Environmental Policy Act (42 United States Code 4321-4347), Council on Environmental Quality (40 Code of Federal Regulations §§ 1500-1508), and 32 CFR 989, et seq., *Environmental Impact Analysis Process* (formerly known as Air Force Instruction 32-7061), and after careful review of the potential impacts, I conclude implementation of the Proposed Action would not result in significant impacts to the quality of the human or the natural environment. Therefore, a Finding of No Significant Impact is warranted, and an Environmental Impact Statement is not required for this action.

BRIAN D. MAAS
Colonel, USAF
Vice Commander

7 AUG 07
Date

EIELSON AIR FORCE BASE INFRASTRUCTURE DEVELOPMENT IN SUPPORT OF RED FLAG-ALASKA ENVIRONMENTAL ASSESSMENT

August 2007

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1.0 PURPOSE AND NEED

The United States Air Force (Air Force) proposes to implement infrastructure improvement projects within the already-developed portion of Eielson Air Force Base (AFB) in support of RED FLAG-Alaska (RF-A) and other base missions. These infrastructure improvements are needed for transient and special mission personnel and equipment as Eielson AFB continues its strategic mission as part of the Air Force's fight in the Global War on Terror.

1.1 INTRODUCTION

Eielson AFB, located 23 miles southeast of Fairbanks, Alaska, is home of the 354th Fighter Wing (354 FW). Figure 1-1 depicts a portion of central interior Alaska and Eielson AFB. The 354 FW serves as the hosting unit at Eielson with F-16 C/D Fighting Falcon aircraft. A variety of transient and special mission aircraft operate at Eielson, particularly during major flying exercises (MFEs) such as Eielson's former COPE THUNDER and emerging RF-A training exercises.

Aircraft from Eielson AFB can readily access Alaska's expansive training airspaces.

Eielson supports six military tenant units. Most visible among them is the Alaska Air National Guard (AKANG) 168th Air Refueling Wing (168 ARW) with KC-135 Stratotankers. Additional military units include Detachment 632, Air Force Office of Special Investigations; Detachment 460, Air Force Technical Applications Center; 66th Training Squadron, Arctic Survival School; 210th Rescue Squadron; Detachment 1; and Detachment 14. As a result of 2005 Base Realignment and Closure (BRAC) Commission findings, Eielson's A-10/OA-10 Thunderbolt aircraft with the 355th Fighter Squadron have been reassigned to Barksdale AFB, Louisiana and Moody AFB, Georgia. In addition, an alert squadron will be reassigned from Galena, Alaska to Eielson AFB.

The Proposed Action would support RF-A and other missions by transforming the 18th Fighter Squadron (18 FS) to a dedicated aggressor squadron and implementing infrastructure improvement projects for host and tenant units with defined criteria and within specific thresholds in the area of the base property that is fully developed. This area is referred to as the base developed area (BDA). The BDA identified for project siting under the Proposed Action is the area on the base shown in Figure 2-1, which includes areas where construction and environmental disturbance have already occurred and environmental consequences have been thoroughly investigated and documented. For a more complete description of the BDA, see Sections 2.1. Under the No Action Alternative, certain infrastructure improvements in support of current and future mission goals would not be performed and the 18 FS would not take on a dedicated aggressor mission.

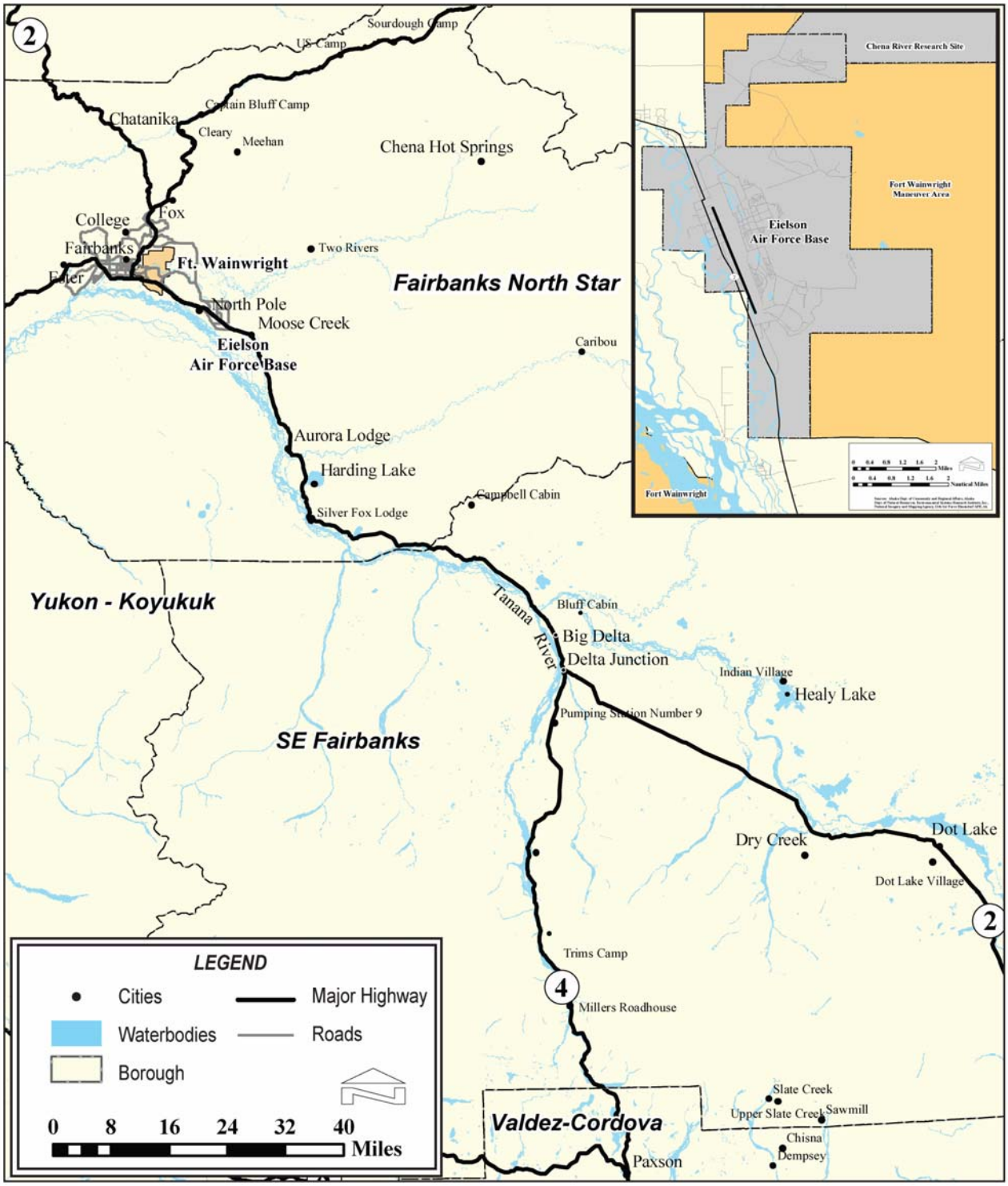


Figure 1-1. Vicinity Map of Eielson AFB

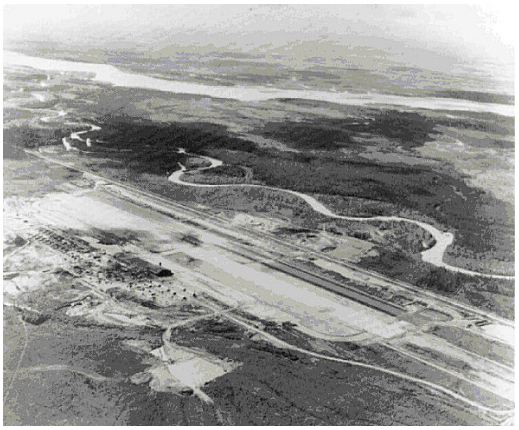
As an active military installation, Eielson AFB requires new construction, renovations, infrastructure upgrades, and ongoing maintenance and repair. This Environmental Assessment (EA) serves two main purposes: 1) this EA addresses specific facilities at Eielson AFB currently proposed to support the RF-A exercises, and 2) this EA evaluates the specific developed portion of Eielson AFB where renovation and construction could occur in support of Eielson AFB host and tenant missions.

Transient C-130s support major training exercises at Eielson AFB and Pacific Air Force operations worldwide.

This EA addresses project specific and BDA area specific actions and contains both specific facilities and contains a programmatic approach to facilities within the BDA to support host and tenant missions. The Proposed Action and the No Action Alternative are addressed in accordance with the National Environmental Policy Act (NEPA) (42 United States Code [USC] 4321-4347), Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] § 1500-1508) and Title 32 CFR Part 989, et seq., also published as Air Force Instruction (AFI) 32-7061, Environmental Impact Analysis Process. Potential consequences to both the human and natural environment are considered.

The purpose of construction and renovation of Eielson AFB facilities within the BDA is to permit Eielson AFB to continue to support host and tenant missions. These facilities are needed to meet aircraft and personnel requirements as Eielson AFB continues its 60+ year strategic mission in defense of the United States (US).

1.2 BACKGROUND



Eielson in 1945. Eielson's airfield and developed areas are constructed on fill material deposited in cleared forest wetlands.

As a military installation active since 1944, Eielson's infrastructure has a long history of adapting to growth, changing missions, and innovation. It has always been essential to maintain infrastructure suited to current mission needs as well as adaptable to changing needs and new technologies. The result is a base that routinely requires new construction, renovations, infrastructure upgrades, and ongoing maintenance and repair within the developed portions of the base property or BDA. Over time, these projects have reflected the needs as anticipated by base planners in support of the Wing Commander's vision and implementation of Eielson's strategic mission.

NEPA documents have been prepared to address these facilities and infrastructure improvements. In 1993, Eielson AFB implemented its first programmatic omnibus EA addressing projects sited within the BDA exclusive of those requiring wetlands permits, those sited within 100-year floodplains, and those requiring 30-day public review as prescribed in Title 32 CFR Part 989.15(e)(2). The purpose of this programmatic EA was to use resources more efficiently, provide an environmental analysis that addressed cumulative consequences of different projects within the BDA, and make infrastructure more responsive to changing needs. This omnibus approach avoided piecemeal environmental documentation and analysis and reduced redundancy while maintaining high environmental standards. The 1993 programmatic omnibus EA was updated and succeeded by a 1997 EA and the concept was coordinated with the United States Environmental Protection Agency (USEPA), United States Fish and Wildlife Service (USFWS), and the State of Alaska Department of Conservation. The coordinated omnibus EA addresses the BDA and provides planning and environmental information as the Wing Commander implements needed facility modifications, updates, and improvements to meet mission demands.

1.3 RECENT RECOMMENDATIONS

BRAC 2005 recommended reassignment of all aircraft from Eielson AFB except tenant stratotankers with the 168 ARW and the shift of base operations to "warm" status. During subsequent review, the BRAC Commission emphasized Eielson's proximity to the Pacific Alaska Range Complex (PARC), the Air Force's intention to increase the number of large-scale exercises at Eielson, sustainment of the 354 FW, and recognition of Eielson's strategic role as America's northernmost air defense site as critical components in maintaining Eielson's mission. The result of the revised BRAC review (2005) is still pending to a certain degree. Potential for the following exists:

- Reinvestments in Alaska's premier training airspaces and ranges.
- Challenges to overcome halted military construction (MILCON).
- Ongoing comprehensive base planning.
- Loss of a ground forces air support mission.
- Expansion and refinement of MFEs as the predominant base mission.

Both airmen and pilots forge essential skills by training under harsh conditions at Eielson AFB. A-10 aircraft, like this one, are being reassigned under BRAC.

In March 2006, COPE THUNDER Exercises were renamed RED FLAG-Alaska and a course was set to create a training experience similar in structure and intensity to Air Combat Command's RED FLAG Exercises currently conducted at Nellis AFB. Eielson AFB had hosted COPE THUNDER since its relocation from Clark Air Base in 1992. For years, Eielson's COPE THUNDER Exercises stood as Pacific Air Force's largest combat training exercise (Air Force 2005a). As part of RF-A, the F-16C/D aircraft based at Eielson would be replaced by an aggressor squadron of F-16A aircraft. In addition, specific facilities are proposed to be renovated or constructed at Eielson AFB to support the RF-A mission. Similar base infrastructure projects are expected to be identified as the RF-A program is implemented. These RF-A facilities could result in changes to the characteristics of the BDA but not its total area. Sufficient infrastructure enhancements are likely to be identified for RF-A, however, to justify environmental analysis as part of a programmatic re-assessment of near term renovation and construction projects within the already-developed portion of the base. Emerging RF-A program attributes and their environmental analyses are reviewed in Table 1-1.

The 354 FW one-for-one F-16 aircraft exchange to create an RF-A aggressor squadron is designed to fall within established parameters previously analyzed in the Environmental Assessment of Major Flying Exercises in Alaska (1993) and Final Environmental Impact Statement Alaska Military Operations Areas (1996). The EA and EIS are also described in Chapter 5.0, Cumulative Resources.

Table 1-1. MFE Transformation under RF-A Program

MFE Attribute	***Environmental Analysis***
Base Infrastructure	Core RF-A facility needs identified with others emerging. Renovation and new construction at Eielson AFB required to enhance base capabilities and capacity analyzed in this programmatic document
Range Use	18 FS RF-A aggressor squadron requirements development to fall within parameters established for COPE THUNDER and analyzed in MFE EA (Air Force 1993) and MOA EIS (Air Force 1995).
Airspace Use	18 FS RF-A aggressor squadron requirements development to fall within parameters established for COPE THUNDER and analyzed in MFE EA (Air Force 1993) and MOA EIS (Air Force 1995).

1.4 PURPOSE AND NEED

As a base at America's northernmost frontier, in close proximity to both European and Asian theaters, adjacent to the largest land-based military training airspace in the US, and hosting world-class MFEs, Eielson plays a predominant role in protecting and preserving national interests and maintaining unchallenged air dominance. Efficient and integrated application of infrastructure improvements are needed to meet this role. The purpose of the Proposed Action is

to provide overall support for certain infrastructure improvements (e.g., maintenance, repair, upgrades, demolition, and construction). These infrastructure improvements are needed to support RF-A as well as other current and reasonably foreseeable mission requirements.

This environmental analysis uses a comprehensive framework to evaluate the consequences of these projects and consider their broader cumulative effects. This EA is intended to meet the following goals:

- Evaluate baseline conditions of the developed portions of base property and evaluate the environmental consequences of infrastructure changes.
- Evaluate, revise, and expand the previous version of the programmatic omnibus EA to provide Eielson AFB an efficient, environmentally sound framework to evaluate future development in the BDA.
- Evaluate specific proposed infrastructure improvements at Eielson AFB to support the conversion of Eielson's F-16 aircraft into an aggressor squadron in support of RF-A.
- Provide Eielson's base planners a tool whereby projects in the Base General Plan can be developed in a manner that is environmentally sound and predictable.

The programmatic approach of this document demands constant review for relevancy and accuracy and will be revised at approximately 5-year intervals. Ultimately this document will be synchronized to the review cycle of the base general plan currently in development.

For RF-A base support, the Proposed Action is needed to enhance or optimize:

- Eielson AFB on-base combat training review and technical analysis.
- Communication with existing electronic range components.
- Aircraft ground support efficiency.
- Taxiway safety during high use.

The facilities and infrastructure improvements considered under the Proposed Action would allow Eielson AFB to become increasingly well-suited to mission requirements, function more efficiently, and respond to mission requirements within the BDA.

1.5 EIELSON AFB

Eielson AFB is located in the broad Tanana River Valley approximately 23 miles from Fairbanks in Alaska's central interior (Figure 1-1). The climate is harsh and dry with short, warm summers giving brief respite from frigid winters. The Tanana River, in the vicinity of Eielson, presents a broad alluvial floodplain with braided stream channels and low gradient tributary sloughs that crisscross a mixture of black spruce wetlands and white spruce/paper birch uplands.

In this setting, surveying of what would become Eielson AFB began in 1943. Originally known as Mile 26 Strip, because of its gate's location at milepost 26 of the Richardson Highway, Eielson was built on Army owned land as an auxiliary airfield and flood control project. River gravels, cobble, and soil were quarried and transported from large open pits to the airfield to elevate the runway and facilities above the flood-prone river valley. From its inception, the base was built upon land reclaimed from cleared forested wetlands through filling and grading. The original developed area was 600 acres and featured two 6,625 foot long runways.

Eielson in 1950. Base development continued through accumulating fill until Eielson AFB's developed area came to resemble an island resting amid wetlands and permafrost within the Tanana River floodplain.

With the onset of the Cold War, Eielson became a central player in the mission to support intercontinental bombers for the Strategic Air Command. Longer runways were needed. Eielson's developed area expanded and the runway was lengthened to 14,500 feet. At that time, this was the longest runway in North America (currently, it ranks eighth). With this expansion, Eielson became a strategic bombing base. The largest hanger was built to house two B-36 bombers.

With its Cold War mission, Eielson stepped onto the stage as a full-fledged Air Force installation. As strategic challenges facing our nation changed, Eielson's missions shifted in response. Eielson's location allows for faster response to hot spots in Europe, Korea, and the Far East than can be made by units at bases on the East Coast. With US Army training ranges in Alaska and expansive military training airspaces, Eielson has played an essential role in air support for Department of Defense (DoD) training and MFEs. Host and tenant units and a variety of transient aircraft are supported by Eielson AFB. Eielson has also provided a platform for cold weather training and equipment testing. To support these varied missions, the reclaimed developed portion of Eielson eventually grew to its current size of 3,408 acres within a base of 19,790 total acres.

1.6 ORGANIZATION OF THE DOCUMENT

This EA includes six chapters. Chapter 1.0 introduces the purpose and need for infrastructure and facility improvements in the context of Eielson AFB host and transient mission requirements. Chapter 2.0 characterizes the Proposed Action and alternatives, including the No Action Alternative. The project's scope, region of influence (ROI), and regulatory framework are detailed. Chapter 3.0 describes the current baseline conditions of the affected environment. Chapter 4.0 assesses the potential environmental consequences to the affected environment from the Proposed Action and the No Action Alternative. Chapter 5.0 explains cumulative effects and irreversible and irretrievable commitment of resources. Chapter 6.0 includes references and documents contacts made during document development. Resources under consideration for this EA include land use (including consideration of Air Installation Compatible Use Zones [AICUZ]) and visual resources, noise, socioeconomics and environmental justice, cultural

resources, infrastructure, physical resources, hazardous material and waste management, biological resources, air quality, and safety. Airspace is not analyzed because this EA addresses base development activities. Airspace and range use by the proposed 18th Aggressor Squadron (18 AGRS) would be designed to fall within pre-existing parameters established for PARC use. Appendix A describes how project implementation under the Proposed Action would be documented through the use of an inclusion checklist. Appendix B describes an interactive database designed to support tracking of environmental effects. Appendix C, Agency Coordination, includes an example Interagency and Intergovernmental Coordination for Environmental Planning (IICEP) letter and the EA distribution list.

2.0 DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 PROPOSED ACTION

The Air Force at Eielson AFB proposes to implement infrastructure improvements to provide enhanced facilities support for RF-A and support ongoing mission needs within the BDA. This EA provides a framework and programmatic approach to planning, environmental documentation, and tracking to support these infrastructure improvements. Infrastructure improvement projects captured include those planned and anticipated to fulfill mission needs and those supporting the emergence of RF-A as a world-class MFE. General inclusion criteria for this EA include relevant projects that:

- Occur within the developed portion of the base (see below).
- Do not require wetlands permits or are located within the 100-year floodplain.
- Are not subject to 30-day public review as detailed in Title 32 CFR Part 989.15(e)(2).

The ROI for the Proposed Action includes reclaimed portions of Eielson AFB property already under development, including those areas that have been developed since the preparation of the 1996 Omnibus Base Construction EA (Air Force 1996). Developed areas are those that:

- Have been filled to grade above the estimated 100-year floodplain.
- Do not possess unique or high quality habitats, as identified by the Eielson AFB Integrated Natural Resource Management Plan (INRMP).
- Occur on or immediately adjacent to sites that have been completely committed through previous development.

Included in these areas are lawns, recreational areas such as ball fields, landscaping features, ruderal vegetation areas, and areas that have acquired secondary growth of tree stands atop graded fill material. For the purposes of this document, the ROI is termed the BDA. It excludes surrounding areas of the base property that consist of wetlands, waters of the US, and native terrestrial habitats. Figure 2-1 depicts Eielson AFB's BDA.

Existing base facilities have supported mission requirements and will continue to do so. It is essential that this infrastructure also be increasingly effective at supporting future mission needs. Planners will need to consider the following development goals:

- Plan for growth and optimal utilization of base capacity.
- Plan for changing mission requirements.
- Plan for changing technology.
- Plan for improving resource stewardship.
- Plan for improving base quality of life.

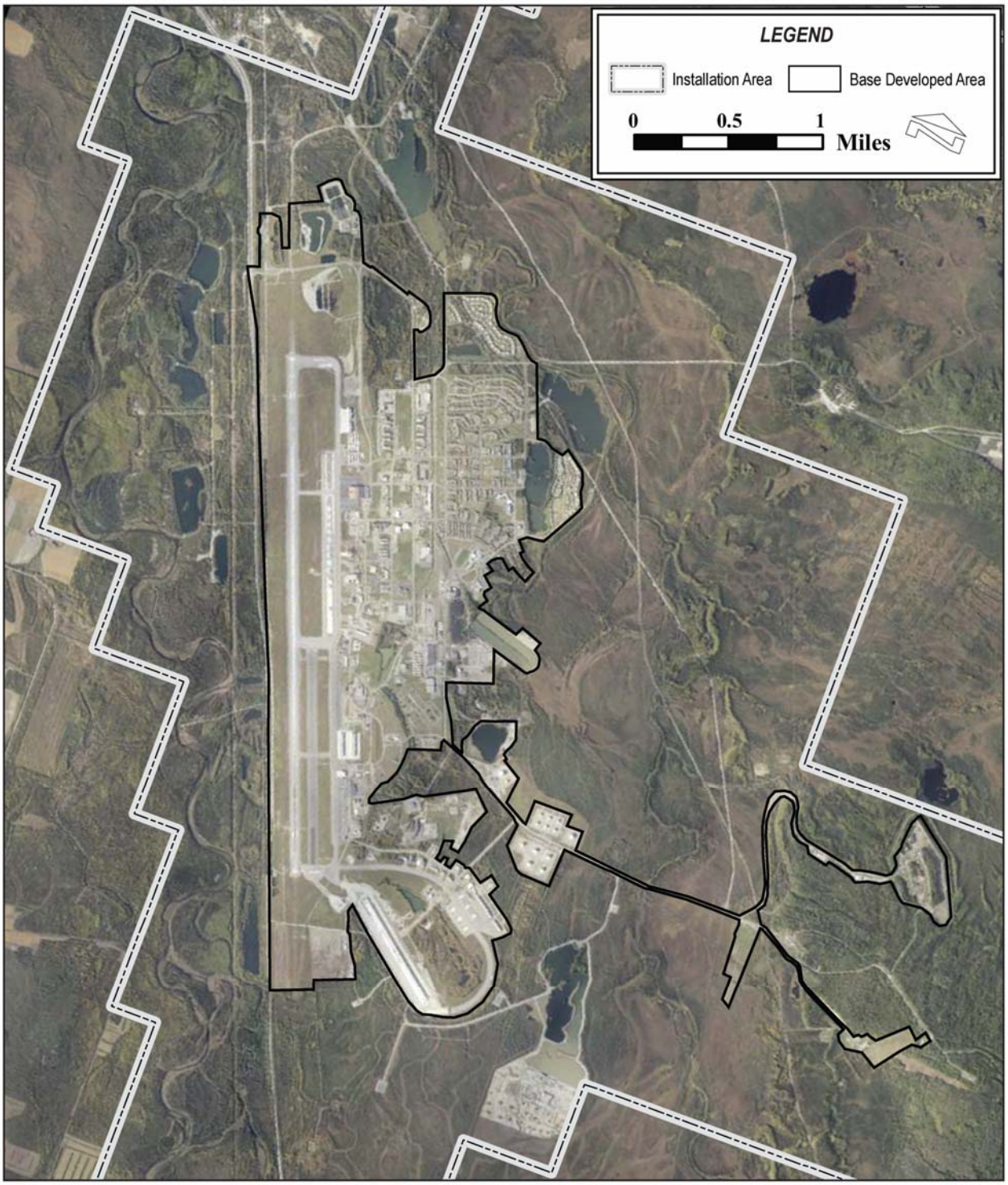


Figure 2-1. Base Map of Eielson AFB

- Plan for base airspace and land use compatibility.
- Plan projects, when possible, to avoid, possible environmental consequences and thereby meet the criteria for environmental review under this Infrastructure Development EA.

Facilities and infrastructure affect these goals through new construction, renovations, infrastructure upgrades, and ongoing maintenance and repair. Construction and environmental constraints to future development are comprehensively addressed during project planning. Constraints include airfield clearances, AICUZ noise and safety considerations, quantity-distance explosive safety zones, and potential historic sites. Environmental constraints involve Installation Restoration Program (IRP) and Solid Waste Management Unit sites, landfills, floodplains, wetlands, and species locations and habitats. Wetland and 100-year floodplain determinations are made through consultation with the Natural Resources Officer, Federal Emergency Management Agency maps, and US Army Corps of Engineers (USACE) as needed.

Guidance for planning base development projects is covered under base plans listed in Table 2-1. The 354th Civil Engineer Squadron/Environmental Flight (CEV) reviews all proposed projects for specific environmental concerns and relevant permitting. This review is triggered through the submission of AF Form 332 (Base Civil Engineer Work Request Form) and AF Form 813 (Request for Environmental Impact Analysis) by the project's proponent. As part of this process, IRP review is conducted by 354th Civil Engineer Environmental Restoration (CEVR). CEV also attends design review conferences. Proposals submitted to CEV are reviewed for conformance to base plans, potential for impacts to wetlands, proximity to known hazardous sites, historical and cultural significance, environmental permit requirements, and threatened and endangered species. When appropriate, soil and groundwater contamination screening is initiated. Construction on contaminated sites requires that cleanup analysis and practices proceed under Alaska Department of Environmental Conservation (ADEC) approval. Evaluation by ADEC includes an approved sampling and analysis plan and a quality assurance program plan.

Table 2-1. Environmental Guidance for Base Development Projects

Base Plans	***For Projects Potentially Affecting***
Base General Plan	Land Use, Visual, Safety, and Noise
Pollution Prevention Plan	Hazardous Waste, Physical, and Surface and Ground Water
Stormwater Pollution Prevention Plan	Surface and Ground Water
Installation Restoration Program Sitewide Monitoring Program and Record of Decision	Documented Contaminated Sites
Integrated Natural Resources Management Plan (INRMP)	Biological, Physical, Land Use, and Recreational
Integrated Cultural Resource Management Plan (ICRMP)	Cultural and Land Use
Hazardous Material and Waste Management Plan	Hazardous Materials and Waste
Eielson Air Force Base Asbestos Management and Operations Plan	Hazardous Materials and Waste
Lead Based Paint Plan	Hazardous Materials and Waste

Facility and infrastructure projects within the BDA would enhance base capacity, improve infrastructure, tailor facilities to support current missions, provide flexibility for new missions, and improve quality of life features (personal communication, Nolke 2007). Each proposed project covered under this EA must meet the infrastructure project criteria. In addition, each project must adopt appropriate, project specific impact avoidance measures. The infrastructure inclusion criteria and impact avoidance measures are presented in Table 2-2 and form the basis for the planning checklist in Appendix A. Continuing base development is expected. As missions evolve, this EA will help Eielson AFB continue to balance mission requirements, support facility improvements, and meet personnel needs with environmental stewardship.

2.1.1 Proposed RED FLAG-Alaska Facilities at Eielson AFB

Predominant among emerging base mission requirements affecting facilities planning are those associated with RF-A. As part of the Proposed Action, expanding RED FLAG activities will require a variety of infrastructure improvements within the BDA. RF-A infrastructure projects are specific examples of the Eielson AFB mission enhancements, infrastructure modernization, safety improvements, and hazardous materials removal occurring within the BDA and analyzed in this EA.

Emerging RF-A exercises require certain infrastructure improvements at Eielson AFB to optimize base support of this mission.

Table 2-2. Inclusion Criteria and Avoidance Measures

Infrastructure Inclusion Criteria	*Infrastructure Impact Avoidance Measures*
• Be within the BDA. • Does not require wetland permits. • Not located within a 100-year floodplain. • Not a project listed in 32 CFR 989.15(e)(2) • Not subject to update or changes in environmental laws, policies, or directives.	• Coordinate a construction footprint and land route with 354 CEV • Incorporate sediment and erosion control to graded sites – Install siltation fencing – Install storm drain inlet – Install tree protection – Install temporary sediment traps – Install diversion dikes within project limits • Adhere to USEPA administered Stormwater National Pollution Discharge Elimination System (NPDES) System • Review IRP status • Review new non-temporary stationary emission sources for National Ambient Air Quality Standards (NAAQS) and modify engineering, as appropriate. • Place gravel at entrance to construction site to reduce soil tracking on paved roads • Control fugitive dust with Best Management Practices (BMPs) • Evaluate any demolition site for asbestos or lead-based paint; plan and implement abatement and disposal requirements for asbestos or lead-based paint • Evaluate any excavation projects for contaminated soil • Apply remediation requirements for any contaminated soils • Plan for disturbed surface restoration • Plan for revegetation of disturbed existing vegetation or other ground surfaces • Obtain approval for surface restoration and revegetation plan from 354 CEV • Implement revegetation of disturbed areas • Revegetate existing vegetation or other ground surface • Document all adherence to project criteria and adherence to pre-existing mitigation measures

Specific projects within the BDA associated with RF-A are identified in Table 2-3. Each is keyed to development goals for Eielson and is typical of those projects supporting current and reasonably foreseeable missions over the next five years.

One RF-A facility is a Coal Warfighter/Special Technical Operations (CW/STO) briefing and meeting center. The development of a CW/STO center is key to Eielson AFB's ability to support RF-A exercises. Current plans have this project implemented through the renovation and reconfiguration of the interior space of Building 1141, near the northwest end of the flightline. Project components would include:

Among planned infrastructure projects to support RF-A at Eielson is a CW/STO center. Developing this facility at Eielson AFB is essential to support Red Flag training goals. A CW/STO center provides dedicated infrastructure for electronic and visual review and analysis of specific training events for both participating pilots and commanders. It facilitates optimal development of individual and unit capabilities within a formalized and heavily documented framework.

- Reconfiguring interior walls to support meeting rooms, offices, security, and administration.
- Relocation of some building ingress and egress points to match new interior and improve functionality and security.
- Replace heating, ventilation, and air conditioning system, including the installation of a 15-ton air conditioning unit.
- Modernization of building electrical and fire detection/suppression to meet current standards.

Renovation work would involve nearly the entire 35,000 square foot interior of Building 1141. Building 1141 was originally constructed in 1954 and is currently within Eielson AFB's Flightline Historic District. Demolition of interior walls would involve the removal of debris, some of which would contain asbestos materials and lead-based paint. Building 1141 overlies IRP site DP44, battery shop leach field. A Remedial Investigation Feasibility Study has already been conducted as part of project siting development. Additionally, no alterations of building surroundings (parking, sidewalks, landscaping, etc.) are planned. Project components for CW/STO center development are typical of those types of projects assessed and documented through the implementation of this programmatic Infrastructure Development EA.

Other RF-A projects currently identified involve repaving and resurfacing of existing impervious surfaces associated with the airfield taxiway and arming areas (see Table 2-3). These projects would be conducted to increase efficiency of airfield operations, increase capacity, and improve safety. No net increase in impervious surface is anticipated as a result of these projects. No inhibition of airfield operations is expected during construction.

Any additional RF-A construction or renovation projects proposed within the BDA would be required to meet the criteria for relevant projects described at the beginning of Section 2.1 for inclusion in this programmatic analysis. It is not expected that additional projects modifying Eielson AFB infrastructure to support RF-A would fall outside inclusion criteria. Such projects would require preparation of a separate environmental analysis prior to project implementation.

Table 2-3. RED FLAG Planning for Infrastructure Improvement Projects

Funding Year	*Infrastructure Improvement Project*	*Construction Type*	*Funding Source*	*Link to Mission Goals*
FY07	CW/STO Permanent Facility Communication Infrastructure	Renovation of 35,000 square foot interior	SRM	Support changing mission requirements by supporting RF-A training review. Required by US and Colonial Flag participants.
FY07	Resurface North Golf Arming Area	Paving	SRM	Supports Wing and RF-A mission efficiency and optimal utilization of base capacity. The asphalt pavement regularly incurs damage from petroleum product spills. Concrete arm pads on north Taxiway Golf for eight aircraft (2 x 4-ship cells) are needed to eliminate constant work-arounds of damaged areas. Asphalt in this area is also listed as "poor" in various reports.
FY07	Resurface of South Golf Arming Area	Paving	SRM	Asphalt surveys indicated the asphalt is in poor condition and is a FOD issue.
FY07	Highspeed Taxiway	New flightline construction	MILCON	Support the increased number of aircraft by reconfiguring the exiting taxiway.
FY07	PARC Electronic Modernization	Renovation of existing facilities	SRM	Supports changing mission requirements and growth.

SRM = Sustainment, Renovation, and Modernization
MILCON = Military Construction
FOD = Foreign Object Debris

2.1.2 Proposed Aggressor Squadron at Eielson AFB

The Air Force proposes establishing an aggressor training squadron at Eielson AFB as part of the Proposed Action. The aggressor squadron would support RF-A development and better align Alaska's RED FLAG training exercises with those conducted at Nellis AFB. Implementation of this aspect of the RF-A Program would involve a one-for-one exchange of 18 FS F-16 aircraft and transform the current mixed air-to-ground and air-to-air mission for a primarily air-to-air mission. The Proposed Action includes conversion of the 18 FS to a dedicated F-16 aggressor training squadron beginning in early FY08. The transition of the 18 FS would begin with the replacement of the current squadron of 18 Primary Assigned Aircraft (PAA) Block 40 F-16Gs with 18 PAA Block 30 F-16Cs. Replacement aircraft would likely be reassigned to Eielson AFB from Kunsan Air Base, Republic of Korea. Aggressor squadron development and initial training would occur at Nellis AFB. No additional sortie operations at Eielson AFB over the current F-16 use are anticipated with the aggressor squadron. The Proposed Action aggressor squadron would be supported by Eielson facilities and infrastructure. That infrastructure would include the CW/STO briefing and meeting center and repaving and resurfacing projects. Improvements to other facilities would meet the infrastructure inclusion criteria and adopt the infrastructure project impact avoidance measures from Table 2-2.

Under the Proposed Action, the 354 FW will be transformed to a dedicated F-16 aggressor squadron supported by existing Eielson facilities and personnel.

2.1.3 Other Planned Infrastructure Projects

Table 2-4 lists additional infrastructure projects that have been identified to occur within the BDA over the next 12 months. They each support mission goals and are examples of the types of projects that meet specified criteria for inclusion in this programmatic analysis.

Table 2-4. Infrastructure Improvement Projects in support of other Missions

Funding Year	*Infrastructure Improvement Project*	*Construction Type*	*Funding Source*	*Project Link to Mission Goals*
FY07	Air National Guard communication facility expansion	Renovation and new construction	MILCON	Increases base capacity to support tenant mission
FY07	Modernize utilidor system along Kodiak and Arctic Avenues	Renovation	Operations & Maintenance	Supports optimal utilization of base capacity
FY07	New Supply warehouse	New Construction	MILCON	Supports optimal utilization of base capacity and plan for growth
FY07	70 new housing units	New Construction	MILCON	Supports base improvements to quality of life
FY07	New base chapel	New Construction	MILCON	Supports base improvements to quality of life and replaces failing infrastructure
FY07	New base commercial center including Base Exchange and bowling alley	New Construction	MILCON	Supports base improvements to quality of life

2.2 NO ACTION ALTERNATIVE

Under the No Action Alternative, specific construction or demolition projects would not be implemented. Selection of the No Action Alternative would result in continued use of existing facilities. Without implementation of the Proposed Action, Eielson might not adequately meet future mission requirements or changes due to aging facilities and underutilized capacity and would have increasing difficulty in supporting current and future mission goals.

- Future growth would be hampered.
- Some remediation/resource stewardship responsibilities would not be realized.

- Land use compatibilities and the functionality of the base could decrease.
- Quality of life for base personnel would decrease and the aging facilities would continue to deteriorate.
- Safety may be compromised.

Under the No Action Alternative, the 18 FS would not be transformed to an aggressor squadron. No aircraft would be exchanged. The current mission of the host unit would continue. This could adversely affect both readiness where the 18 FS existing F-16 aircraft are to be relocated and RF-A aggressor squadron training.

2.3 APPLICATION OF THIS ENVIRONMENTAL ASSESSMENT

This EA analyzes the potential environmental effects of specific identified infrastructure projects in support of RF-A, as well as infrastructure projects which meet the inclusion criteria within the BDA and are consistent with the development goals of Eielson AFB. For other infrastructure projects to be included under this Infrastructure Development EA, each project must completely adhere to, or adopt the forms, guidance, criteria, and avoidance actions summarized in Table 2-5 (Proposed Infrastructure Development Project Overview).

In its application, this document will allow for the streamlining of the environmental process. Repetitive discussion of issues common to all projects within this setting can be reduced and environmental management through CEV applied more judiciously. Each project adhering to base guidance and meeting inclusion criteria and avoidance measures (Table 2-5) and reviewed under this document would not receive a separate Finding of No Significant Impact (FONSI); when appropriate, tiered projects could be categorically excluded following Title 32 CFR Part 989 CATEX 2.3.11 by virtue of their similarity to projects addressed by this EA. AF Form 813, Block 19, Environmental Planning Function Certification, would identify the subject project's tiering to this EA and its accompanying FONSI. In addition, a checklist form (Appendix A) would be filled out for each project, delineating any other specific environmental issues needing documentation. Implementation would be tracked through a database (Appendix B) that will allow for an analysis of cumulative impacts that may be associated with the project. This document will be reviewed for relevancy and accuracy of analysis at approximately 5-year intervals.

Table 2-5. Proposed Infrastructure Development Project Overview

Project Review Checklist	*Completed or Adopted*
Prepares and Submits AF Form 332	
Prepares and Submits AF Form 813	
Adheres to guidance for planning base development projects	
Base General Plan	
Pollution Prevention Plan	
Stormwater Pollution Prevention Plan	
Environmental Condition of Property Map (IRP)	
Integrated Natural Resources Management Plan (INRMP)	
Integrated Cultural Resource Management Plan (ICRMP)	
Hazardous Material and Waste Management Plan	
Asbestos Management Plan	
Lead Based Paint Plan	
Meets Inclusion Criteria	
Be within the BDA	
Does not require wetland permits	
Not located within a 100-year floodplain	
Not a project listed in 32 CFR 989.15(e)(2)	
Not subject to update or changes in environmental laws, policies, or directives	
Adopts Impact Avoidance Measures	
Coordinate a construction footprint and land route with 354 CEV	
Incorporate sediment and erosion control to graded sites Install siltation fencing Install storm drain inlet Install tree protection Install temporary sediment traps Install diversion dikes within project limits	
Adhere to USEPA administered Stormwater National Pollution Discharge Elimination System (NPDES) System	
Place gravel at entrance to construction site to reduce soil tracking on paved roads	
Review IRP status	
Review new non-temporary stationary emission sources for National Ambient Air Quality Standards (NAAQS) and modify engineering, as appropriate	
Control fugitive dust with Best Management Practices.	
Evaluate any demolition site for asbestos or lead-based paint	
Plan and implement abatement and disposal requirements for asbestos or lead-based paint	
Evaluate any excavation projects for contaminated soil	
Apply remediation requirements for any contaminated soils	
Plan for disturbed surface restoration	
Plan for revegetation of disturbed existing vegetation or other ground surfaces	
Obtain approval for surface restoration and revegetation plan from 354 CEV	
Implement revegetation of disturbed areas	
Revegetate existing vegetation or other ground surface	
Document all adherence to project criteria and adherence to impact avoidance measures	
Implementation tracking database	

Analyzing base infrastructure development projects through this omnibus approach provides an effective mechanism for assessing direct, indirect, and cumulative impacts of projects within the BDA and tracking cumulative impacts into the future. Individual projects are not analyzed as isolated activities but viewed within the greater context of base infrastructure development to support mission goals. A database linked to Appendix B will facilitate this process.

This document would provide a mechanism for tracking the effect of projects within the BDA over time.

Implementation of a comprehensive approach to environmental analysis of base development with this omnibus EA would provide for:

- More efficient environmental documentation.
- More responsive documentation.
- Better use of base resources.
- Better tracking of cumulative impacts.

The result would be enhanced environmental planning and management.

Certain types of projects within the BDA would still require individual NEPA documentation. Among those are actions requiring a 30-day public review as prescribed in Title 32 CFR Part 989.15(e)(2) and those exceeding the scope of this document. Exceptions for inclusion in this document are projects that:

- Are sited within the 100-year floodplain.
- Require wetland permitting under Section 404 of the Clean Water Act.
- Present an unusual case, a new kind of action, or a precedent-setting type of potential environmental impact.
- Are similar, or closely similar to, projects that usually require preparation of an Environmental Impact Statement.
- Significantly increase Eielson's mission.
- Include the potential for cumulative impacts unforeseen by this document.
- Fall under new environmental laws, implementing policies, or directives.

Primary environmental concerns associated with the Proposed Action are related to asbestos abatement, lead-based paint removal, and remediation of soil and groundwater contaminated with petroleum fuels, lubricants, and solvents. Secondary environmental concerns include those associated with air quality and cultural resources (particularly architectural resources and historic

districts within the BDA), as well as the cumulative effect of increasing impervious surfaces for base runoff within the BDA.

2.4 ENVIRONMENTAL IMPACT ANALYSIS PROCESS

The environmental impact analysis process reviews all information pertinent to the Proposed Action and No Action Alternative and provides a full and fair discussion of potential consequences to the natural and human environment resulting from implementing infrastructure improvements within developed portions of Eielson AFB. The environmental impact analysis process includes involvement with the public and with agencies to identify and focus issues for analysis.

The following resources are analyzed in this EA: land use and visual resources, socioeconomics and environmental justice, cultural resources, infrastructure, physical resources, hazardous materials and waste management biological resources, air quality, and safety. Chapter 3.0 describes the affected environment for these resources and Chapter 4.0 addresses the potential environmental consequences of implementing either the Proposed Action or the No Action Alternative. A comparison of the potential environmental consequences is presented at the end of this chapter. The Proposed Action is limited to the developed portions of Eielson AFB. Mission-driven changes outside the BDA or enhancements to Eielson-associated airspaces and ranges are evaluated with separate environmental documentation and NEPA processes.

2.4.1 Agency Coordination

Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, requires intergovernmental notifications prior to making any detailed statement of environmental impacts. Through the process of IICEP, the proponent must notify concerned federal, state, and local agencies and allow them sufficient time to evaluate potential environmental impacts of a proposed action. Agency consultations were undertaken with regard to biological and cultural resources, primarily for compliance with the Endangered Species Act (ESA) and with the National Historic Preservation Act (NHPA). A single comment was received during agency review of the Draft EA. On May 2, 2007, the Alaska Department of Natural Resources informed that Office of Habitat Management and Permitting had no objection to the Proposed Action. Appendix C includes the comment letter, a sample IICEP letter, and the distribution list.

The Air Force has conducted interagency and intergovernmental coordination to identify sensitive environmental resources. The communications from agencies on recent infrastructure development projects have been incorporated in this EA. These communications have helped focus the environmental resources for evaluation.

To facilitate public involvement in this project, the Air Force prepared and published newspaper advertisements notifying the public of the:

- Intention to prepare the Draft EA.
- Availability of the Draft EA for review and comment.
- Availability of the Final EA.

All display advertisements were published in the *Fairbanks Daily News-Miner*.

2.4.2 Regulatory Compliance

This EA has been prepared in accordance with NEPA as described in Section 1.1. The intent of NEPA is to protect, restore, and enhance the environment through well-informed federal decisions. If the analyses presented in this EA indicate implementation of the Proposed Action and would not have significant environmental impacts, then a FONSI could be issued.

The analysis of environmental resource areas considered all applicable federal, state, and local regulations. Certain areas of federal legislation have been given particular consideration, including the ESA; the Clean Air Act (CAA) amendments of 1990; the NHPA; the Clean Water Act, and EO 11990, *Protection of Wetlands*. No endangered species, wetlands, or National Historic Registry impacts are anticipated as a result of implementing the Proposed Action's facility improvements. Construction practices described in Section 2.1.1 are designed to protect air and water resources.

Implementation of the Proposed Action could involve the need for concurrence from regulatory agencies. Compliance with the ESA involves communication with the Department of the Interior (delegated to the USFWS) in cases where a federal action could affect listed, threatened or endangered species, species proposed for listing, or species that are candidates for listing. A letter was sent to the appropriate USFWS agencies and their state counterparts informing them of the Proposed Action and requesting data regarding applicable protected species. Since all infrastructure projects are within the Eielson BDA, no adverse effects are anticipated and no further consultation is anticipated.

The preservation of cultural resources falls under the purview of the State Historic Preservation Office (SHPO), as mandated by the NHPA and its implementing regulations. A letter was sent to the Alaska Office of History and Archaeology informing them of the Proposed Action and a copy of this EA was provided.

2.4.3 Permit Requirements

This EA has been prepared in compliance with NEPA, other federal statutes, and applicable state statutes and regulations. A list of Eielson AFB permits was compiled and reviewed during the EA process. Table 2-6 summarizes these applicable federal, state, and local permits and the potential for change to the permits due to the Proposed Action. Management actions and procedures would need to be reviewed, coordinated and/or updated to ensure Air Force compliance with applicable instructions, guidance, and directives. No new permits are expected to be required; however, review of existing permits is conducted as part of the environmental review process for each new project (see Section 2.1).

Table 2-6. Environmental Related Permits

Permit	***Resource***	***Proposed Action***
Air Quality Operating Permit	Air	No change to existing permit expected
Eielson AFB NPDES	Point Discharge	No change expected
Eielson SWPPP	Stormwater	The Stormwater Pollution Prevention Plan would need to be reviewed for each project
Eielson AFB Biosolids Land Application Permit	Wastewater	No change to existing permit expected
Eielson AFB Hazardous Waste	Hazardous Waste	No change to existing permit expected
Eielson AFB Asbestos Landfill Permit	Hazardous Waste	No change to existing permit expected
Eielson AFB Coal Ash Landfill	Hazardous Waste	No change to existing permit expected
Aboveground Storage Tank Registration Certification	Hazardous Materials	New aboveground storage tanks (ASTs) may require registration with the State of Alaska
US Army Corps of Engineers Wetlands Permits	Water	No change expected

2.5 COMPARISON OF ALTERNATIVES

Table 2-7 summarizes the potential environmental consequences of the Proposed Action and No Action Alternative, based on the detailed impact analyses presented in Chapter 4.0.

Table 2-7. Summary of Potential Environmental Consequences

Resources	***Proposed Action***	***No Action***
Land Use and Visual Resources	Proposed construction projects compatible with base planning; no impact expected. No change in noise contours or sound levels as a result of this EA or the associated development projects. Short-term construction noise.	No change to land use; no impact expected.
Socioeconomics and Environmental Justice	No long-term change in base employment or expenditures; no change in minority population; no impact expected.	No change in base employment or expenditures; no change in minority population; no impact expected.
Cultural Resources	Project planning, siting, and implementation will comply with Eielson's ICRMP and other cultural resource documents. No significant impacts are anticipated.	Cultural resources remain the same; no impact expected.
Infrastructure	Infrastructure improved with new or renovated buildings and resurfacing; no adverse impact expected.	Infrastructure remains the same; buildings and other facilities continue to deteriorate.
Physical Resources	Soils within ROI consist of disturbed fill material. Projects under this document would not occur in wetland areas or within the base 100-year floodplain. The site-specific Stormwater Pollution Prevention Plan would be reviewed for each construction project. Only those projects affecting 1 acre or more would need to have a Stormwater Pollution Prevention Plan developed. No impact expected.	Physical resources would remain the same; no impact expected.
Hazardous Materials and Waste Management	Generation of waste consistent with normal base activity. Asbestos and lead-based paint waste would be generated; removal during renovation projects would reduce exposure potential for personnel. Excavation could result in removal and disposal of contaminated soils. Applicable permits and BMPs would be followed; positive impact anticipated.	Hazardous materials and waste management would remain the same. No remediation of some hazardous materials (soils, asbestos, lead-based paint) would occur.
Biological Resources	Previously disturbed habitats affected; no native vegetation or protected species present; no impact expected.	Biological resources would remain the same; no impact expected.
Air Quality	Combustion engines and fugitive dust emissions would produce localized, short-term elevated air pollutant concentrations, which would not result in any long-term impacts on the air quality. Facility expansion would result in minor increases in power/heat plant emissions. New facilities may require new on-site generators, increasing emissions. No adverse impacts to air quality or visibility.	Air quality would remain the same; no impact expected.
Safety	No impacts to ground safety or clear zones (CZs) or accident potential zones (APZs). Explosive safety to remain the same. Facility modernization would improve fire detection and suppression capability and reduce some physical hazards. No impacts anticipated.	Safety would remain the same; no impact expected.

3.0 EXISTING CONDITIONS

This chapter describes the affected environment at Eielson AFB and environs. A review of operational characteristics of the Proposed Action (Chapter 2.0) resulted in the identification of the following environmental elements as possibly affected: land use (including AICUZ) and visual resources, socioeconomics and environmental justice, cultural resources, infrastructure, physical resources, hazardous material and waste management, biological resources, air quality, and safety. Each resource is defined and the existing environmental conditions within the expected geographic extent of potential impacts, known as the ROI, are addressed for each environmental element in this chapter.

3.1 LAND USE AND VISUAL RESOURCES

3.1.1 Definition of the Resource

The attributes of Eielson AFB and nearby land use addressed in this analysis include general land use patterns, land ownership, land management plans, and applicable plans and ordinances. General land use patterns characterize the types of uses within a particular area including human land uses, such as agricultural, residential, commercial, industrial, institutional, and recreational, or natural land uses, such as forests, refuges, and other open spaces. Land ownership is a categorization of land according to type of owner; the major land ownership categories associated with Eielson AFB include federal, state, borough, and properties. Land use plans and ordinances, policies, and guidelines establish appropriate goals for future use or regulate allowed uses.

Visual resources consist of the natural elements (e.g., vegetation, waterbodies, mountains) and the manmade structures that typically make up the viewing environment. Visual resources are reviewed to determine the compatibility of construction projects within a surrounding environment.

Noise is defined as unwanted sound or, more specifically, as any undesirable sound which interferes with communication, is intense enough to damage hearing, or is otherwise annoying (Federal Interagency Committee on Noise [FICON] 1992). Human response to noise varies according to the type and characteristics of the noise, distance between the noise source and the receptor, sensitivity of the receptor, and time of day. For the purposes of describing baseline conditions and consequences, noise is discussed in terms of AICUZ.

The ROI for land use and visual resources consists of all the lands of Eielson AFB.

3.1.2 Land Use

Eielson AFB is located 23 miles southeast of Fairbanks, Alaska. The installation comprises 19,790 acres of federal land in the north east portion of the state of Alaska.

Figure 3-1 depicts existing land uses for Eielson AFB. The airfield and related operation function are located to the southwest of the cantonment area. A variety of other land uses may be found along the western portion of the base. Land uses on base include business, industrial, residential, and forested/natural. Residential housing is concentrated to the east side of the base. Land uses within the BDA include military industrial, commercial, and residential (base housing).

The base is bordered by the Yukon Training Area (Fort Wainwright Army range lands) to the east. There are various training facilities within the military installations, including maneuver areas, impact areas, and training areas. To the west of Eielson AFB are farmland and residential areas. A residential neighborhood known as Moose Creek is located directly to the northwest of Eielson AFB.

Open space and outdoor recreational land uses are scattered throughout the installation but are generally located toward the north and east of the BDA, away from the airfield and industrialized areas. Eielson operates a motorized vehicle campground, two recreational picnicking and fishing facilities, and a ski area during the winter. Several man-made lakes on base are stocked with fish and provide recreational fishing opportunities.

3.1.3 Visual Resources

Eielson AFB buildings generally do not exceed three stories in keeping with the base and surrounding visual environment. The base maintains Architectural Compatibility Standards for continuity amongst the buildings. Landscape development has been limited. The short growing season and harsh winters create a challenge for foliage. Lawns and some native plants have been the main vegetation coupled with a local tree-planting effort.

Eielson AFB is located in a setting that support native species.

3.1.4 Noise

Dominant noise sources at Eielson are associated with aircraft and airfield operations. On-base noise contours can exceed 80 decibels (dB) in the vicinity of the flightline, however, the noise level contours are 70 dB or lower in the closest residential area, Moose Creek, just north of the base. Housing is not recommended within 65 dB or greater noise contours. Existing noise contours associated with Eielson's airfield AICUZ are shown in Figure 3-2.

3.2 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

3.2.1 Definition of the Resource

Socioeconomic factors are defined as the basic attributes and resources associated with the human environment. The relevant factors related to the proposed infrastructure improvements at Eielson AFB assessed in this section include:

- Population and housing
- Economic activity
- Environmental justice

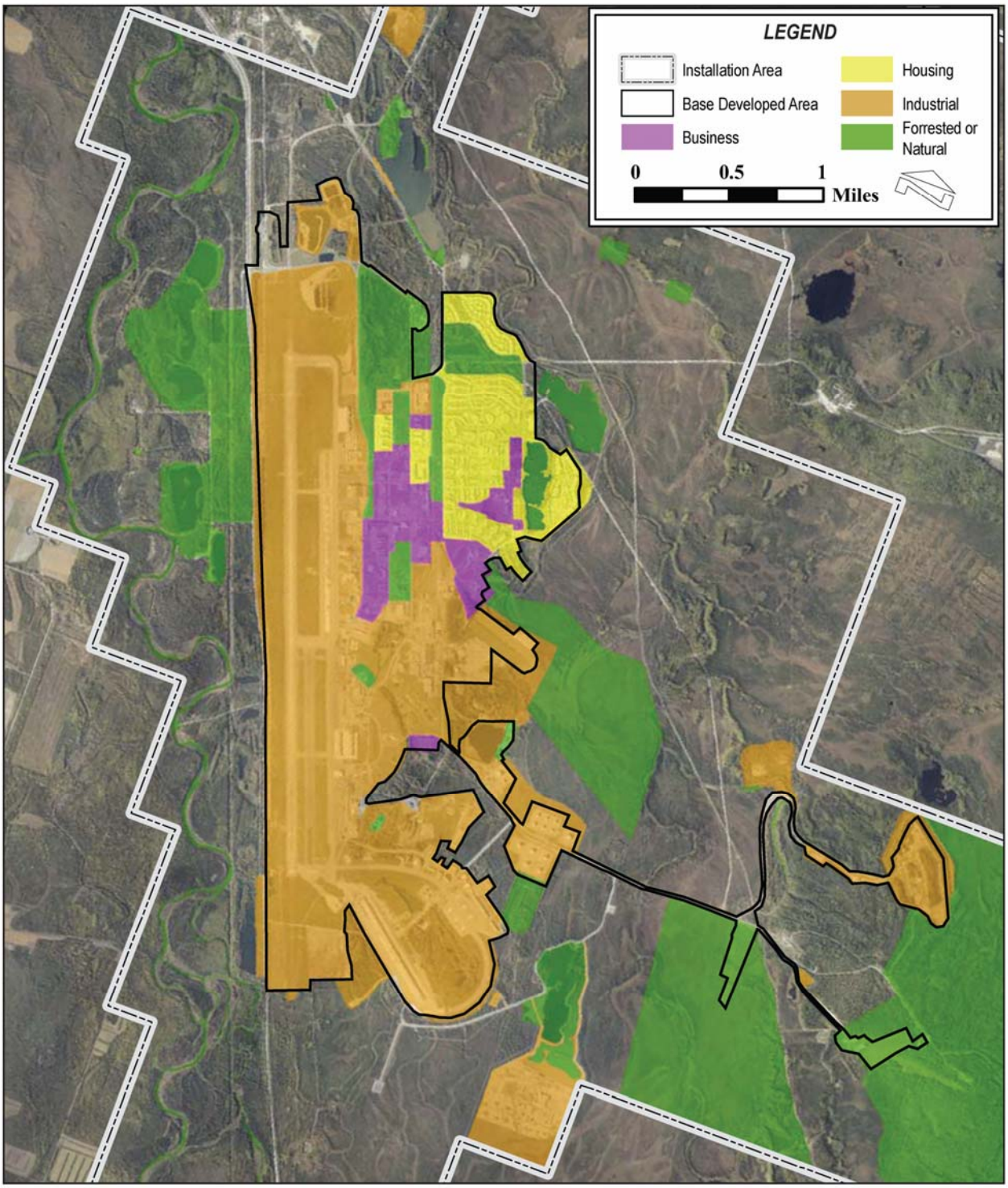


Figure 3-1. Eielson AFB Existing Land Use

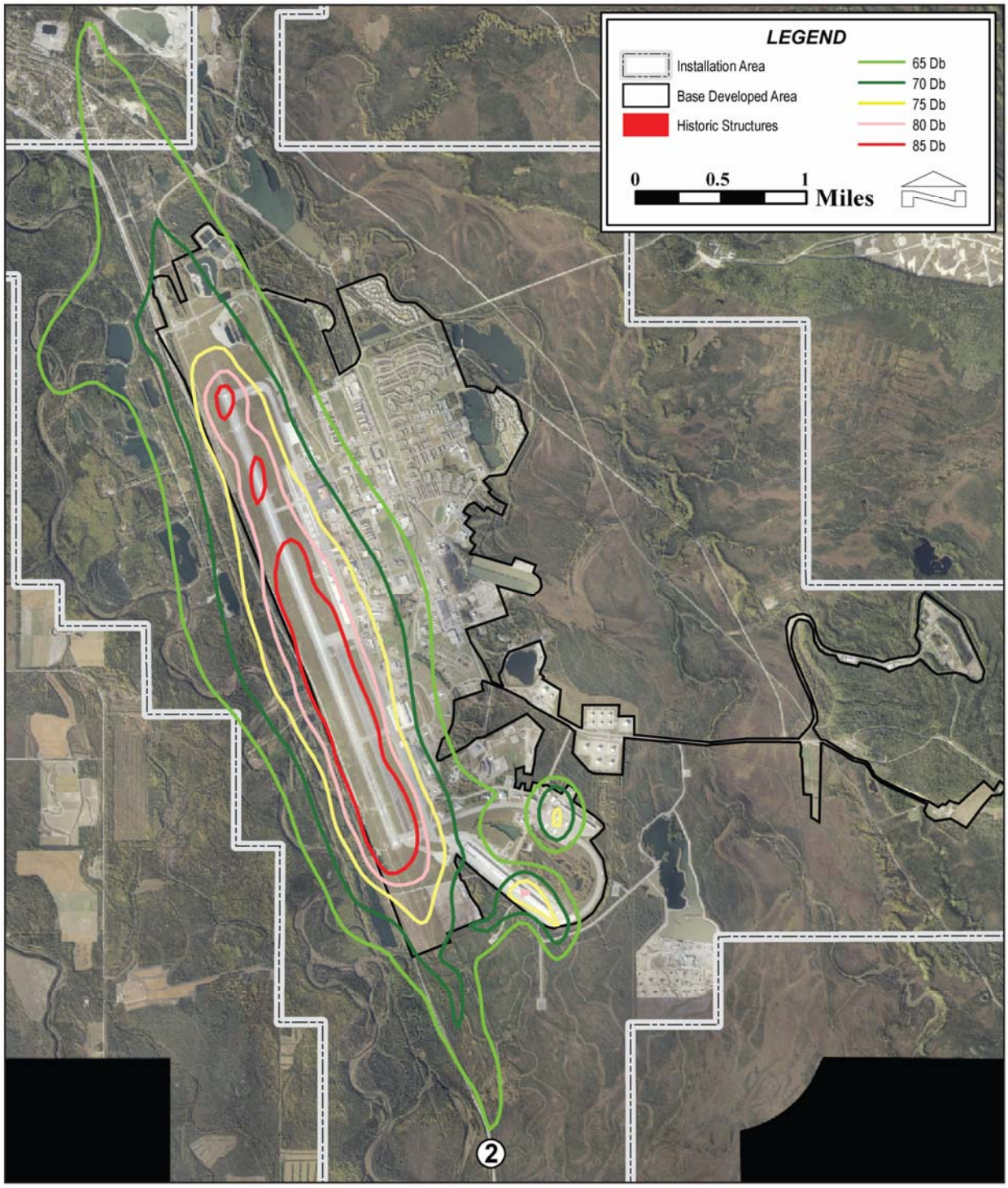


Figure 3-2. Baseline Noise Contours on Eielson AFB Associated with Current MFE Operations

Concern that certain disadvantaged communities may bear a disproportionate share of adverse health and environmental effects compared to the general population led to the enactment in 1994 of EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*. This EO directs federal agencies to address disproportionate environmental and human health effects in minority and low-income communities. EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, was enacted in 1997, directing federal agencies to identify and assess environmental health and safety risks to children, coordinate research priorities on children's health, and ensure that their standards take into account special risks to children.

For purposes of this analysis, minority, low-income, and youth populations are defined as follows:

- Minority population: Alaska Natives, American Indians, Asians, Blacks, Native Hawaiians and Pacific Islanders, or persons of Hispanic origin (of any race).
- Low-income population: Persons living below the poverty threshold as determined by the US Bureau of the Census (USBC).
- Youth population: Children under the age of 18 years.

Data for this analysis were obtained from a variety of sources, including the Air Force, USBC, and certain Alaskan agencies as noted. Estimates of environmental justice population categories were developed based on USBC data. The USBC does not report minority populations, per se, but reports population by race and by ethnic origin.

3.2.2 Existing Conditions

Eielson AFB is situated 23 miles southeast of Fairbanks, Alaska. The city of Fairbanks is located in the Fairbanks North Star Borough, which is the county equivalent in Alaska. Socioeconomic activities associated with the base are concentrated in Fairbanks North Star Borough, which comprises the ROI for this analysis. Available socioeconomic characteristics are addressed for Eielson AFB, the city of Fairbanks, and the state of Alaska, when appropriate.

3.2.2.1 POPULATION AND HOUSING

EIELSON AFB

The Eielson AFB population of 6,825 persons is composed of 2,442 active duty military personnel, 3,043 military family members, 789 civilian personnel, and 551 AKANG personnel (Air Force 2005b). The military family housing inventory at Eielson AFB includes 1,476 units. Unaccompanied permanent party housing provides a total of 523 dormitory rooms. Housing for transient use includes 151 temporary duty dormitory rooms, 40 temporary living facilities, and 390 lodging rooms.

FAIRBANKS AND FAIRBANKS NORTH STAR BOROUGH

The estimated 2005 population for Fairbanks was 30,970 persons. Fairbanks makes up 35.4 percent of the Borough population of 87,560 persons and 4.7 percent of the state population of

663,661 persons (USBC 2006). Population in the region has increased 5.7 percent since 2000, compared to 5.9 percent increase for the state and 5.3 percent for the nation as a whole. Additional information regarding demographic characteristics of the population can be found in Section 3.2.2.3, Environmental Justice.

According to the USBC, there were a total of 34,046 housing units in Fairbanks North Star Borough in 2005. The vacancy rate was 9.7 percent, and the homeownership rate was 51.1 percent (USBC 2005). In 2000, Fairbanks had 12,357 housing units, of which 34.9 percent were owner-occupied. The median value of owner-occupied homes in the Borough was $132,700. The average household size is 2.68 persons (USBC 2006).

3.2.2.2 ECONOMIC ACTIVITY

EIELSON AFB

Eielson AFB contributes to the Fairbanks economy through employment of military and civilian personnel and expenditures for goods and services from local businesses. In addition to base employment described above in Section 3.2.2.1, annual payroll associated with Eielson AFB personnel amounts to $201 million. In FY 2005, local construction, service contracts, and purchases totaled $29 million. Eielson AFB activities are estimated to generate 1,119 indirect jobs in the region with associated wages totaling $41 million (Air Force 2005b).

FAIRBANKS AND FAIRBANKS NORTH STAR BOROUGH

At the heart of the Alaskan Interior, Fairbanks is a regional hub providing a concentration of economic resources including intellectual capital, the natural resources industry, transportation infrastructure, and cold climate testing facilities (Fairbanks Economic Development Council 2006). Expanding on its traditional economic base, Fairbanks is moving to a more diverse economy while continuing to develop the state's rich natural resources.

Fairbanks enjoys a strong military presence in the area. Eielson AFB and Fort Wainwright contribute substantially to Fairbanks' economic development, with an estimated annual economic impact of $800 million (Fairbanks Economic Development Council 2006). In addition, the military contributes to technological advancements that benefit the region. Military-civilian collaborations on cold-weather testing and other high-tech developments generate indirect economic impacts and diversify Alaska's resource-based economy to a more knowledge-based economy.

The civilian labor force in Fairbanks North Star Borough included 42,600 persons in 2005, of which 40,025 were employed (USBC 2005). The unemployment rate in 2005 was 6.0 percent. Median household income was $56,560, and persons below the poverty level represent 9.5 percent of the population.

3.2.2.3 ENVIRONMENTAL JUSTICE

To comply with EO 12898, ethnicity and poverty status in the vicinity of Eielson AFB were examined and compared to state and national data. Minority persons represent 35.8 percent of the Fairbanks population, compared to 25.6 percent of the borough and 33.5 percent of the state

(see Table 3-1). Blacks are the predominant minority group in Fairbanks, while Alaskan Natives are the predominant minority in the borough and the state. While the aggregate racial and ethnic minority population in Fairbanks are proportionately higher than the borough and the state, their incidence is relatively consistent throughout the region and is not disproportionate within the vicinity of Eielson AFB.

Table 3-1. Total Population and Populations of Concern

	Total Population	***Percent Minority***	***Percent Low-Income***	***Percent Youth***
Fairbanks	30,970	35.8%	10.5%	29.4%
Fairbanks North Star Borough	87,560	25.6%	7.8%	28.9%
Alaska	663,661	33.5%	9.9%	28.4%
United States	281,421,906	30.9%	12.4%	25.7%

Source: USBC 2006.

The low-income population in Fairbanks is slightly higher than borough and state levels but less than the national level. In Fairbanks, 10.5 percent of the population is designated low-income, composed of persons and families with incomes below the poverty level. By comparison, low-income population rates for the Borough and state are 7.8 percent and 9.9 percent, respectively. Consequently, the low-income population could be considered disproportionate in Fairbanks.

To comply with EO 13045, the number of children under age 18 was determined for the vicinity of Eielson AFB and compared to state and national levels. Youth make up 29.4 percent of the Fairbanks population, with no known concentrated areas of concern in the vicinity of Eielson AFB where youth might experience special health or safety risks. Children under 18 years account for 28.9 percent and 28.4 percent of the population in Fairbanks North Star Borough and Alaska, respectively.

3.3 CULTURAL RESOURCES

3.3.1 Definition of the Resource

Cultural resources are any prehistoric or historic district, site, building, structure, or object considered important to a culture or community for scientific, traditional, religious, or other purposes. Historic properties (as defined in 36 CFR 60.4) are significant archaeological, architectural, or traditional resources that are either eligible for listing, or listed in, the National Register of Historic Places (NRHP). Archaeological resources are locations where prehistoric or historic activity measurably altered the earth or produced deposits of

The architecture of many Eielson AFB buildings captures the styles typifying both World War II and Cold War historic periods.

physical remains (e.g., arrowheads). Historic architectural resources include standing buildings and other structures of historic or aesthetic significance. Architectural resources generally must be more than 50 years old to be considered for inclusion in the NRHP, although resources dating to defined periods of historical significance, such as the Cold War era (1946-1989), may also be considered eligible. Traditional resources are associated with cultural practices and beliefs of a living community that are rooted in its history and are important in maintaining the continuing cultural identity of the community. Both historic properties and significant traditional resources identified by Alaska Natives are evaluated for potential adverse impacts from an action.

The ROI for cultural resources is the area within which an option to implement the Proposed Action could potentially affect existing cultural resources. For the Proposed Action, the ROI for cultural resources is defined as Eielson AFB.

3.3.2 Historical Setting

3.3.2.1 PALEO ARCTIC PERIOD (10,000 – 6,000 BEFORE PRESENT [BP])

During the Pleistocene period, Alaska's interior, as well as Beringia, was a relatively ice-free region with steppe tundra vegetation that supported mammoth, musk ox, giant beaver, mastodon, and sloth. It is by way of Beringia and through the ice-free region that North America was likely first populated. The first inhabitants of the region were technologically similar to contemporary northeast Asian populations and are commonly referred to as the Paleoarctic or Siberian-American Paleoarctic Tradition. They used a stone tool technology based on small blades, small blade cores, and composite tools, and were widespread through Alaska from 6,000 to 10,000 years before present (BP). Human occupation of the Eielson AFB vicinity began at least 9,000 years ago, based on dates obtained from the Chugwater site north of the base (Eielson AFB 2006). Radiometric dates from sites in the Nenana and Upper Tanana Valley suggest that indigenous settlement in the base vicinity may extend as far back as 12,000 years.

3.3.2.2 ARCHAIC PERIOD (6,000 – 1,800 BP)

The Northern Archaic Tradition seems to be related to the Archaic cultures of the boreal forest south and east of Alaska. This group or groups appeared around 6,000 BP across a wide area of Alaska (National Park Service [NPS] 2007). Some of the sites include microblade technology and tabular microcores.

3.3.2.3 LATE PREHISTORIC/PROTOHISTORIC PERIOD (CA. 1,800 TO 150 BP)

During this time, the indigenous inhabitants of Alaska specialized toward subsistence patterns suitable to the various available environments. In interior Alaska, inhabitants have been characterized as primarily caribou hunters, oriented toward upland, treeless areas (NPS 2007). It is during this time that Eielson was the territory of the Tanana Athabaskans (Eielson AFB 2006).

3.3.2.4 RUSSIAN AND AMERICAN PERIODS (A.D. 1700 TO WORLD WAR II)

In 1741, Danish explorer Vitus Bering's Russian expedition visited Alaska, initiating the wholesale harvest of sea otter pelts. The Russian-American Company was granted sole trading rights in America in 1799, and soon Russian settlements were established at Sitka (New

Archangel), the Russian capitol in America, and at other locations throughout the region in the early 1800s.

In 1867, Russia sold Alaska to the US but largely ignored it until the mid-1890s when gold was discovered. By the 1890s, and with the rush to the Klondike Gold fields, gold exploration took place throughout the country. Strikes were made along the Yukon River, and in 1902 a major strike in the interior resulted in the settlement of Fairbanks (NPS 2007). In 1912, Alaska became a US territory. Two years later, construction began on the Alaska Railroad, which was planned to extend from Seward to Fairbanks.

3.3.2.5 INSTALLATION HISTORY (WORLD WAR II TO PRESENT)

Construction of Eielson was begun in 1943 and was originally called Mile 26 Strip, because it was located at mile 26 on the Richardson Highway. It was built as a satellite field for Ladd Field, now Fort Wainwright, to serve as an alternate landing strip for aircraft being ferried from the lower 48 states to Russia under the Lend-Lease Program. The airfield was inactivated and placed in caretaker status in June 1945 (Eielson AFB 2006).

Seeing the need for a strategic bomber base in interior Alaska, Mile 26 Strip was reopened in 1946. With the Cold War looming, the base was expanded in 1946-1947 to accommodate B-36 long-range bombers under the Strategic Air Command. In February 1948, the Air Force changed the name of Mile 26 Strip to Eielson Air Force Base in honor of a pioneer of Arctic aviation, Carl Ben Eielson (Eielson AFB 2006).

Since its reopening in 1946, Eielson has been host to many different aircraft and performed important defense functions, particularly during the Cold War. For example, on September 1, 1949, a reconnaissance flight from Eielson detected the first Soviet nuclear bomb explosion (Eielson AFB 2006). During the 1950s and 1960s, B-29, B-39, and B-47 bombers were rotated to Eielson and placed on alert status, and even U-2 spy planes made flights out of Eielson (Eielson AFB 2006).

In the 1960s, Eielson AFB assumed all interior Alaska Air Force duties when Ladd AFB was transferred to the Army. In the early 1960s, fighter capabilities moved to Eielson along with the B-47 Stratojets that were deployed on alert until 1963. Since 1963, Eielson AFB has been home to various aircraft performing various missions, including aerial tankers, fighter jets, and strategic reconnaissance.

3.3.3 Existing Conditions

3.3.3.1 ARCHAEOLOGICAL RESOURCES

A prehistoric and historic archaeological survey of large portions of Eielson AFB has been completed, and no historic properties or traditional cultural properties were identified (Gerlach *et al.* 1996). The areas chosen for the survey were based on a predictive model for the location of archaeological sites developed specifically for the installation (Mason *et al.* 1994). The results of the survey indicate there is a very low probability of site occurrence at Eielson AFB.

A number of cultural features and isolates associated with hunting, trapping, and recent military activities were identified during the survey, and all of them were determined to have little or no cultural significance (Gerlach and Bowers *et al.* 1996).

3.3.3.2 ARCHITECTURAL RESOURCES

Two historic building inventories have been conducted at Eielson AFB (Eielson AFB 2004). Three NRHP-eligible historic districts have been identified at Eielson AFB (Eielson AFB 2004): the Flightline Historic District, with 20 contributing buildings and one contributing structure, a runway (Figure 3-3; Tables 3-2 and 3-3); Engineer Hill Munitions Historic District, with 8 contributing buildings (Table 3-4); and Quarry Hill Munitions Historic District, with 21 contributing buildings (Table 3-5). The Engineer Hill Munitions Historic District is not within the BDA of Eielson AFB and will not be considered in the analysis.

3.3.3.3 TRADITIONAL CULTURAL PROPERTIES AND ALASKA NATIVE CONCERNS

No Alaska Native traditional cultural properties on Eielson AFB have yet been identified. Eielson AFB has consulted with the Alaska native group Tanana Chief's Conference (Gerlach and Bowers *et al.* 1996). No additional information was provided by this group.

3.4 INFRASTRUCTURE

3.4.1 Definition of the Resource

The infrastructure elements at Eielson AFB include transportation and utility systems that service all areas of the base. Transportation refers to roadway and street systems. Utilities include electrical distribution, water, and wastewater systems. In addition Eielson is accessed by multifuel pipeline that provides fuel from a nearby North Pole refinery. Because of its isolated nature, Eielson AFB is unique in its ability to produce its own power and process its own waste water. This permits the base to function autonomously.

The ROI for this resource consists of the BDA of Eielson AFB.

3.4.2 Transportation

Eielson is situated in the Fairbanks North Star Borough and contains within its boundaries the Richardson Highway (State Highway 2), a major artery which provides direct access to the base between the cities of Fairbanks, Delta Junction, and points south. A newly constructed base entrance gate and visitor's center is located on the north end of the base and leads vehicular traffic along the Old Richardson Highway to Flight Line and Central Avenues. Flight Line and Central Avenues are the main north-south traffic routes within the BDA. Eielson AFB is accessed by the Alaska Railroad. This rail system moves freight (mainly coal) to Eielson AFB from points south.

3.4.3 Power Distribution and Heat Plant

Eielson AFB has its own coal-fired power/heat plant located on base. During winter months, the plant uses up to 730 tons of coal daily. Peak heat and electrical demand is currently at 76 percent of capacity (personal communication, Mothershed 2007).

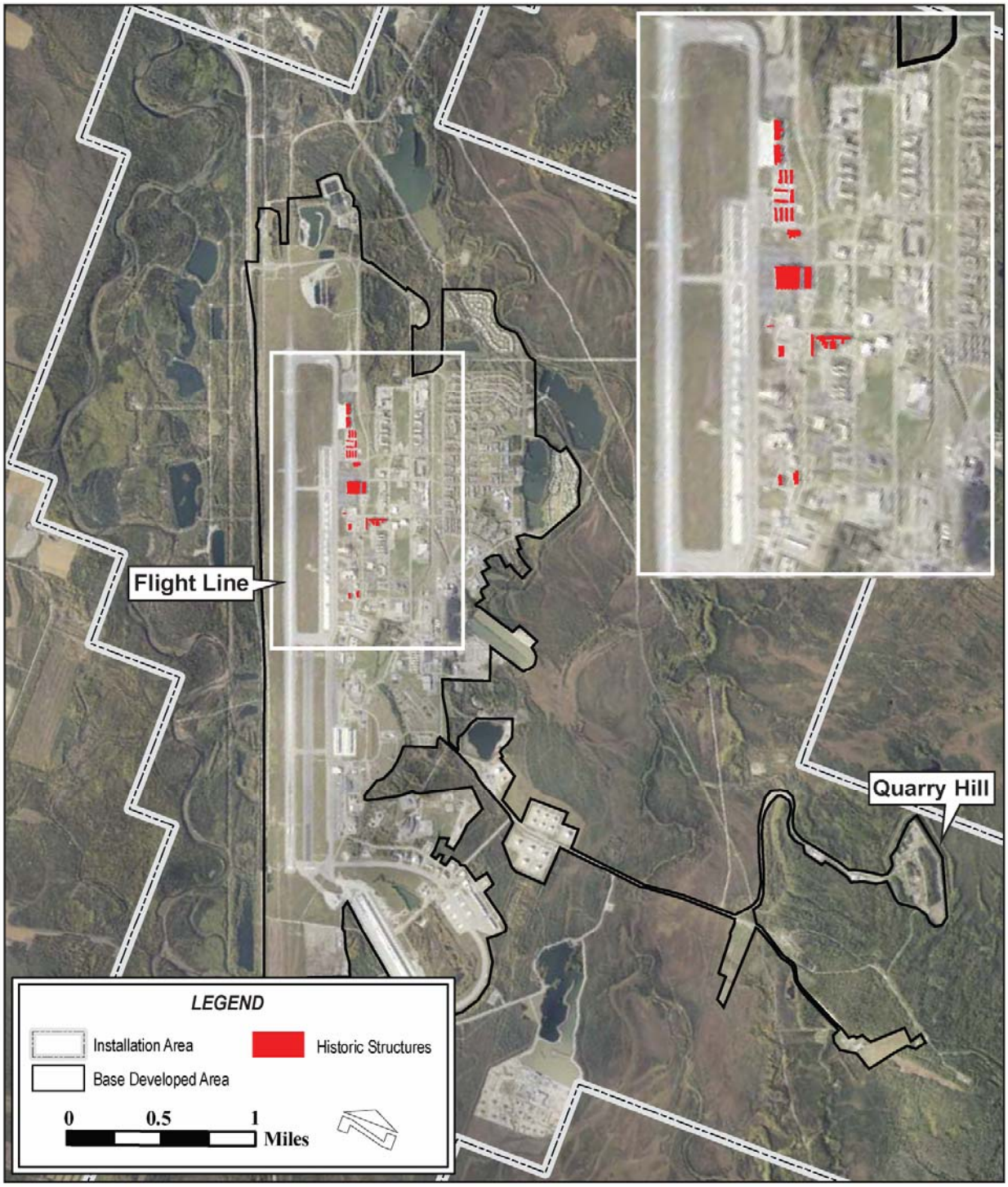


Figure 3-3. Historic Districts on Eielson AFB BDA with Expanded View of Flightline Historic District

Table 3-2. List of Contributing Buildings in the Eielson AFB Flightline Historic District

Facility Number	*Name of Facility*	*Construction Date*
Building 1120	Aircraft Maintenance/Nose Dock	1958
Building 1121	Aircraft Maintenance/Nose Dock	1958
Building 1123	Seaweed Storage (Storage Warehouse)	1953
Building 1124	Seaweed Storage (Storage Warehouse)	1953
Building 1125	Seaweed Storage (Storage Warehouse)	1953
Building 1127	Seaweed Storage (Storage Warehouse)	1953
Building 1128	Seaweed Storage (Storage Warehouse)	1953
Facility 1131	Airfield Runway	1943
Building 1132	Seaweed Storage (Storage Warehouse)	1953
Building 1133	Seaweed Storage (Storage Warehouse)	1953
Building 1134	Seaweed Storage (Storage Warehouse)	1953
Building 1135	Seaweed Storage (Storage Warehouse)	1953
Building 1136	Seaweed Storage (Storage Warehouse)	1953
Building 1138	Strategic Air Command (SAC) Avionics Building	1959
Building 1140	SAC Hangar	1954
Building 1141	SAC Aircraft Maintenance Shops	1954
Building 1146	Maintenance Ops/Electrical Power Station	1953
Building 1183	Squadron Operations Building	1956
Building 1190	Nose Dock Hangar	1947
Building 3112	Amber Hall	1952

Note: 1. Denotes general warehouse storage.

Table 3-3. List of Noncontributing Buildings in the Eielson AFB Flightline Historic District

Facility Number	*Name of Facility*	*Construction Date*
Building 1137	Warehouse	1993
Building 1142	Water Tank/Pump House	1987
Building 1144	Hazardous Storage Shed	1991
Building 1145	Liquid Oxygen Storage	1991
Building 1147	Shop	1995
Building 1148	Avionics Shop	1994
Building 1151	RF-A Aerial Combat Training Building	1994
Building 3113	Heated Parking	1947

Table 3-4. List of Contributing Buildings in the Eielson AFB Engineer Hill Munitions Historic District

Facility Number	*Name of Facility*	*Construction Date*
Building 6122	Munitions Inspection Igloo	1957
Building 6126	Munitions Igloo	1957
Building 6128	Munitions Igloo	1957
Building 6132	Munitions Igloo	1957
Building 6134	Munitions Igloo	1957
Building 6136	Munitions Igloo	1957
Building 6162	Munitions Igloo	1957

Table 3-5. List of Contributing Buildings in the Eielson AFB Quarry Hill Munitions Historic District

Facility Number	*Name of Facility*	*Construction Date*
Building 6347	Munitions Igloo	1955
Building 6348	Munitions Igloo	1955
Building 6349	Munitions Igloo	1955
Building 6350	Munitions Igloo	1955
Building 6352	Munitions Igloo	1955
Building 6354	Munitions Igloo	1955
Building 6357	Munitions Igloo	1955
Building 6360	Munitions Igloo	1955
Building 6361	Munitions Igloo	1955
Building 6363	Munitions Igloo	1955
Building 6364	Munitions Igloo	1955
Building 6365	Munitions Igloo	1955
Building 6366	Munitions Igloo	1955
Building 6368	Munitions Igloo	1955
Building 6369	Munitions Igloo	1955
Building 6371	Munitions Igloo	1955
Building 6372	Munitions Igloo	1955
Building 6373	Munitions Igloo	1955
Building 6374	Munitions Igloo	1955
Building 6376	Munitions Igloo	1955
Building 6377	Munitions Igloo	1955

3.4.4 Water and Wastewater System

There are eight water wells on Eielson, five of which supply potable water. All water and wastewater treatment services are performed by base personnel or contracted operations, including the base's own water treatment plant. Adequate capacity is available to support current demand and potential future mission expansion.

The base wastewater treatment plant has a maximum design flow of 2.0 million gallons per day (MGD), with an average daily flow of 0.8 MGD. The base has two current State of Alaska discharge permits and three pending NPDES permits. The wastewater treatment plant (state permit) discharges into an infiltration pond after tertiary treatment is completed. The water treatment plant discharges filter backwash water into Garrison Slough (state and pending NPDES permit). Two other pending NPDES permits include a discharge of groundwater from pumping operations in the housing area and seasonal discharge of turbine cooling water into French Creek. Eielson AFB has approximately 40 oil/water separators in shops across the base.

3.5 PHYSICAL RESOURCES

3.5.1 Definition of the Resource

Physical resources include topography, geology, soils, and water. Topography characterizes surface form of the landscape and provides a description of the physical setting. Geologic resources include subsurface and exposed rock. The inherent properties of local bedrock affect soil formation and properties, groundwater sources and availability, and terrain. Soils include particulate, unconsolidated materials formed from in place underlying bedrock or other parent material or transported from distant sources via glacial transport, water, and wind. Soils play a critical role in the natural and human environment, affecting vegetation and habitat, water and air quality, and the success of the construction and stability of roads, buildings, and shallow excavations. Water resources include surface water, such as lakes, rivers, streams and wetlands, and groundwater (subsurface hydrologic resources.) These resources may have scientific, historical, economic, ecological, and recreational value.

Typically, issues relevant to water resources include the quality and quantity of downstream water bodies that may be affected by the Proposed Action and alternatives, impacts to wetlands, and hazards associated with 100-year floodplains delineated in accordance with EO 11988, *Floodplain Management*.

Eielson AFB property encompasses approximately 19,790 acres. Of this area, 3,408 acres compose the BDA. Eielson associated lands are isolated from major urban areas, lying on the abandoned floodplain of the Tanana River, with elevations ranging from 525 to 550 feet above mean sea level. Surface relief is generally level and sloping gently downward to the northwest at a gradient of approximately 6 feet per mile.

The ROI for physical resources is the BDA of Eielson AFB. Discussion of the surrounding base property and environs is provided to establish the setting and create a context interpreting effects.

3.5.2 Geology and Soils

During the most recent ice age (Wisconsonin), the area in the vicinity of Eielson was not glaciated. The majority of the subsurface geologic formations of the central plateau of Alaska

are primarily from the Permian and Devonian periods of the Paleozoic era. The hills to the northeast of the base are composed of Precambrian and Paleozoic-age schists, micaceous quartzites, and subordinate phyllite and marble. Many of these hills support a thick loess mantle.

Soils in the Tanana River Valley consist of unconsolidated silty sands and gravels, organic and sandy silts, and clays. Floodplain soils nearest the active channels are sandy with a thin silt loam layer on the surface. On higher terraces, the soils become predominately silt from the Salchaket series. Along older river terraces, silt loam soils, which contain significant organic components, often dominate. These soils tend to be cold and wet and are generally underlain by permafrost. Approximately two-thirds of Eielson is covered with soils containing discontinuous permafrost. This preponderance of permafrost soils contributes to the large percentage of vegetated wetlands occurring on undeveloped base lands.

3.5.3 Base Developed Area

The BDA is composed of fill material deposited atop reclaimed wetlands. Much of this area is over 40 years old (see historical photo on page 1-1). This artificial substrate is composed of quarried Tanana floodplain gravels, cobble, and soil material built up as poorly sorted material to a thickness of between 3 and 8 feet and providing a firm platform for base construction that is devoid of wetlands, above the 100-year floodplain, and insulated from the permafrost layer. A levee system maintains a flood safety margin for residential portions of the BDA. As a result of this, the BDA rests much like an artificial island above the surrounding forested wetlands and sloughs.

3.5.4 Water

3.5.4.1 GROUNDWATER

Eielson is located over a shallow, unconfined aquifer. The aquifer is greater than 250 feet thick, extends to the underlying bedrock, and has a regional gradient of about 5 feet per mile flowing to the north-northwest. The water table varies from the surface in adjacent wetlands to 10 feet below ground level in developed areas. The base uses the local aquifer for its drinking water and monitors groundwater quality in a number of locations as part of its IRP. Localized contamination of the aquifer has been identified in the industrial area of the base, but the overall quality of groundwater at Eielson is good.

3.5.4.2 SURFACE WATER

Water bodies within Eielson AFB boundaries include streams, wetlands, and lakes. There are approximately 28 miles of streams; 10,133 acres of wetlands; 12 lakes (Lilly Lake is the only natural lake); 80 ponds (10 naturally occurring and 70 man-made) totaling 560 acres; and 6,770 acres of floodplains on the main base. The man-made lakes and ponds were created during the excavation of gravel deposits for use as fill material for construction projects on the BDA and surrounding satellite facilities on base. Surface drainage on Eielson is generally in a north-northwest direction and parallel to the Tanana River. Five streams flow through the base and discharge into the Tanana River via Piledriver Slough.

Approximately 51 percent, or 10,133 acres, of Eielson base property is classified as wetlands, with 9,391 acres being vegetated wetlands and the remainder being lakes, ponds, and streams. Figure 3-4 depicts the wetlands and surface waters of Eielson AFB. Wetlands and low-gradient alluvial streams compose most of the surface water resources on Eielson, with wetlands dominating the low-lying areas within and surrounding the installation. Most wetland areas were created as a result of surface waters becoming trapped in the thawed layer over the permanently frozen subsurface (permafrost). Flood periods tend to occur during spring snowmelt and during the middle to late summer, when heavy rains or warm air quickly brings glacier fed mountain streams to flood capacity. Several lakes and extensive wetlands surround the airfield. Among these are Bear, Polaris, Moose, Hidden, Pike, Rainbow, Scout, Grayling, and Tar Kettle lakes. Creeks that can be found in the vicinity of the airfield include French and Moose creeks. The ROI is defined to not require wetland permits or be located within the 100-year floodplain.

Garrison Slough is channelized where it passes through the BDA. Bank height provides an indication of the thickness of fill material built-up within the BDA.

Piledriver and Garrison sloughs are the two largest streams in the vicinity of the airfield. Piledriver Slough, which discharges into the Tanana River, is located along the western edge of Eielson and approximately 4,000 feet west of the airfield and parallel to the runways. Garrison Slough crosses the BDA in a somewhat channelized form. Approximately 12 miles of Piledriver Slough occurs on Eielson. The slough receives no runoff from the urban developed area of the base and has good water quality.

3.6 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

3.6.1 Definition of the Resource

Hazardous materials are identified and regulated under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA); the Occupational Safety and Health Administration (OSHA); and the Emergency Planning and Community Right-to-Know Act (EPCRA). Hazardous materials have been defined in AFI 32-7086, *Hazardous Materials Management*, to include any substance with special characteristics which could harm people, plants, or animals. Hazardous waste is defined in the Resource Conservation and Recovery Act (RCRA) as any solid, liquid, contained gaseous or semisolid waste, or any combination of wastes that could or do pose a substantial hazard to human health or the environment. Waste may be classified as hazardous due to its toxicity, reactivity, ignitibility, or corrosivity. In addition, certain types of waste are "listed" or identified as hazardous in 40 CFR 263. The ROI for hazardous materials and wastes includes the BDA of Eielson AFB. Primary hazardous wastes of concern under the Proposed Action are lead-based paint debris and asbestos. Secondary concerns are associated with the excavation of contaminated soils during construction and their remediation. Hazardous waste storage and transfer sites within the BDA are depicted on Figure 3-5.

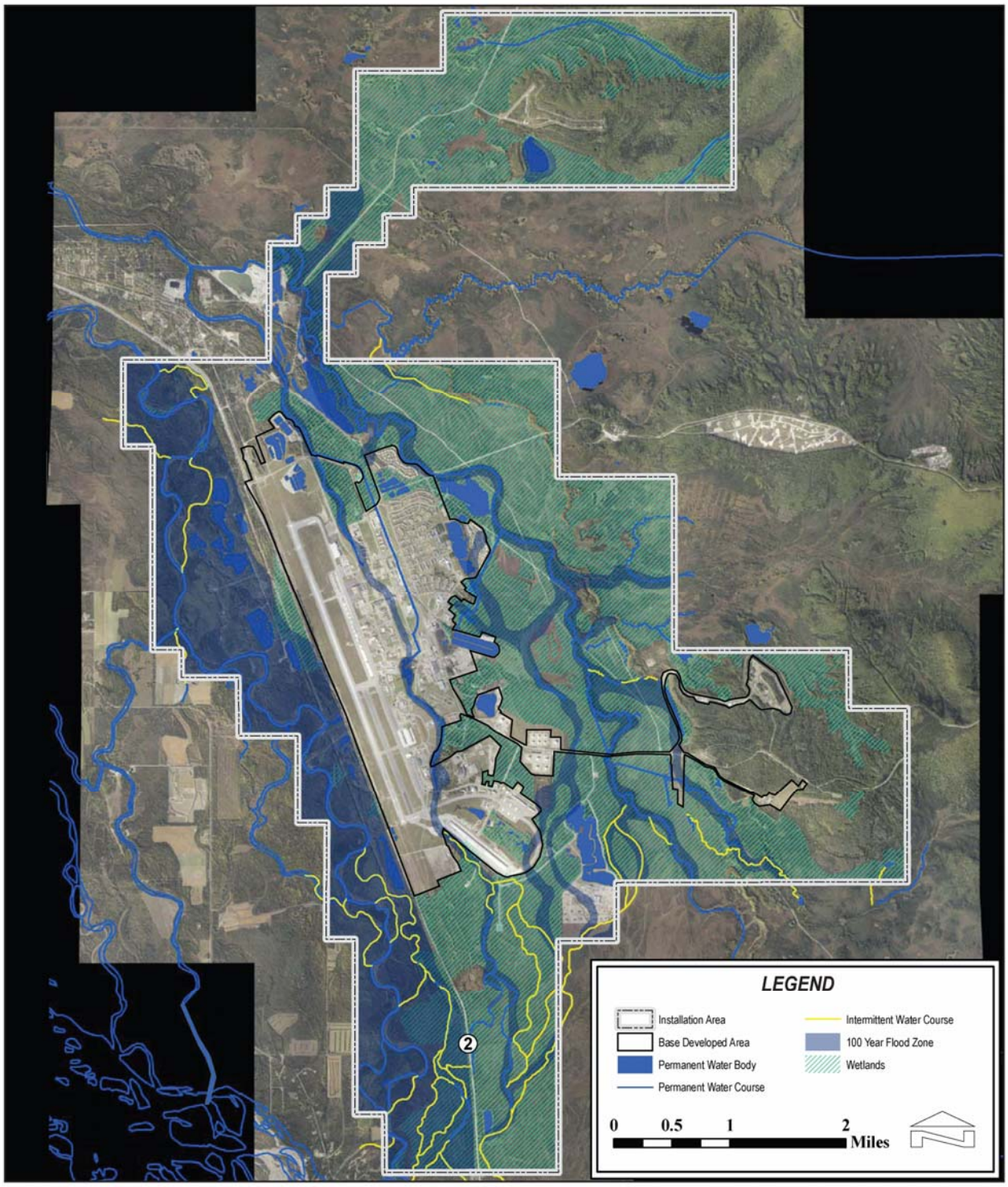


Figure 3-4. Wetlands on Eielson AFB

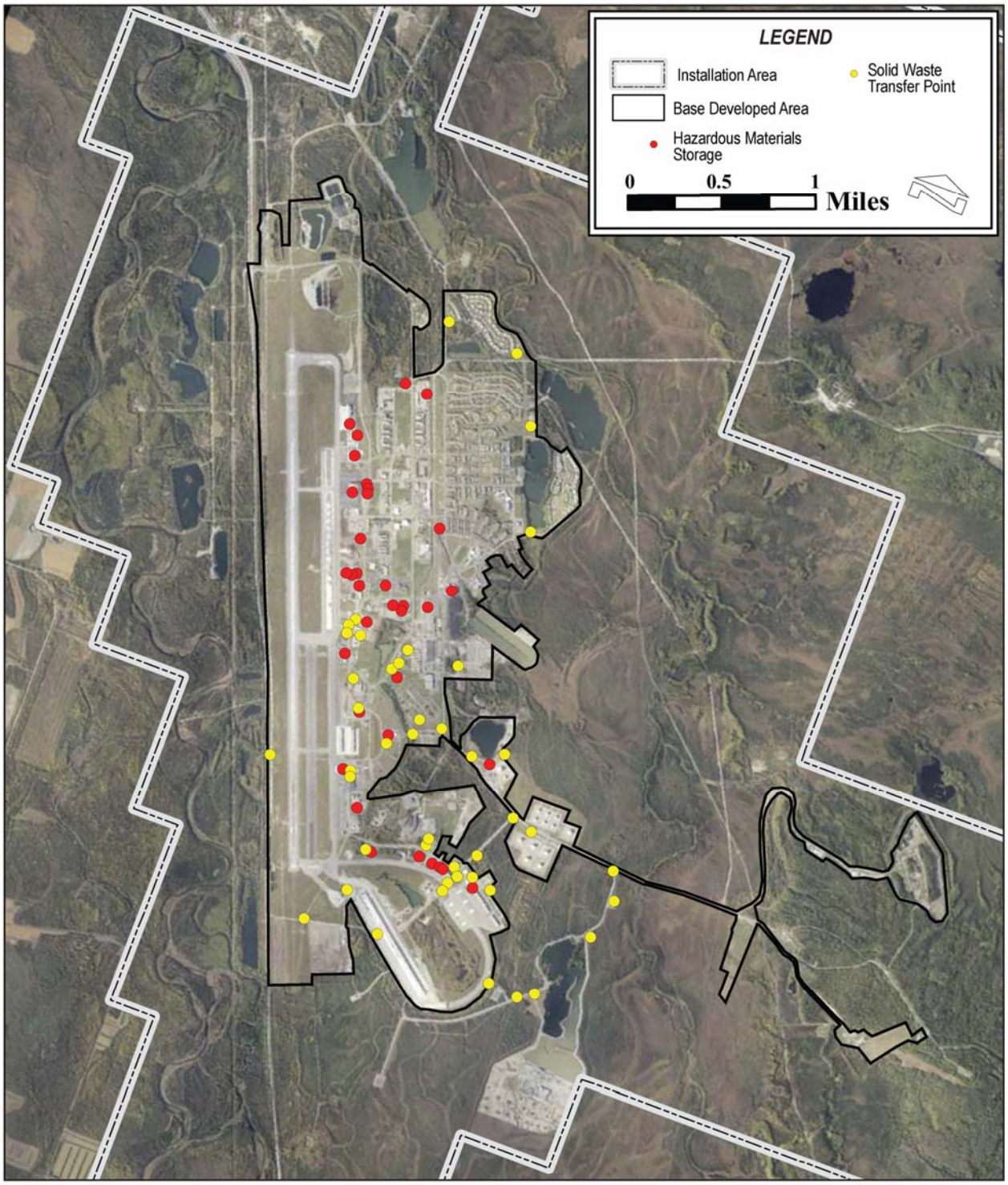


Figure 3-5. Hazardous Waste Management Sites on Eielson AFB

For nearly 20 years, Eielson and other Alaskan Air Force installations have participated in Alaska's Interagency Pollution Prevention Initiative. As part of this commitment, Eielson established an Eielson AFB Pollution Prevention Working Group to set objectives and assess outcomes of goals. One of the results of this effort was the development of a pollution prevention management plan. Along with Eielson's Hazardous Waste Management Plan (Air Force 2006a) these plans provide for centralized management of the procurement, handling, storage, and issuing of hazardous materials and turn-in, recovery, reuse, or recycling of hazardous materials. Processes in place ensure review and approval by Air Force personnel so users are aware of exposure and safety risks. Base management plans further serve to ensure compliance with applicable federal, state, and local regulations and often link back to these other plans.

Aircraft flight operations and maintenance, as well as installation maintenance, require the storage and use of many types of hazardous materials. These materials, such as flammable and combustible liquids, include acids, corrosives, caustics, glycols, compressed gases, aerosols, batteries, hydraulic fluids, solvents, paints, pesticides, herbicides, lubricants, fire retardants, photographic chemicals, alcohols, and sealants.

Under RCRA and AF regulations, generators of hazardous wastes (HW) are responsible for properly segregating, storing, labeling, marking, packaging, and transferring all HW for disposal from the time of generation at a facility to transfer to Eielson AFB's 90-day storage facility. Characterization of the waste is completed by the base bioenvironmental section with reviews through the base HW manager. Once containers of HW at a satellite accumulation point (SAP) are full, the SAP has 3 days to transfer the HW from the SAP to the base HW 90-day storage facility. Eielson AFB requires that accumulation points (APs) transfer HW waste to the 90-day facility 30 days after the first HW waste is deposited in the container to avoid exceeding the 90-day limit for the facility. SAPs and APs place calls to CES customer service for pick-up of the HW waste. There are 2 APs and 33 SAPs located on base. Approximately 25 HW streams have been established; however, the number may vary with changes in operational procedures and management practices (Air Force 2006a).

Asbestos-containing materials (ACMs) are those materials that contain greater than 1 percent asbestos. Friable, finely divided, and powdered wastes containing greater than 1 percent asbestos are subject to regulation. Friable waste is waste that can be reduced to a powder or dust under hand pressure when dry. Nonfriable ACMs, such as floor tiles, are considered to be nonhazardous, except during removal and/or renovation and are not subject to regulation.

Eielson's Asbestos Management and Operations Plan (Air Force 2006b) provides guidance for the identification of ACMs during renovation or remodeling projects and the management of asbestos wastes. An asbestos facility register is maintained by the base Civil Engineer. The design of building alteration projects and requests for self-help projects are reviewed to determine if ACMs are present in the proposed work area. ACM wastes are removed by the contractor and disposed of in accordance with state and federal regulations at Eielson's permitted asbestos and coal ash landfill and remediation site.

As an Air Force installation operating since World War II, Eielson AFB has a long history of past hazardous spills and other releases occurring under a variety of regulatory frameworks. Fuel and solvent spills and leaks and hazardous material burial and discharge were once common. Often these compounds persist in Alaska's cold soils. Low-density organic compounds may float atop groundwater beneath the BDA. Concerted action to address these issues began in 1982 with Eielson's IRP. In 1990, Eielson signed a three-party Federal Facilities Agreement (FFA) with USEPA and the State of Alaska that specified the framework and schedule for environmental cleanup efforts at Eielson AFB. The FFA identified 66 source areas. Since that time Eielson has worked diligently to restore environmentally impacted sites under the CERCLA. Of the 61 identified sites that are on base lands, all have been addressed in a Record of Decision (ROD). The 61 site cleanups were reviewed by the state and EPA and resulted in 40 receiving no further action status, 20 receiving further action/long-term monitoring with institutional controls, and 1 receiving no further action status with institutional controls (Air Force 2003).

Of the 61 sites that occur on Eielson AFB lands, 45 are within the BDA (Figure 3-6). If activities occur within these areas in the form of infrastructure improvements, the plans must be coordinated with CEVR and any applicable institutional controls that may apply to the site will be enforced. If an infrastructure improvement does occur at a site, then its effects on the condition of the site will be tracked through a database associated with the Proposed Action's implementation.

IRP site DP44 underlies the northern portion of Building 1141, proposed for renovation to support an RF-A CW/STO briefing and meeting center. This 1.5-acre site is a battery shop leach field and currently has a monitoring well (no. 44M08) in place adjacent to the building. Soil and groundwater contamination with benzene and chlorinated solvents are indicated (Air Force 2003).

3.7 BIOLOGICAL RESOURCES

3.7.1 Definition of the Resource

The term "biological resources" refers to nondomestic organisms that may be found within and potentially affected by project elements associated with the Proposed Action. The biological resources category includes all native and introduced plant and animal species and the habitats, including wetlands, within which they occur. Functional groups of species that are linked by ecological processes within a defined area are referred to as ecological communities. These communities may be either terrestrial or aquatic.

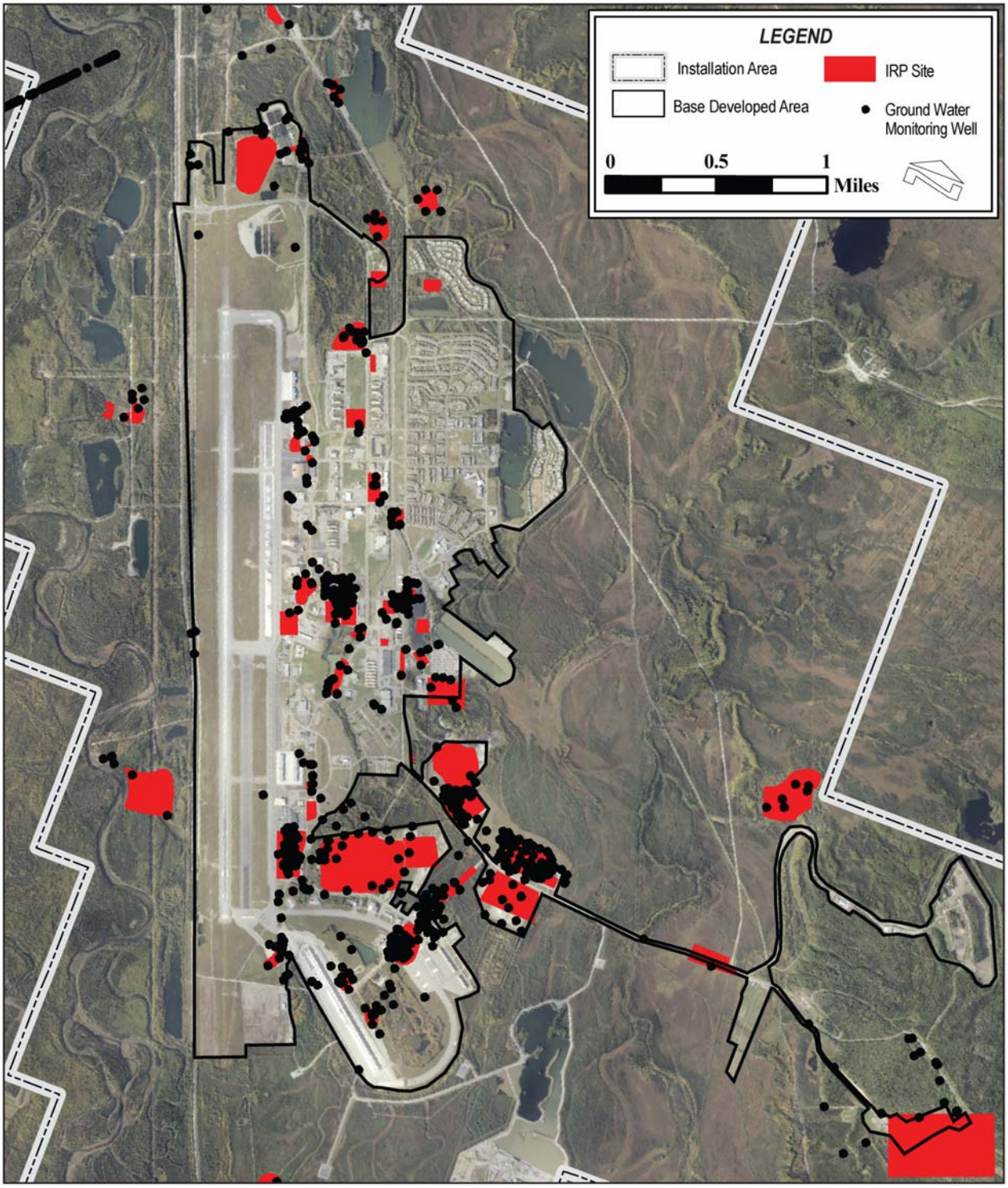


Figure 3-6. IRP Sites and Monitoring Wells on Eielson AFB

Terrestrial communities consist of plant and animal species whose life history strategies include little or no aquatic component. In contrast, aquatic communities consist of plant and animal species whose dominant life history pattern features an aquatic component; the term also considers the water associated with these species. Most ecological communities are distinguished by a characteristic assemblage of dominant plant species. The spatial and functional portion of a community within which a species obtains its required resources (nutrients, water, shelter, space, temperature, etc.) is defined as its habitat. Within an ecological setting, the quality and attributes of available habitat determine wildlife composition, diversity, and abundance. Habitat requirements, species interactions and tolerance establish observed distribution and abundance patterns of individual species. For this reason, habitat type, quality, and area affected will provide the dominant perspective in establishing baseline conditions and assessing potential impacts.

Ecological communities and the species they support are presumed to have intrinsic value. They are sources of biological diversity, important for nutrient, water, and atmospheric gas cycling and are linked to regional and global ecosystem functions; they also provide aesthetic, recreational, and socioeconomic values to society. This biological resources section focuses on animal species and vegetation types that typify or are important to the function of the ecosystem, are of special societal importance, or are listed as endangered or threatened under federal or state law or statute. These resources are organized into four major categories: (1) terrestrial ecological communities, including animals and plants, (2) fisheries, (3) wetlands, and (4) special-status species. As stated above, a habitat-level perspective will govern both descriptions of existing conditions and analyses. The following defines the wetland and special status species categories.

Wetlands are a special category of waters of the US and are subject to regulatory authority under Section 404 of the Clean Water Act and EO 11990, *Protection of Wetlands*. Jurisdictional wetlands are those defined by the USACE and USEPA as meeting all the criteria defined in the USACE's *Wetlands Delineation Manual* (Environmental Laboratory 1987) and fall under the jurisdiction of the USACE. Certain activities in jurisdictional wetlands, including dredging or placement of fill, are regulated and require a permit under Section 404 of the Clean Water Act.

Special-status species are defined as those plant and animal species listed as threatened, endangered, or candidate for listing by the USFWS, as well as those species with comparable state levels of legal protection. The ESA protects federally listed threatened or endangered plant and animal species. Candidate species are species that the USFWS is considering for listing as federal threatened or endangered but for which a proposed rule has not yet been developed. Candidates do not benefit from legal protection under the ESA. The USFWS encourages federal agencies to consider candidate species in their planning process because they may be listed in the future and, more importantly, because current action may prevent future listing.

The ROI for biological resources is the BDA of Eielson AFB. Discussion of the surrounding base property and environs is provided to establish the setting and create a context interpreting effects.

3.7.2 Terrestrial Communities and Wildlife

Tanana River Valley in the vicinity of Eielson is typical of boreal forest or taiga habitats. The boreal forests of Eielson are predominantly evergreen forests dominated by black spruce and white spruce (*Picea glauca*) but also include extensive stands of deciduous forests containing paper birch (*Betula papyrifera*), quaking aspen (*Populus tremuloides*), and balsam poplar (*P. balsamifera*). Extensive areas of shrub and herbaceous vegetation are found in wetlands, lowland areas, and the active floodplain and are dominated by willows and other shrubs, sedges, and grasses (Magoun and Dean 2000). Bog areas are dominated by black spruce stands intermixed with peat moss (*Sphagnum* spp.) and cottongrass (*Eriophorum vaginatum)*.

Black spruce stands are interspersed with small amounts of paper birch and tamarack as well as open areas dominated by scrub/shrub stands of dwarf arctic birch and bog rosemary. Understory in most areas includes Labrador tea, lowbush cranberry, and blueberry. Red squirrels use the spruce cones for food and mosses for nests. Marten use the spruce for cover. Spruce grouse use the cranberries in the fall and spruce needles in the winter for food. Black bear forage on freshly sprouted grasses in the spring and lowbush cranberries in the late summer and fall. Because of the lack of browse in black spruce wetlands, moose are in the area only when passing from one food or shelter source to another. Thus they may often be transient in the BDA. Secondary growth of black spruce has occurred within some of the older portions of the BDA as trees have slowly colonized some areas at the eastern margins.

Occasionally, the black spruce wetlands are interspersed with wet meadows that support emergent aquatic vegetation (sedges, grasses) in conjunction with seasonally persistent shallow open water areas. This habitat is used in spring and fall by migrating waterfowl and shorebirds for resting and feeding and for nesting by resident birds on water bodies that have stable water levels. Moose forage on emergent aquatic plants and grasses associated with ponds.

The surrounding Tanana Valley provides breeding habitat for a wide variety of migratory bird species. Bird species found on Eielson include spruce grouse *(Dendragapus canadensis*), ruffed grouse (*Bonasa umbellus*), northern goshawk (*Accipiter gentilis*), sharp-shinned hawk (*A. striatus*), great horned owl (*Bubo virginianus*), red-tailed hawk (*Buteo jamaicensis*), and American kestrel (*Falco sparverius*). Over 20 species of waterfowl, including geese, ducks, loons, grebes, and scoters, use aquatic habitat on the installation.

There are 32 species of mammals found on Eielson. Common species include moose (*Alces alces*), black bear (*Ursus americanus*), grizzly bear (*U. arctos*), red fox (*Vulpes vulpes*), lynx (*Lynx canadensis*), coyote (*Canis latrans*), snowshoe hare (*Lepus americanus*), marten (*Martes americana*), red squirrel (*Tamiasciurus hudsonicus*), beaver (*Castor canadensis*), muskrat (*Ondatra zibethicus*), mink (*Mustela vison*), meadow vole (*Microtus*

The environs of Eielson AFB provide habitat for wildlife species typical of interior Alaska's river bottoms.

pennsylvanicus), red-back vole (*Clethrionomys rutilus*), and meadow jumping mice (*Zapus hudsonius*).

3.7.3 Fisheries

Lakes and streams on Eielson contain both native fish and fish stocked by the Alaska Department of Fish and Game. Native fish found in the Tanana River drainage include chinook salmon (*Oncorhynchus tshawytscha),* chum salmon (*O. keta*), silver salmon (*Oncorynchus kisutch*), burbot (*Lota lota*), arctic grayling (*Thymallus arcticus*), northern pike (*Esox lucius)*, chub (*Semotilus* spp.), several species of whitefish (*Coregonus* spp.), sheefish (*Stenodus leucichthys nelma)*, rainbow trout (*Oncorhynchus mykiss*), and arctic char (*Salvelinus alpinus)*.

The Alaska Department of Fish and Game stocks five lakes and one stream on Eielson: Grayling Lake, Hidden Lake, Polaris Lake, 28 Mile Pit, Moose Lake, Mullins Pit, and Piledriver Slough. Fish stocked by the Alaska Department of Fish and Game include rainbow trout, arctic grayling, arctic char, silver salmon, and chinook salmon. There are no known federally listed threatened or endangered fish species, fish species proposed for listing, or critical fish habitats on Eielson. Fish screening prevents fish from entering Garrison Slough within the BDA.

3.7.4 Wetlands and Other Waters of the US

The discontinuous permafrost of the Tanana River Valley provides a setting for extensive forested (black spruce) wetlands within Eielson AFB property. These wetlands provide habitat for a variety of waterfowl and aquatic species. Managed quarrying has led to an expansion of openwater wetlands within base property, improving habitat for wildlife. Quarried material is provided to base uses, including supporting construction activites within the BDA. Base development and substrate improvements ultimately enhance wetlands. There are pockets of wetlands within the BDA.

3.7.5 Threatened and Endangered and Special Status Species

No threatened or endangered species, as designated by the USFWS, occur or find habitat within the BDA. This was the conclusion of an Eielson contract study entitled Biological Survey, Final Report 1994, that addressed the potential for the presence of endangered species on base lands.

3.8 AIR QUALITY

This section discusses air quality considerations and conditions in the area around Eielson AFB near Fairbanks, Alaska. It addresses air quality standards, describes current air quality conditions in the region, and presents the environmental consequences to Eielson AFB.

3.8.1 Definition of the Resource

Federal Air Quality Standards. Air quality is determined by the type and concentration of pollutants in the atmosphere, the size and topography of the air basin, and local and regional meteorological influences. The significance of a pollutant concentration in a region or geographical area is determined by comparing it to federal and/or state ambient air quality standards. Under the authority of the CAA, the USEPA has established nationwide air quality standards to protect public health and welfare, with an adequate margin of safety.

These federal standards, known as the National Ambient Air Quality Standards (NAAQS), represent the maximum allowable atmospheric concentrations and were developed for six "criteria" pollutants: ozone (O_3), nitrogen dioxide (NO_2), carbon monoxide (CO), respirable particulate matter less than or equal to 10 micrometers in diameter (PM_{10}), sulfur dioxide (SO_2), and lead (Pb). The NAAQS are defined in terms of concentration (e.g., parts per million [ppm] or micrograms per cubic meter [$\mu g/m^3$]) determined over various periods of time (averaging periods). Short-term standards (1-hour, 8-hour, or 24-hour periods) were established for pollutants with acute health effects and may not be exceeded more than once a year. Long-term standards (annual periods) were established for pollutants with chronic health effects and may never be exceeded.

Based on measured ambient criteria pollutant data, the USEPA designates areas of the US as having air quality equal to or better than the NAAQS (attainment) or worse than the NAAQS (non-attainment). Upon achieving attainment, areas are considered to be in maintenance status for a period of 10 or more years. Areas are designated as unclassifiable for a pollutant when there is insufficient ambient air quality data for the USEPA to form a basis of attainment status. For the purpose of applying air quality regulations, unclassifiable areas are treated similar to areas that are in attainment of the NAAQS.

The USEPA promulgated attainment designations for the newly established 8-hour O_3 standard effective as of June 15, 2004. Meanwhile, states must continue to implement existing plans developed under the 1-hour standard during the transition to the new 8-hour standard. On December 17, 2004, the USEPA designated areas as attainment or non-attainment for the newly developed standard for particulates less than 2.5 micrometers in diameter ($PM_{2.5}$), which are fine particulates that have not been previously regulated (USEPA 2005).

The recent Summary Report for Air Quality Compliance Evaluation at Eielson AFB (CH2M Hill 2006) identifies two final rules and one proposed rule for the new source performance standard regulations under Title 40 CFR 60 that may affect Eielson AFB. These rules concern Industrial-Commercial-Institutional Steam Generating Units, Stationary Compression Ignition Internal Combustion Engines, and Stationary Spark Ignition Internal Combustion Engines.

State Air Quality Standards. Under the CAA, state and local agencies may establish ambient air quality standards and regulations of their own, provided that these are at least as stringent as the federal requirements. The State of Alaska has air quality standards that are identical to the federal standards. A summary of the NAAQS that apply to the proposed project area is presented in Table 3-6.

Table 3-6. National and Alaska Ambient Air Quality Standards

Air Pollutant	*Averaging Time*	*NAAQS*	
		Primary	*Secondary*
Carbon Monoxide (CO)	8-hour 1-hour	9 ppm (10 μg/m^3) 35 ppm (40 μg/m^3)	--- ---
Nitrogen Dioxide (NO_2)	AAM	0.053 ppm (100 μg/m^3)	0.053 ppm (100 μg/m^3)
Sulfur Dioxide (SO_2)	AAM 24-hour 3-hour	0.03 ppm (80 μg/m^3) 0.14 ppm (365 μg/m^3) ---	--- --- 0.5 ppm (1,300 μg/m^3)
Particulate Matter (PM_{10})	AAM 24-hr	50 μg/m^3 150 μg/m^3	50 μg/m^3 150 μg/m^3
Particulate Matter ($PM_{2.5}$)[1]	AAM 24-hour	15 μg/m^3 35 μg/m^3	15 μg/m^3 35 μg/m^3
Ozone (O_3)[2]	8-hour	0.08 ppm	0.08 ppm
Lead (Pb) & Lead Compounds	3-month	1.5 μg/m^3	1.5 μg/m^3

Notes: 1. The $PM_{2.5}$ standard (particulate matter with a 2.5 μm diameter or smaller) was promulgated in December 2004 and is in effect as of April 5, 2005. The standard will be implemented over the next few years.
2. The 8-hour O_3 standard replaced the 1-hour standard in June 2005.
AAM = Annual Arithmetic Mean; ppm = parts per million; μg/m^3 = micrograms per cubic meter.

Source: 40 CFR 50.

The recent Summary Report for Air Quality Compliance Evaluation at Eielson AFB (CH2M Hill 2006) identifies a proposed change to state air quality regulations. The proposed change (Title 18, Chapter 50 of the Alaska Administrative Code [AAC] - 18 AAC 50) is to the emission fee rates under 18 AAC 50.410, for Title V and minor permits.

State Implementation Plan. For non-attainment regions, the states are required to develop a State Implementation Plan (SIP) designed to eliminate or reduce the severity and number of NAAQS violations, with an underlying goal to bring state air quality conditions into (and maintain) compliance with the NAAQS by specific deadlines. The SIP is the primary means for the implementation, maintenance, and enforcement of the measures needed to attain and maintain the NAAQS in each state.

Visibility. CAA Section 169A established the additional goal of prevention of further visibility impairment in Prevention of Significant Deterioration (PSD) Class I areas. Visibility impairment is defined as a reduction in the visual range and atmospheric discoloration. Determination of the significance of an activity on visibility in a PSD Class I area is typically associated with evaluation of stationary source contributions. The USEPA is implementing a Regional Haze rule for PSD Class I areas that will address contributions from mobile sources and pollution transported from other states or regions.

Emission levels are used to qualitatively assess potential impairment to visibility in PSD Class I areas. Decreased visibility may potentially result from elevated concentrations of PM_{10} and SO_2 in the lower atmosphere.

General Conformity. CAA Section 176(c), General Conformity, established certain statutory requirements for federal agencies with proposed federal activities to demonstrate conformity of the proposed activities with each state's SIP for attainment of the NAAQS. Federal activities must not:

(a) cause or contribute to any new violation;

(b) increase the frequency or severity of any existing violation; or

(c) delay timely attainment of any standard, interim emission reductions, or milestones in conformity to a SIP's purpose of eliminating or reducing the severity and number of NAAQS violations or achieving attainment of NAAQS.

General conformity applies only to nonattainment and maintenance areas. If the emissions from a federal action proposed in a nonattainment area exceed annual thresholds identified in the rule, a conformity determination is required of that action. The thresholds become more restrictive as the severity of the nonattainment status of the region increases.

Stationary Source Operating Permits. In Alaska, the ADEC has primary jurisdiction over air quality and stationary source emissions at Eielson AFB. Title V of the CAA Amendments of 1990 requires states to issue Federal Operating Permits for major stationary sources. A major stationary source in an attainment or maintenance area is a facility (i.e., plant, base, or activity) that emits more than 100 tons per year (TPY) of any one criteria air pollutant, 10 TPY of a hazardous air pollutant, or 25 TPY of any combination of hazardous air pollutants. Thresholds are lower for pollutants for which a region is in nonattainment status. The purpose of the permitting rule is to establish regulatory control over large, industrial activities and to monitor their impact upon air quality.

3.8.2 Existing Conditions

Regional Air Quality. Federal regulations at Title 40 CFR 81 delineate certain air quality control regions (AQCRs), which were originally designated based on population and topographic criteria closely approximating each air basin. The potential influence of emissions on regional air quality would typically be confined to the air basin in which the emissions occur. Eielson AFB is located on the outskirts of Fairbanks (AQCR 9), which encompasses Barrow Election District, Denali Borough, Fairbanks Election District, Kobuk Election District, Nome Election District, North Slope Election District, Northwest Arctic Borough, Southeast Fairbanks Election District, Upper Yukon Election District, and Yukon-Koyukuk Election District (Title 40 CFR 81).

Attainment Status. A review of federally published attainment status for Alaska indicates that the Fairbanks North Star Borough is in attainment of NAAQS for all criteria pollutants except for CO. Eielson AFB is located south of this area and therefore is considered to be in attainment.

With the completion of the Air Quality Compliance Evaluation, Eielson will be addressing findings to ensure continued compliance.

PSD Class I Areas. No mandatory federal PSD Class I areas are located within the ROI. The nearest PSD Class I area is Denali National Park, which is approximately 90 miles from Eielson AFB.

Climate. The climate in the central interior part of Alaska is characterized by warm summers and cold winters. Summer temperatures range from 65 degrees Fahrenheit (°F) to 90°F. Normal winter lows in Fairbanks are around -20°F.

Current Emissions. An air emissions inventory was concluded at Eielson AFB in 2006. A summary of 2005 Actual Emissions is provided in Table 3-7.

Table 3-7. Actual Emissions (2005) at Eielson AFB

	ANNUAL EMISSIONS (TONS PER YEAR)					
Description	***PM_{10}***	***NO_x***	***CO***	***SO_2***	***VOC***	***Hazardous Air Pollutants***
Boilers – Coal Fired	6.4	347.6	99.6	292.7	4.5	10.4
Boilers – Other	0.03	0.17	0.04	0.18	0.005	0.0004
Internal Combustion Engines	0.31	18.0	12.9	1.1	6.4	0.25
Hush House	0.62	9.2	9.3	0.70	5.5	0.08
Waste Water Treatment Plant (Flare)	0.08	0.04	0.005	0.01	0.01	0.32
Incinerator	0.28	0.03	0.19	0.00	0.14	
Portable Asphalt/Crusher (Engines)	0	0	0	0	0	0
Tanks & Fuel Loading					3.0	0.39
Miscellaneous Chemicals						2.1
Paint Booths						0.44
EOD			0.04			0.00002
Small Arms Firing Range			0.03			0.0004
Fire Training	0.001	0.008	0.002		0.003	0.0001
Total	7.7	374.9	122.1	294.6	19.5	14.0

PM_{10} = particulate matter less than or equal to 10 micrometers in diameter; NO_x = nitrogen oxides; CO = carbon monoxide; SO_2 = sulfur dioxide; VOC = volatile organic compound
Source: CH2M Hill 2006.

Regional Air Emissions. The previous section lists on-base emissions for Eielson AFB. The NEPA process, however, must also consider impacts from indirect emissions from stationary and mobile sources related to the project, some of which (for example, commuting of new employees to and from the facility) occur outside of the installation. Portions of the North Star Borough, of which Eielson is a part, are in non-attainment for CO (Fairbanks and North Pole). In 2005, the Fairbanks North Star Borough level for CO was 5 ppm.

3.9 SAFETY

3.9.1 Definition of the Resource

This section addresses ground, flight, and explosive safety associated with operations conducted at Eielson AFB. Ground safety considers issues associated with operations and maintenance activities that support base operations, including fire response. Flight safety considers aircraft flight risks. Explosive safety discusses the management and use of ordnance or munitions associated with airbase operations. The safety ROI includes the BDA of Eielson AFB and associated areas of base property.

3.9.2 Ground Safety

Ongoing operations and maintenance activities conducted by the 354 FW are performed in accordance with applicable Air Force safety regulations, published Air Force Technical Orders, and standards prescribed by Air Force Occupational Safety and Health requirements.

The 354 FW fire department provides fire and crash response at Eielson AFB. The unit has a sufficient number of trained and qualified personnel and possesses all equipment necessary to respond to aircraft accidents and structure fires. There are no response-equipment shortfalls.

Eielson AFB clear zones (CZ), accident potential zones (APZ), and safety zones have been established around the airfield to minimize the results of a potential accident. Within clear and safety zones associated with the runways, construction is either prohibited (CZ) or limited in terms of placement and height (APZ). Areas around the airfield where experience has shown most aircraft accidents occur are designated as APZs. Figure 3-7 shows the CZs and APZs at Eielson AFB.

The CZ is an area 3,000 feet wide by 3,000 feet long for both Class A and Class B runways and is located at the immediate end of the runway. The accident potential in this area is so high that no building is allowed. For safety reasons, the military is authorized to purchase the land for these areas if not already part of the installation (United States Army Center for Health Promotion and Preventive Medicine 2001).

APZ I is less critical than the CZ but still poses high potential for accidents. This 3,000-foot-wide by 5,000-foot-long area located just beyond the CZ, has land use compatibility guidelines that allow a variety of industrial, manufacturing, transportation, communication, utilities, wholesale trade, open space, and agricultural uses. Uses that concentrate people in small areas are not compatible.

APZ II is less critical than APZ I but still poses potential for accidents. APZ II is 3,000 feet wide and extends 7,000 feet beyond APZ I. Compatible land uses include those of APZ I, as well as low-density single family residential, and those personal and business services and commercial retail trade uses with low intensity or scale of operation. High-density functions such as multistory buildings, places of assembly (e.g., theaters, schools, churches) and high-density offices are not considered compatible (United States Army Center for Health Promotion and Preventive Medicine 2001).

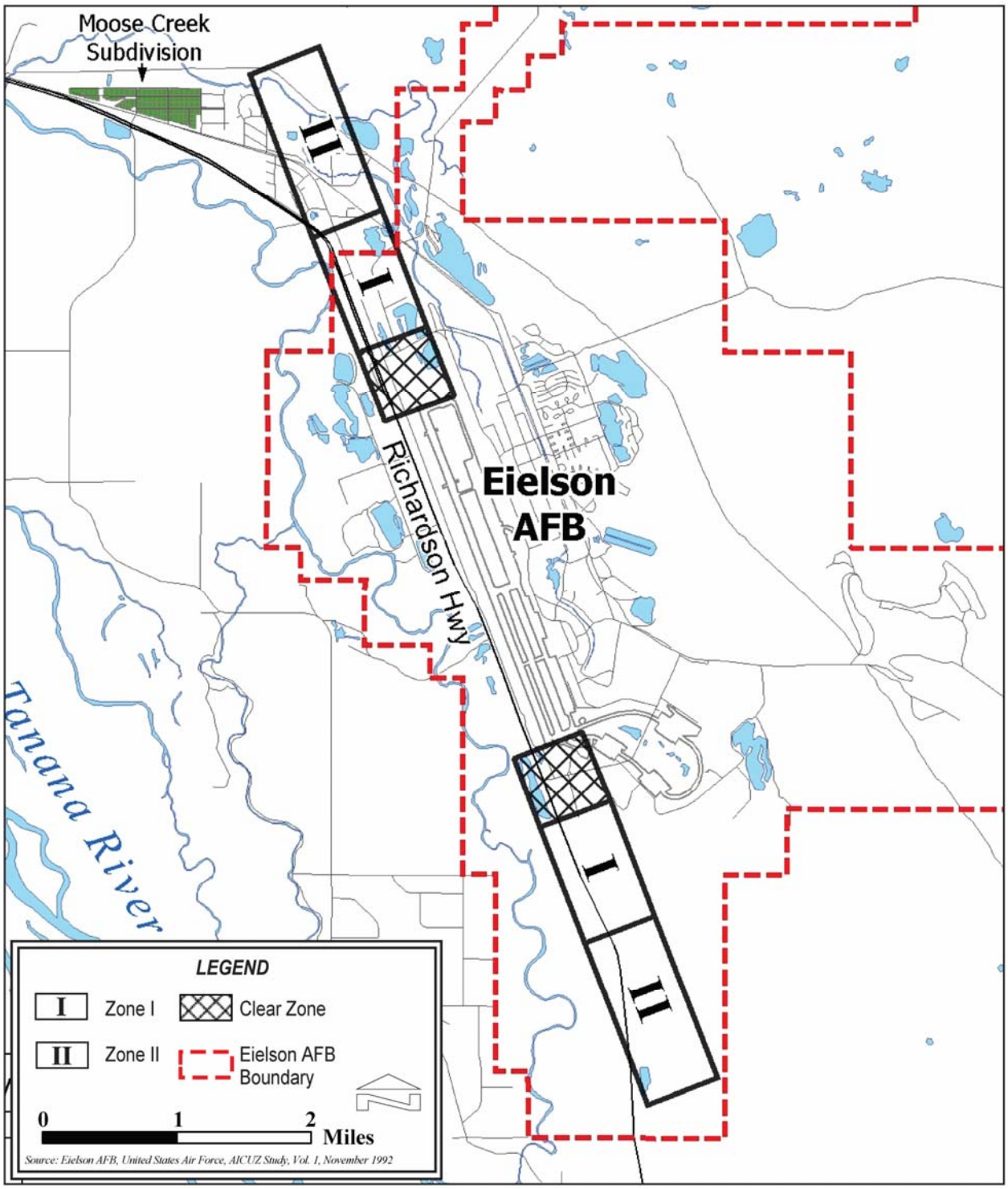


Figure 3-7. Accident Potential Zones and Clear Zones on Eielson AFB

Unified Facilities Criteria 3-260-01 also specifies requirements for imaginary surfaces on and around the runway. These criteria specify encroachment-free standards along and on either side of the runway (United States Army Center for Health Promotion and Preventive Medicine 2001).

3.9.3 Explosive Safety

The 354 FW controls, maintains, and stores all ordnance and munitions required for mission performance. Ordnance is handled and stored in accordance with Air Force explosive safety directives (AFI 91-201), and all munitions maintenance is carried out by trained, qualified personnel using Air Force-approved technical data. Ample storage facilities exist and all facilities are approved for the ordnance they store.

During current training, inert training ordnance are delivered on PARC training ranges. Eielson host, tenant, and transient aircraft utilize a variety of munitions that are stored and located at Eielson AFB. At present, some live munitions are staged in 120-foot containers on taxiway ramps associated with the flightline. With the ongoing expansion of an existing munitions storage facility, live munitions at Eielson will be stored off the BDA at Mullins Pit.

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4.0 ENVIRONMENTAL CONSEQUENCES

This chapter describes the potential environmental effects that could result from the Proposed Action at Eielson AFB. Chapter 4.0 provides an analysis of potential environmental consequences for the same nine environmental elements whose baseline conditions are discussed in Chapter 3.0. The Proposed Action and No Action Alternative are each assessed for their potential to affect the natural and human environment.

Each section in Chapter 4.0 begins with an explanation of the methodology used to conduct the analysis of environmental consequences. As presented in Chapter 2.0, the Proposed Action includes construction, demolition, and renovation projects within the BDA. The No Action Alternative is examined per CEQ requirements and assumes that none of these projects would occur.

The consequences described in this section are projected to result from implementing the Proposed Action through this EA. The analysis for each alternative includes direct and indirect, as well as short-term and long-term effects. The effects of each alternative are compared against the baseline conditions described in Chapter 3.0. Cumulative effects and irreversible and irretrievable commitment of resources are described in Chapter 5.0.

4.1 LAND USE, VISUAL RESOURCES, AND NOISE

4.1.1 Methodology

Potential impacts to land use are evaluated by determining if an action is compatible with existing land use and in compliance with adopted land use plans and policies. In general, land use impacts would be considered significant if they were to (1) be inconsistent or noncompliant with applicable land use plans and policies; (2) prevent continued use or occupation of an area; or (3) be incompatible with adjacent or nearby land use to the extent public health or safety is threatened. Impacts to visual characteristics of the base would be significant if proposed construction and renovation projects would cause the visual environment to change from that described for the base.

Noise impact analyses typically evaluate potential changes to existing noise environments resulting from the proposed construction and demolition activities. This consists of changes in noise levels or the exposed human population, as well as noise impacts on wildlife. Potential changes in the noise environment can be beneficial (i.e., if they reduce the number of sensitive receptors exposed to unacceptable noise levels), negligible (i.e., if the total area exposed to unacceptable noise levels is essentially unchanged), or adverse (i.e., if they result in increased exposure of sensitive receptors to unacceptable noise levels).

4.1.2 Proposed Action

Currently identified facility and infrastructure construction and renovation projects associated with RF-A would not require a change in the designated existing or future land use in the Eielson area. Renovation of Building 1141 and its development as a CW/STO center would have no implications for land use or visual resources. Site selection for the CW/STO center was

influenced by it proximity to an area already supporting MFE/RF-A administrative functions. New facilities would be constructed on previously disturbed ground consistent with base visual construction guidelines; no new construction would occur outside of the already developed portion of Eielson AFB.

Guidelines designed to protect government assets from terrorist activities identify minimum standards to address facility design and layout. Such standards include mitigation of perpendicular approach paths to inhabited buildings, minimal concealment of foreign objects around building parameters, and set back distances for facilities.

Recreational facilities in the Eielson area would not have long-term effects from any programmatic development. Some short-term disruption could occur as a result of construction vehicle traffic or parking of construction personnel vehicles in recreational parking areas. This would primarily occur during weekday working hours and should not affect the recreational areas during weekends.

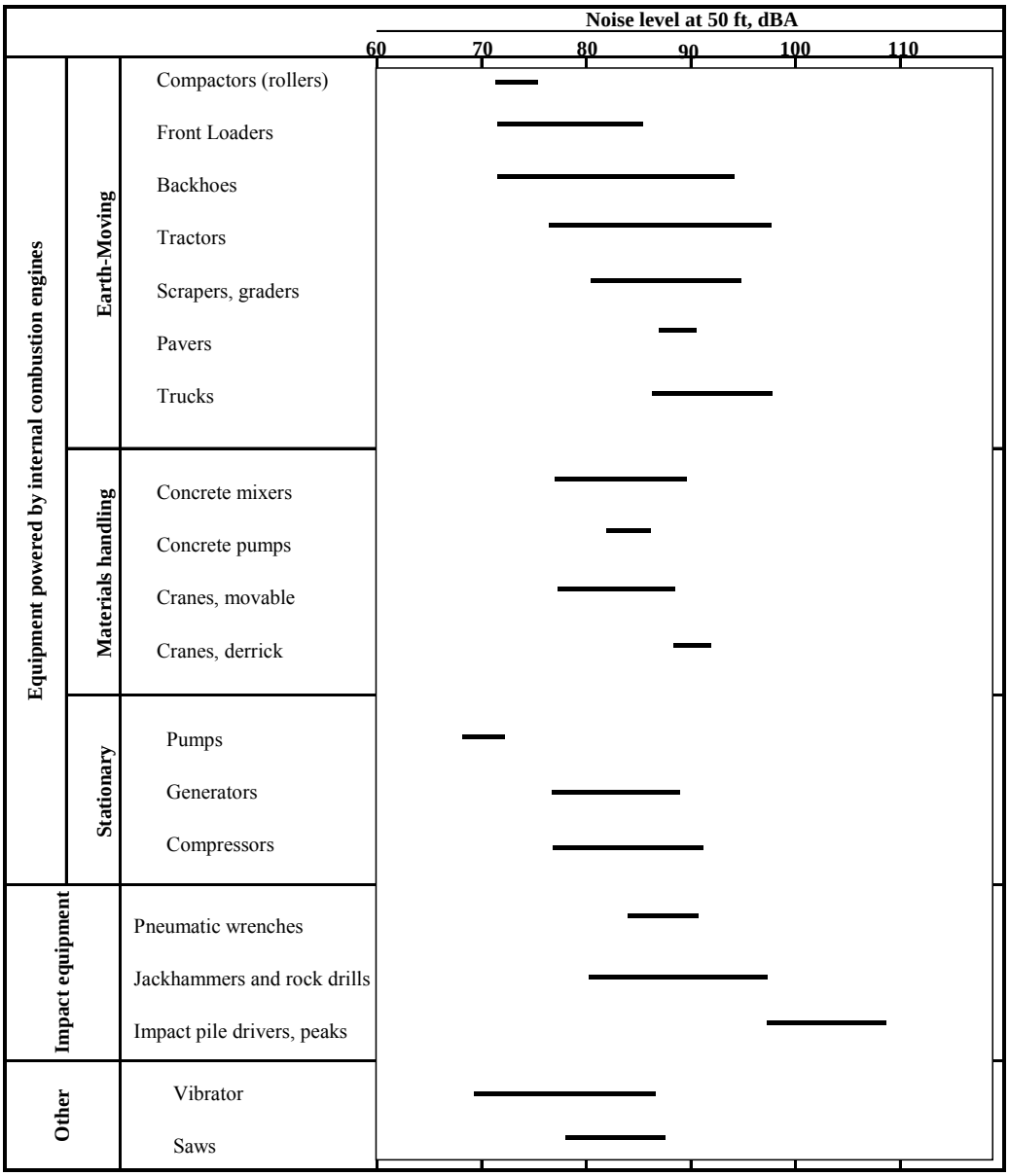
No impacts to land use or visual resources are anticipated.

Under the Proposed Action, construction activities are potentially a source of noise. Land use compatibility guidelines established by the Department of Housing and Urban Development and based on findings of the Federal Interagency Committee on Noise recommend acceptable levels of noise exposure for various types of land uses. These include encouraging compatible land use planning and land use patterns for housing and other sensitive areas. Noise impacts were evaluated qualitatively for the Proposed Action and the No Action Alternative against these acceptable noise levels for evaluation.

Figure 4-1 describes the noise ranges for different construction equipment likely to be used during construction projects associated with the Proposed Action. Noise generated from construction activities are not expected to affect workers safety. Noise is expected to occur during work days and be short-term. Although construction noise could result in some disturbance or transitory annoyance, it would not have either a long term or a significant environmental impact.

Conversion of the 18 FS to the 18 AGRS will result in no change in approved sortie operations or facilities use. Existing facilities to support F-16 aircraft would continue to be used. Aircraft numbers would remain the same. Airfield use by the new aggressor squadron would be similar to existing operations and result in no appreciable alterations in the noise environment at the airfield.

Projects associated with the Proposed Action would be located in noise compatible areas for their particular land use and AICUZ. Noise at Eielson is not anticipated to significantly change through the implementation of projects under the Proposed Action. Soundproofing in structures adjacent to the airstrip and other siting and noise reduction measures are addressed through the base's AICUZ program and the Base Comprehensive Plan.



Notes: Based on limited available data samples; ft = feet; dBA = A-weighted decibel scale
Source: USEPA 1978.

Figure 4-1. Construction Equipment Noise Ranges

No impacts to the noise environment are anticipated. No changes in land use, visual resources, or noise from baseline are expected.

4.1.3 No Action Alternative

Under the No Action Alternative, the programmatic development would not occur at Eielson AFB and the current plan would continue. No changes would be expected in land use or visual resources.

4.2 SOCIOECONOMICS AND ENVIRONMENTAL JUSTICE

4.2.1 Methodology

Demographic and economic characteristics at Eielson AFB, Fairbanks, and Fairbanks North Star Borough were analyzed to assess the potential socioeconomic effects of the Proposed Action. Potential socioeconomic consequences were assessed in terms of effects of the Proposed Action on the local economy, typically driven by changes in project personnel or expenditure levels.

Construction activity associated with facility modifications on base generates temporary economic benefits to the region in terms of employment and income. This economic effect lasts for the duration of the construction period. Personnel changes may generate population changes in the region and related changes in housing and service demand, induced employment, and income. Appropriate economic multipliers, migration ratios, and other factors determine the total economic effect of project-related changes on regional socioeconomic attributes.

4.2.2 Proposed Action

Proposed infrastructure improvements at Eielson AFB would include demolition, new construction, renovations, and infrastructure upgrades. These infrastructure improvements would support RF-A and other host and tenant missions. A range of activities could occur that would enhance base capacity, improve infrastructure, and tailor facilities to support current and future missions and improve quality of life features. Construction activities would generate a number of jobs during the construction period and contribute to local earnings and spending. These effects are part of ongoing base activity and not expected to fluctuate significantly. Infrastructure improvements would be typical of base projects, would be within the BDA, and would not result in significant changes to existing employment or long-term change in regional economics.

The Proposed Action includes the conversion of Eielson aircraft to a dedicated aggressor squadron in support of RF-A. Personnel changes are not anticipated under the Proposed Action, therefore, no related effects on socioeconomic or community resources are anticipated.

The short-term increase in construction-related employment would not adversely nor disproportionately affect environmental justice populations. Similarly, there are no anticipated special health or safety risks to children associated with these actions.

4.2.3 No Action Alternative

Under the No Action Alternative, specific infrastructure improvement projects would not be implemented at Eielson AFB. Therefore, no socioeconomic effects or environmental justice concerns would result.

4.3 CULTURAL RESOURCES

4.3.1 Methodology

A number of federal regulations and guidelines have been established for the management of cultural resources. Section 106 of the NHPA, as amended, requires federal agencies to take into account the effects of their undertakings on historic properties. Historic properties are cultural resources that are listed on, or eligible for listing on, the NRHP. Eligibility evaluation is the process by which resources are assessed relative to NRHP significance criteria for scientific or historic research, for the general public, and for traditional cultural groups. Under federal law, impacts to cultural resources may be considered adverse if the resources have been determined eligible for listing on the NRHP or have been identified as important to Native Americans as outlined in the American Indian Religious Freedom Act and EO 13007, *Indian Sacred Sites*.

DoD American Indian and Alaska Native Policy (1999) provides guidance for interacting and working with federally recognized American Indian governments. DoD policy requires that installations provide timely notice to, and consult with, tribal governments prior to taking any actions that may have the potential to significantly affect protected tribal resources, tribal rights, or American Indian lands.

Analysis of potential impacts to cultural resources considers direct impacts that may occur by:

- Physically altering, damaging, or destroying all or part of a resource.
- Altering characteristics of the surrounding environment that contribute to the resource's significance.
- Introducing visual or audible elements that are out of character with the property or alter its setting.
- Neglecting the resource to the extent that it deteriorates or is destroyed.
- Disturbing a paleontological site.

Direct impacts can be assessed by identifying the types and locations of proposed activities and determining the exact location of cultural resources that could be affected. Indirect impacts generally result from increased use of an area.

The ROI for direct impacts to cultural resources consists of areas that require ground disturbance (e.g., facility/utility construction within the BDA) and buildings requiring renovation, alteration, demolition, or abandonment.

4.3.2 Proposed Action

4.3.2.1 ARCHAEOLOGICAL RESOURCES

A prehistoric and historic archaeological survey of Eielson AFB has been completed, and no NRHP-eligible archaeological sites (historic properties)) or traditional cultural properties were identified (Gerlach and Bowers 1996). However, the cultural and historical setting of the area indicates that there is the potential for undiscovered archaeological sites, paleontological sites, and traditional cultural properties.

Excavation for gravel removal or to support construction activities could result in inadvertent discoveries, although this is unlikely. A review process for all excavation deeper than 6 inches below the ground surface is required. Eielson uses AF Form 103, Base Civil Engineer Work Clearance Request, to ensure all appropriate offices, including 354 CEV Cultural Resources Manager, review the proposed excavation. If significant, undiscovered archaeological resources or human remains are encountered, excavation will stop in the immediate vicinity of the discovery, and the individual responsible for implementing the work (e.g., the noncommissioned officer in charge or job foreman) will immediately notify the 354 CEV Cultural Resources Manager of the find. The 354 CEV will ensure that the Standard Operating Procedures (SOPs) outlined in Sections 4.2.1, 4.2.2, and 4.2.3 of the ICRMP are implemented.

4.3.2.2 HISTORIC RESOURCES

All construction, maintenance, and repair work require an approved AF Form 332, Base Civil Engineer Work Request, which allows the 354 CEV Cultural Resources Manager to review the proposed work for potential effects on NRHP-eligible historic buildings and structures (Eielson AFB 2006).

For the proposed renovations to Building 1141, which is a contributing element in the Eielson AFB Flightline Historic District, the 354 CES/CEVN Cultural Resources Manager will ensure that the SOPs outlined in Section 4.1 of the ICRMP (Eielson AFB 2006) are implemented. Historic building treatment guidelines are being developed by the base in consultation with the Alaska SHPO will supplant the SOPs once they are completed and signed (Eielson AFB 2006).

The 354 CES/CEVN Cultural Resources Manager will ensure that the SOPs outlined in Section 4.1 of the ICRMP (Eielson AFB 2006) are implemented for any other proposed construction, maintenance, or repair activities within the BDA with the potential to have a direct adverse impact on the Eielson AFB Flightline Historic District or Quarry Hill Munitions Historic District (Tables 3-3 and 3-5).

4.3.3 No Action Alternative

Under the No Action Alternative, specific construction or demolition projects would not take place as proposed. Impacts to cultural resources are not expected under this alternative. Resources would continue to be managed in compliance with federal law and Air Force regulations.

4.4 INFRASTRUCTURE

4.4.1 Methodology

Level of service is the primary transportation and utility service issue. Criteria for evaluating impacts to transportation and utility service include potential for disruption and/or permanent degradation of the resource.

4.4.2 Proposed Action

Under the Proposed Action, Eielson's host 354 FW would implement demolition and construction projects in support of host and tenants, including RF-A. Implementation of the Proposed Action would not alter traffic circulation. Haul routes related to demolition and construction traffic would be determined, truck traffic associated with a project would be routed through one base entry gate, and routes would be established to avoid base housing areas as much as practicable.

Construction activities could result in some temporary interruption of utility services and minor hindrance of transportation and circulation at the base along Flight Line and Central Avenues. Truck traffic and privately owned vehicle use by commuting project workers would generate minor increases in vehicle trips per day on base roads and north gate (particularly between 0630 and 0730 hours). Future development of Eielson AFB's south gate would help alleviate congestion by diverting most construction truck traffic away from the Hursey Gate. Temporary lane closures may be necessary during demolition and construction activities. Appropriate signage and detours to maintain access would be provided. These effects would be temporary, occurring only for the duration of the construction period. No significant impact to transportation or utilities, either on Eielson AFB or in adjacent areas, is anticipated under the Proposed Action. Power and heat demand are anticipated to remain far below base generation capacity.

4.4.3 No Action Alternative

Under the No Action Alternative, the 354 FW would maintain existing facilities and would not build the proposed new facilities, as described in detail in Chapter 2.0. Continued use and maintenance of the existing degraded and inefficient facilities and infrastructure would require Eielson AFB to continue operating under unnecessarily inefficient conditions.

4.5 PHYSICAL RESOURCES

4.5.1 Methodology

Analysis for physical resources includes the identification and description of resources which could potentially be affected, the examination of the potential effects an action may have on the resource and the assessment of the significance of potential impacts. Design actions to reduce impacts include protection of unique geologic features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards and soil limitations. Potential effects can be avoided or minimized by proper construction techniques, erosion control measures, project design, and project siting.

Geology or groundwater are not expected to be affected by activities in the BDA. This is due to the great depth to bedrock and the groundwater aquifer and the previous deposition of 3 to 8 feet of quarried gravel fill in most areas of the BDA. Analysis of impacts to soil resources resulting from proposed activities examines the suitability of locations for proposed operations and activities. Impacts to soil resources can result from earth disturbance, which would expose soil to wind or water erosion. Impervious surfaces (paved areas and roofs) may contribute to increases in stormwater runoff when they are constructed in locations previously composed of more natural ground cover because no precipitation can infiltrate the soil, resulting in 100 percent runoff.

Secondary impacts to air quality may result from exposure of soils susceptible to wind erosion and to surface water quality if soils susceptible to water erosion were allowed to contribute sediment to the surface water system. Actions to avoid air quality impacts include soil stabilization, dust control, and revegetation.

4.5.2 Proposed Action

Under the Proposed Action, newly constructed facilities and facility upgrades, primarily associated with buildings, roads, parking areas and a water distribution system, would occur within the BDA at Eielson AFB. The total area to be disturbed during construction was assumed to be 25 percent larger than the facility footprint to allow for heavy equipment movement, staging areas for storage of materials, and grading of the sites. Total areas of disturbance would be tracked as projects are developed. Projects would be implemented as funds became available. Only a portion of the total acreage disturbed would occur in any one year.

The site-specific Stormwater Pollution Prevention Plan would be reviewed for each construction project. Projects affecting 1 acre or more would require a Stormwater Pollution Prevention Plan. The plan would identify standard construction practices appropriate for the site and soil type to be implemented during construction to minimize wind erosion and off-site sedimentation due to water erosion and to keep increases in surface water runoff to a minimum. After construction has been completed, all disturbed areas would be stabilized with landscaping, most likely a combination of lawns and annual planting beds, which would minimize erosion and improve infiltration of precipitation.

Because the Eielson AFB BDA is nearly flat, little cut and fill would be needed to prepare the sites for facility construction. The BDA is built upon material presumed to support current and future construction. There would be few hazards or limitations to construction of buildings or roads on the soil types at the locations of the proposed facilities. Potential secondary effects from surface-disturbing activities, such as increases in stormwater runoff or off-site sedimentation, would be minimized through the installation and maintenance of standard construction practices and landscaping.

Increase in impervious surfaces associated with construction would be tracked through a database to identify thresholds for stormwater runoff. In compliance with the USEPA General Permit for Stormwater Discharges, additional stormwater runoff would be managed to keep quantities to predevelopment conditions where practicable. Even if additional stormwater runoff

was generated, the existing storm drain system on the base would be able to handle additional flows. In most cases, much of the surface water would infiltrate before leaving the military properties.

While soils would be changed by construction activities, the effects would be localized and would not result in significant secondary impacts to wind or water resources because standard construction practices would be implemented. Renovation of Building 1141 for CW/STO center development and resurfacing existing taxiways for RF-A infrastructure support would have no effect on physical resources at Eielson AFB. No significant impacts to soil, water, or geologic resources would result from the implementation of the Proposed Action.

4.5.3 No Action Alternative

Under the No Action Alternative, no construction would occur and no new impacts to physical resources would result. Conditions would remain the same.

4.6 HAZARDOUS MATERIALS AND WASTE MANAGEMENT

4.6.1 Methodology

The qualitative and quantitative assessment of impacts from solid waste and hazardous materials management focuses on how and to what degree the alternatives affect hazardous materials usage and management, hazardous waste generation and management, and waste disposal. A substantial increase in the quantity or toxicity of hazardous substances used or generated would be considered potentially significant. If a substantial increase in human health risk or environmental exposure was generated at a level that could not be ameliorated to achieve acceptable standards, impacts would be considered significant.

Regulatory standards and guidelines have been applied in evaluating the potential impacts which may be caused by hazardous materials and wastes. The following criteria were used to identify potential impacts:

- Generation of 100 kilograms (kg) (or more) of hazardous waste or 1 kg (or more) of an acutely hazardous waste in a calendar month, resulting in increased regulatory requirements.
- A spill or release of a reportable quantity of a hazardous substance as defined by the USEPA in 40 CFR Part 302.
- Manufacturing, use, or storage of a compound that requires notifying the pertinent regulatory agency according to EPCRA.
- Exposure of the environment or public to any hazardous material and/or waste through release or disposal practices.

4.6.2 Proposed Action

Contractor personnel may generate hazardous waste during construction or renovation. Under the Proposed Action, reconfiguration of the interior of Building 1141 and its development as a

modern CW/STO center to support RF-A would result in the production of regulated waste in the form of ACMs and construction debris containing lead-based paints. Removal of ACMs from Building 1141 would remove the potential for these materials to affect personnel occupying this building. Removal of interior fluorescent lighting would result in additional debris containing polychlorinated biphenyls (PCBs) in ballasts. Additionally, Building 1141 partially overlies IRP site DP44, the battery shop leach field. Building renovation would involve no ground disturbing activities. Institutional controls would maintain IRP compliance. All hazardous waste management would conform to Eielson's Hazardous Waste Management Plan. Storage and disposal contractor generated wastes would be the responsibility of the site contractor. Any soil suspected of petroleum or other contamination, discovered during the construction or demolition process, would be tested and remediated in accordance with proper base IRP. Hazardous waste disposal associated with building renovation will be managed by Eielson's Hazardous Waste Facility.

In the event of fuel spillage during construction, the contractor would be responsible for its containment, clean up, and related disposal costs. The contractor would have sufficient spill cleanup supplies readily available on the response vehicle and/or at the site to contain any spillage. In the event of a contractor-related release, the contractor shall immediately notify the 354 CEV Environmental Management Office (377-SPIL) of the release and take appropriate actions to correct its cause and prevent future occurrences.

If ACMs or lead-based paint are found in or near demolition or renovation areas, then the following federal and state regulations must be followed.

- ***Asbestos Removal and Disposal***. Upon classification as friable or nonfriable, all waste asbestos should be transported in accordance with the Alaska regulations governing transportation of hazardous materials. ACMs would be remediated by removing them to Eielson's asbestos landfill and the proper agency notifications made.
- ***Lead-Based Paint Removal and Disposal.*** The proposed project should comply with the US Department of Labor, OSHA regulations, and with the USEPA regulations addressing Lead: Management and Disposal of Lead-Based Paint Debris (40 CFR Part 745). Lead-based paint debris that meets the definition of a hazardous waste will be disposed of through Eielson AFB's Hazardous Waste Facility.

Projects proposed for siting on an IRP site will require that the proponent work with the 354 CES/CEVR office to develop an Environmental Work Plan that will be coordinated and approved by the state of Alaska and USEPA before any construction can begin. Contaminated soils generated during construction will be handled according to the EWP. This may include soil being transported to a soil remediation facility.

Projects conducted under this EA would result in an increase in the remediation of ACM, lead-based paint, and contaminated soil. The net effect would be a decrease in the presence of these materials within the BDA and a net improvement of the environment. Exposure risk to base personnel would ultimately be reduced. Better tracking of hazardous wastes generated from new construction and renovation would occur through the database associated with this EA.

Infrastructure improvement projects associated with the Proposed Action would produce a positive impact within the BDA. No changes in hazardous materials use will likely occur as the result of RF-A's proposed infrastructure improvements and conversion of the 18 FS to the 18 AGRS.

4.6.3 No Action Alternative

Under the No Action Alternative, construction and demolition of the projects within the BDA of the type described by this EA would not occur. Management of hazardous wastes or materials would continue under existing Eielson AFB programs, and there would be no environmental consequences to these resources. Removal of ACMs and lead-based paint from existing facilities would not occur. Opportunities for contaminated soil remediation would not occur.

4.7 BIOLOGICAL RESOURCES

4.7.1 Methodology

Potential impacts to biological resources such as habitat or wildlife are based on the:

- Importance of the resource (i.e., legal, commercial, recreational, ecological, or scientific) of the resource;
- Proportion of the resource that would be affected relative to its occurrence in the region;
- Sensitivity of the resource to proposed activities; and
- Duration of ecological ramifications.

Impacts to resources could be significant if important species or habitats are adversely affected over relatively large areas or if disturbances cause reductions in population size or distribution of a species with special legal status.

Where applicable, habitat loss and disturbance due to construction are quantified for biological resources. Potential habitat degradation due to post-construction invasion of noxious weeds is addressed.

4.7.2 Proposed Action

Construction, demolition, and renovation activities associated with the Proposed Action would occur in the portions of the base that are already developed. Potentially affected second growth habitat within the BDA is occupied by species assumed to have adapted behavior to an airport environment. Any disturbance effects associated with construction would be minor or temporary and have no impact on species distribution or abundance.

BMPs utilized during construction and the tracking of impervious surface accumulation on base would prevent impacts to base fisheries located off the BDA. No threatened or endangered species occur on base. No impacts to these species would occur. No impacts to biological resources are anticipated as a result of the conversion of the 18 FS to the 18 AGRS.

4.7.3 No Action Alternative

Under the No Action Alternative, conditions would continue as described in Section 3.7 baseline.

4.8 AIR QUALITY

4.8.1 Methodology

Air emissions resulting from the Proposed Action were evaluated in accordance with federal, state, and local air pollution standards and regulations. Air quality impacts from a proposed activity or action would be significant if they:

- Increase ambient air pollution concentrations above any NAAQS;
- Contribute to an existing violation of any NAAQS;
- Interfere with or delay timely attainment of NAAQS; or
- Impair visibility within any federally mandated federal Class I area.

The approach to the air quality analysis was to estimate any increase in emission levels due to the proposed project activities.

According to USEPA's General Conformity Rule in 40 CFR Part 51, Subpart W, any proposed federal action that has the potential to cause violations in a NAAQS non-attainment or maintenance area must undergo a conformity analysis. Since Eielson AFB is in attainment for all criteria pollutants, the anticipated emission resulting from the Proposed Action have been analyzed and it has been determined that the emissions will not cause or contribute to a new NAAQS violation. Furthermore, a conformity determination is not required as the emissions for all pollutants is below the *de minimis* threshold established by the USEPA in 40 CFR 93.153.

PSD regulations protect the air quality in regions that already meet the NAAQS. The nearest PSD Class I area is approximately 90 miles from the region potentially affected by the Proposed Action. Therefore, the Proposed Action would be unlikely to have a significant impact on any PSD Class I areas.

4.8.2 Proposed Action

Current projects identified as associated with the Proposed Action involve building renovations and reconfigurations. However, the Proposed Action may involve construction, demolition, grading, and paving projects as well. Since the Proposed Action does not involve modifications to aircraft use, aircraft emissions are not included in this analysis.

Construction Emissions. The emission factors for building construction include contributions from engine exhaust emissions (i.e., construction equipment, material handling, and workers' travel) and fugitive dust emissions (e.g., from grading activities). Demolition emissions evaluated include fugitive dust and transport of demolition debris offsite. Site preparation, grading, and trenching emissions include fugitive dust from ground disturbance, plus combustive emissions from heavy equipment during the entire construction period. Paving emissions

include combustive emissions from bulldozers, rollers, and paving equipment, plus emissions from a dump truck hauling pavement materials to the site.

Emissions generated by construction, demolition, and paving projects are temporary in nature and would end when construction is complete. The emissions from fugitive dust are addressed with standard construction practices. For instance, frequent spraying of water on exposed soil during construction, proper soil stockpiling methods, and prompt replacement of ground cover or pavement are standard landscaping procedures that could be used to minimize the amount of dust generated during construction. Using efficient practices and avoiding long periods where engines are running at idle may reduce combustion emissions from construction equipment. Vehicular combustion emissions from construction worker commuting may be reduced by carpooling.

In general, combustive and fugitive dust emissions would produce localized, short-term, elevated air pollutant concentrations, which would not result in any long-term impacts on the air quality in the Fairbanks region. The temporary construction-related emissions of PM_{10} and sulfur oxides are not expected to adversely impact the air quality or visibility.

4.8.2.1 OPERATIONAL EMISSIONS

Once construction associated with a project under the Proposed Action at Eielson AFB is completed, air emissions are expected to be virtually identical to or less than current operations. As sources are removed due to demolition of current facilities, they would be replaced by similar air emission sources at the modernized facilities. New equipment such as boilers or heat plants would be expected to perform more efficiently and have lower emissions than the equipment currently present in buildings. For example, improved, more efficient heating and air conditioning units would be installed. New emergency generators would operate at times when utility power from Eielson's power plant is interrupted, off-setting increased emissions. Currently, emergency generators at Eielson AFB operate within a 200 hour per year limit. Operational power demand associated with facility modifications or renovations are not expected to challenge air quality limits. There are no expected increases in operational emissions as a result of implementing the Proposed Action. The installation or modification of any air emission sources, such as boilers and heaters, emergency generators, paint booths, or degreasers, may trigger a review of permitting requirements and updated air quality modeling.

The RF-A's proposed infrastructure improvements and the conversion of the 18 FS to the 18 AGRS will not result in changes to approved sortie operations or facilities use. No impacts to air quality are expected.

Indirect Emissions. Since no personnel changes are anticipated to result from the transformation of the 18 FS, no indirect emissions associated with vehicle use are anticipated.

4.8.3 No Action Alternative

Under the No Action Alternative projects of the types covered by this EA would not occur. No construction emissions would occur. No new operational emission sources would be developed affecting air quality. However, no upgrades or modernization projects would occur to improve

energy efficiency or decrease pollutants. Effects of implementing the No Action Alternative would be less than significant and similar to baseline (Chapter 3.0).

4.9 SAFETY

4.9.1 Methodology

Safety impacts would be significant if implementation of the Proposed Action were to render existing installation facilities incompatible with safety criteria (e.g., clear zones). Quantity-distance arcs and APZs were reviewed against the proposed construction new land uses for compatibility determination.

4.9.2 Proposed Action

No changes in Eielson AFB safety are expected as a result of the conversion of the 18 FS to the 18 AGRS.

4.9.2.1 GROUND SAFETY

There would be no significant impact to ground safety as a result of construction and demolition activities. All activities and workers at the construction site would comply with OSHA standards and would be required to conduct construction activities in a manner that would not pose any risks to personnel at or near the construction site.

4.9.2.2 EXPLOSIVE SAFETY

The proposed construction projects would be compatible with existing land uses and located outside of munitions quantity-distance arcs. As no explosives would be used or handled during construction activities, no additional risk is expected from the Proposed Action.

4.9.2.3 ACCIDENT POTENTIAL ZONES

Projects under the Proposed Action would be compatible with APZs associated with Eielson airfield operations.

4.9.3 No Action Alternative

Under the No Action Alternative, construction and demolition projects included under this omnibus EA would not occur. Management of explosives and munitions would continue under existing programs and there would be no environmental consequences to this resource.

5.0 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

5.1 CUMULATIVE EFFECTS

CEQ regulations stipulate the cumulative effects analysis in an EA should consider the potential environmental impacts resulting from "the incremental impacts of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency or person undertakes such other actions" (40 CFR 1508.7).

The first step in assessing cumulative effects involves defining the scope of other actions and their interrelationship with the proposed action or alternatives (CEQ 1997). The scope must consider other projects which coincide with the location and timetable of the proposed action and other actions. Cumulative effects analysis evaluates the interactions of multiple actions.

5.1.1 Past, Present, and Reasonably Foreseeable Actions

Recent past and ongoing military actions at Eielson AFB were considered as part of the baseline conditions within the BDA ROI. These include the following:

- BRAC 2005 reassignment of A-10 Thunderbolts to Moody and Barksdale AFBs.
- BRAC 2005 relocation of Alert Squadron to Eielson from Galena Air Base.
- Airfield and facility use associated with MFE activity within the BDA and analyzed in the MFE EA (Air Force 1993) and Alaska MOA EIS (Air Force 1995).
- Expansion of E-7 and E-8 aircraft parking ramps analyzed by environmental documentation completed in 2003 (Air Force 2003b).
- Construction of Type III fuel hydrant system to support aircraft parking complexes E-7, E-8, and E-9 analyzed by environmental documentation completed in 2003 (Air Force 2003c).
- Development of a new south gate to the base including filling and grading of 4.5 acres of willow-dominated wetlands and the construction of a vehicle inspection pad analyzed by environmental documentation completed in 2004 (Air Force 2004).
- Expansion of munitions storage pads analyzed by environmental documentation completed in 2006 (Air Force 2006c).
- Planned new construction and renovation projects (new Chapel project and Fitness Center) assessed by previous version of omnibus construction EA (Air Force 1996).

As an active military installation, Eielson AFB undergoes changes in mission and training requirements in response to defense policies, current threats, and tactical and technological advances. Any future changes impacting environmental resources would receive appropriate environmental analysis. Like any other major institution (e.g., university, industrial complex),

Eielson AFB requires new construction, facility improvements, infrastructure upgrades, and ongoing maintenance and repairs. Although such construction and upgrades are a part of this EA, future requirements cannot be predicted.

5.1.2 Cumulative Effects Analysis

Land Use, Visual, and Noise. Projects evaluated for this EA were sited to ensure compatibility with the existing base planning to consolidate similar land uses (e.g., the co-location of facilities with similar functions, purposes, or missions). Implementation of the Proposed Action would, therefore, also facilitate future planning. Identified projects will have no cumulative effect on Eielson's unique visual setting. The Proposed Action and other identified projects will have no cumulative impact on AICUZ at Eielson.

Socioeconomics and Environmental Justice. Employment benefits associated with construction and demolition projects are temporary. Reassignment of A-10 aircraft under BRAC 2005 will result in the loss of over 600 base personnel.

Cultural Resources. The Proposed Action would not impact cultural resources at Eielson AFB. Proposed Action infrastructure improvements include interior modifications to Building 1141 and are compatible with the architectural integrity of the building. Therefore, no cumulative effects would be expected.

Infrastructure. Demolition projects associated with the Proposed Action would contribute solid waste to local landfills. Although the amount of generated waste would not have a significant impact to landfills, proposed renovation and construction would produce waste materials which could minimally shorten the operating life of landfills. No significant increased demands on infrastructure are anticipated under the Proposed Action, therefore, no cumulative effects are anticipated. Construction, renovation, and infrastructure improvement projects will increase base efficiency of operation.

Physical Resources. Proper construction techniques, erosion control measures, and structural engineering designs for these projects would minimize cumulative impacts to physical resources, such as soil and water quality. Cumulative increases in impervious surfaces within the BDA may eventually lead to impaired ground water recharge and local flooding. Although aquifer recharge is not an issue, storm water management may be. Through proper planning and tracking, the potential for adverse cumulative impacts can be avoided.

Hazardous Materials and Waste Management. The Proposed Action could contribute to cumulative effects associated with the disposal of hazardous materials, such as asbestos, lead-based paints, and contaminated soils. Demolition, renovation, and modernization projects would incrementally decrease the amounts of these hazardous materials within or near base facilities, reducing exposure opportunities. Excavated contaminated soil remediation and replacement would cumulatively improve soil quality within the BDA. All projects at Eielson AFB will follow federal and state regulations for the handling and disposal of such materials, thus minimizing cumulative effects.

Biological Resources. No special-status species or wetlands would be affected by the Proposed Actions. The Proposed Action is not expected to contribute to cumulative effects. Other projects such as the planned new south gate and vehicle inspection pad will result in a minor expansion of the BDA and may contribute to some cumulative loss of wetland and wildlife habitat within Eielson AFB property. Managed quarrying of fill material for projects such as this has led to an expansion of openwater wetlands within base property, improving habitat for wildlife and offsetting cummulative loses.

Air Quality. The Proposed Action and other identified planned projects (new chapel and new fitness center) would contribute additional emissions to regional air quality; however, the construction emissions would be temporary and would be spread over several calendar years. After construction, new facilities would not be expected to contribute emission levels above those of the current facilities. Cumulatively, new facilities increase power demand on Eielson's heat/power plant and therefore emissions. However, Eielson operates well below permitted limits and will do so for the foreseeable future. No cumulative impacts are anticipated.

Safety. All activities associated with the Proposed Action will follow OSHA standards. Renovation projects which modernize facilities would be consistent with current safety standards and thereby improve safety for personnel using those facilities. Implementation of the Proposed Action would not result in any cumulative effects to base personnel.

5.2 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

NEPA CEQ regulations require environmental analyses to identify "...any irreversible and irretrievable commitments of resources which would be involved in the proposed action should it be implemented" (40 CFR Section 1502.16). Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) which cannot be replaced within a reasonable time frame. Building construction material such as gravel and the gasoline usage for construction equipment would constitute the consumption of nonrenewable resources. These resources are currently plentiful and would not expect to significantly affect environmental resources.

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APPENDIX A
CHECKLIST FOR INCLUSION IN THE INFRASTRUCTURE DEVELOPMENT IN SUPPORT OF RED FLAG-ALASKA ENVIRONMENTAL ASSESSMENT

APPENDIX A CHECKLIST FOR INCLUSION IN THE INFRASTRUCTURE DEVELOPMENT IN SUPPORT OF RED FLAG-ALASKA ENVIRONMENTAL ASSESSMENT

The attached checklist is required for a proposed project to be included in this Infrastructure Development Environmental Assessment (EA). Proposed projects must be within the already-developed portion of Eielson Air Force Base and must complete the attached checklist. The checklist permits rapid evaluation of EA applicability and provides an initial mechanism to track the project implementation. The checklist does not assess impacts but rather documents specific environmental attributes that are potentially affected by a proposed project. The checklist is not an impact summary and is not a National Environmental Policy Act document. The checklist helps the proponent of the proposed project and the 354 CEV determine the level of environmental analysis necessary for project decisions.

The checklist is to be completed and filed with previously submitted AF Form 813, Request for Environmental Impact Analysis for applicability review and project evaluation by 354 CEV Environmental Planning Function. Taken together, the two forms determine whether a proposed infrastructure project can be tiered to this EA or would require a separate environmental analysis.

Implementation Checklist for Construction and Renovation Projects within the BDA

Instructions: *Environmental Planning Function is to complete form during evaluation for inclusion in the Infrastructure Development in Support of RED FLAG-Alaska Environmental Assessment (Air Force 2007) for projects within the already-developed portion of Eielson AFB. This checklist is to be attached as a supplement to AF Form 813 and is to facilitate project implementation tracking.*		
SECTION I Background		
1. Proponent:	2. Contact No.	
3. Title of Project:		
4. Project Start Date:	5. Planned Completion Date:	
SECTION II Environmental Attribute Involvement Summary. *Check appropriate box or circle, as indicated*	Yes	No
6. New tenant?		
7. Land Use of Project Area (*circle*) Industrial, Commercial, Residential, Recreational		
8. Project compatible with existing AICUZ?		
9. Project involves a designated historic property?		
10. Project occurs within a historic district?		
11. If yes, *circle one* Flightline / Quarry Hill		
12. Site occurs in wetland?		
13. Site occurs within 100-year floodplain?		
14. Site dewatering during construction involved?		
15. SWPPP required?		
16. Project involves net change in impervious surface?		
17. Will project increase wastewater treatment load?		
18. Is wellhead protection required?		
19. Additional fill required?		
20. If yes, *circle source* Cather's Lake / Mullen's Pit / Offbase		
21. Construction/demolition waste generated?		
22. Has Waste Material/Borrow Pit Plan been submitted to CEVN?		
23. Asbestos abatement required?		
24. Lead-based paint involved?		
25. PCBs in lighting fixtures?		
26. IRP review / monitoring required?		
27. Will contaminated soil be disturbed during construction?		
28. Will contaminated soil be remediated?		
29. Vegetation removed?		
30. Revegetation/tree planting involved?		
31. New emission source involved?		
32. Air quality modeling required?		
33. New laws, policies, or directives applicable?		

APPENDIX B
IMPLEMENTATION TRACKING DATABASE DESCRIPTION AND APPLICATION

APPENDIX B IMPLEMENTATION TRACKING DATABASE DESCRIPTION AND APPLICATION

INTRODUCTION

Implementation of this Environmental Assessment provides for environmental analysis and documentation of renovation and construction projects occurring within the Base Developed Area (BDA) and falling within defined inclusion criteria. Although the areas of the base potentially affected by the Proposed Action are fully developed and have been analyzed, the potential exists for incremental effects associated with normal infrastructure improvement projects to have cumulative implications for the environmental quality of the base. Without a formal tracking mechanism, planners were faced with the challenge of drawing from disparate sources for establishing baseline environmental conditions and monitoring the success and extent of remediation of hazardous materials, strains placed upon infrastructure capacity, and environmental resiliency. The process of assuring high environmental standards sometimes lacked inefficiency. A critical component of this document's utility is the ability to track and compile a broad range of environmental effects associated with renovation and construction projects within the confines of the BDA through the use of a project implementation database.

The purpose of this database is to provide a more efficient mechanism for Environmental Planning Function and base planners to document, track, and evaluate the implementation of projects and their combined effects over the period during which this document is applicable. For infrastructure projects captured by this document's inclusion criteria, the frequency and cumulative totals of a variety of environmental parameters could be determined as well as their locations and the distribution of project effects within the BDA. Although information is independently available through assorted base environmental and engineering branches, here data are integrated across resource groups. This can provide an efficient first step for planners identifying general environmental concerns. Periodic review of these data will also facilitate the evaluation of this document's applicability and the timing of future revisions as well as the establishment of baseline conditions for future National Environmental Policy Act actions at Eielson Air Force Base (AFB).

This project implementation database can be used to track cumulative effects and permit the ability to monitor incremental changes in the base environment that may create concern by approaching certain thresholds. With its use there is an explicit process for tracking accumulating environmental effects of renovation and construction projects conducted within the BDA. The utility of this document is further increased by its providing general support to planners for future projects and programs. Some examples of information that may be tracked over time through this database include:

- Fill replacement and contaminated soil removal within the BDA.
- Accumulation and distribution of impervious surfaces, as well as increases in local flood potential.

- New non-temporary emission sources.
- Progress of remediation of certain hazardous material present in older facilities (e.g., asbestos-containing materials [ACMs]).
- Quantity of construction debris transported to landfills.
- Success of tree planting and landscaping initiatives within the BDA.
- Shifts in land use.
- Upgrades to fire and other safety features through new construction and major renovation.

In its application, the Environmental Planning Function, in cooperation with the project proponent or their agent, would complete the data entry form associated with this database. The following describes the database, in general terms, and explains the data entry process.

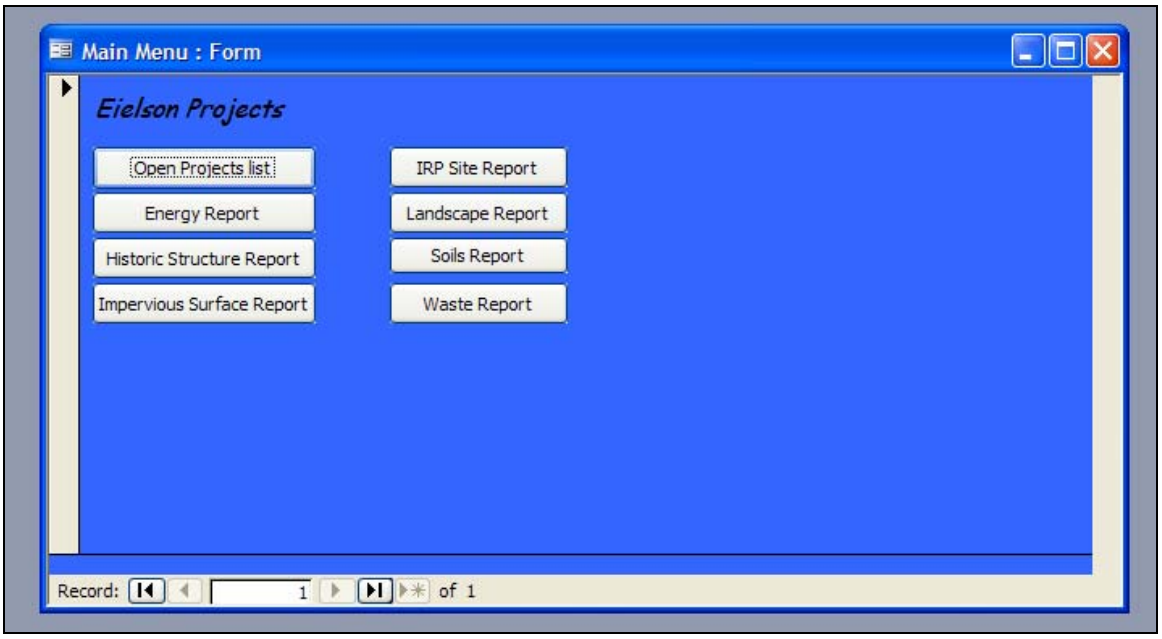
DESCRIPTION OF DATABASE

This database allows users to enter and see specific environmental information about each project site, as well as generate and view reports from input data. Data include information regarding project location, date, project type, historic structures and districts, energy and emissions, excavation and soils, waste and debris generation, Installation Restoration Program (IRP) sites, impervious surfaces, and landscaping and vegetation. In most cases, users are prompted to input parameters through the selection of standardized descriptors. In some cases, users quantify specific amounts.

DATA ENTRY PROCESS

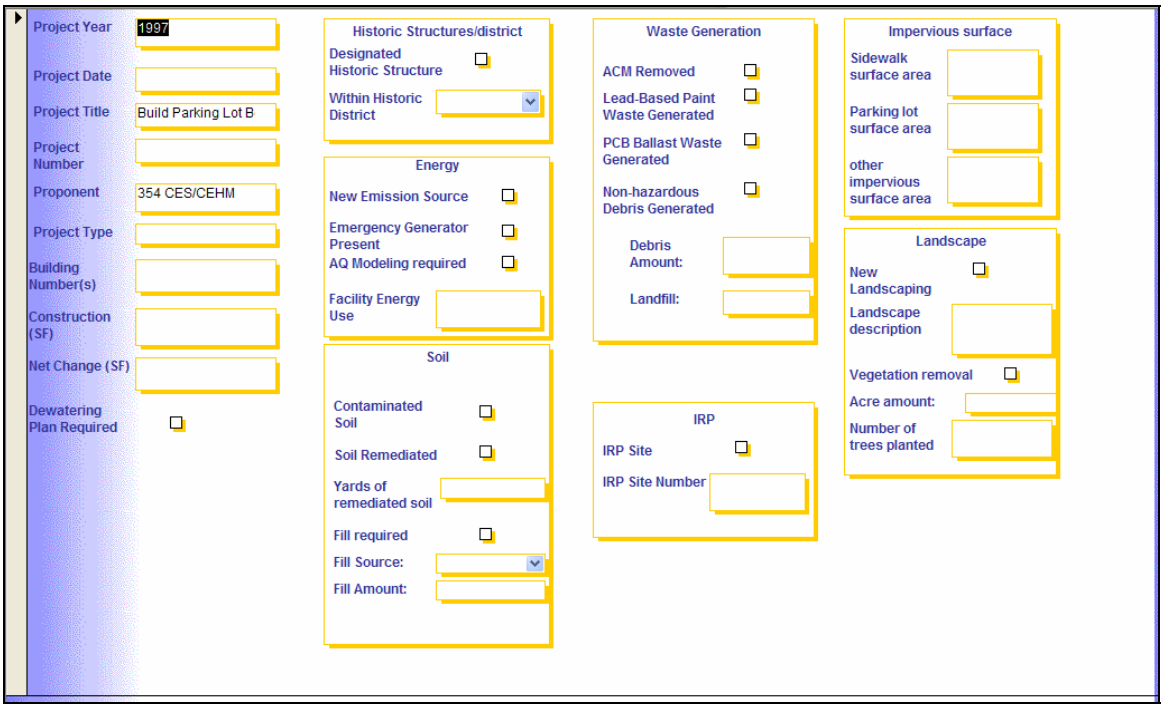
When the database opens, the Main Menu (Figure B-1) appears with several options. Selecting the first option opens the database for project information entry. A project entry form (Figure B-2) view opens and the user is guided through the data entry process. The other options selected from the Main Menu will generate reports displaying information regarding each topic listed.

Figure B-1. Implementation Database Opening Menu.



From here the user may add data, edit project files, or generate reports.

Figure B-2. Database Project Input Form View.



The Input Form is opened through the selection of "Open Projects list" from the Main Menu.

Within the Input Form some entry fields require a simple check of a Data Entry Box for an affirmative response (Click to select; click again to un-select a choice). Some items have Drop-Down Menus with a few options from which to choose (Figure B-3); Drop-Down Menus appear when the user clicks on the down arrow at the appropriate item. A menu list appears and the user clicks to select the desired choice. Other items are entered through the use of Text Boxes and will require basic text information; some require a numerical amount, while others will ask for a brief description of an action. Hovering the mouse cursor over each text box in the Form view will reveal additional explanatory text to assist users (Figure B-4).

Figure B-3. Example of a Drop-Down Menu for Entry Selection

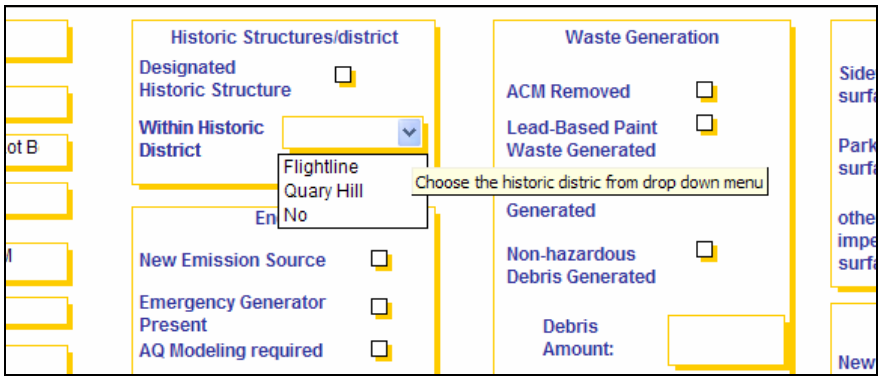
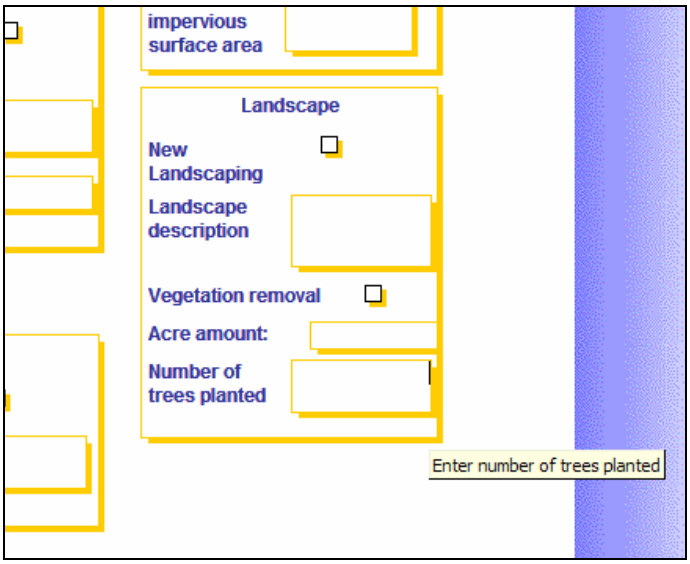
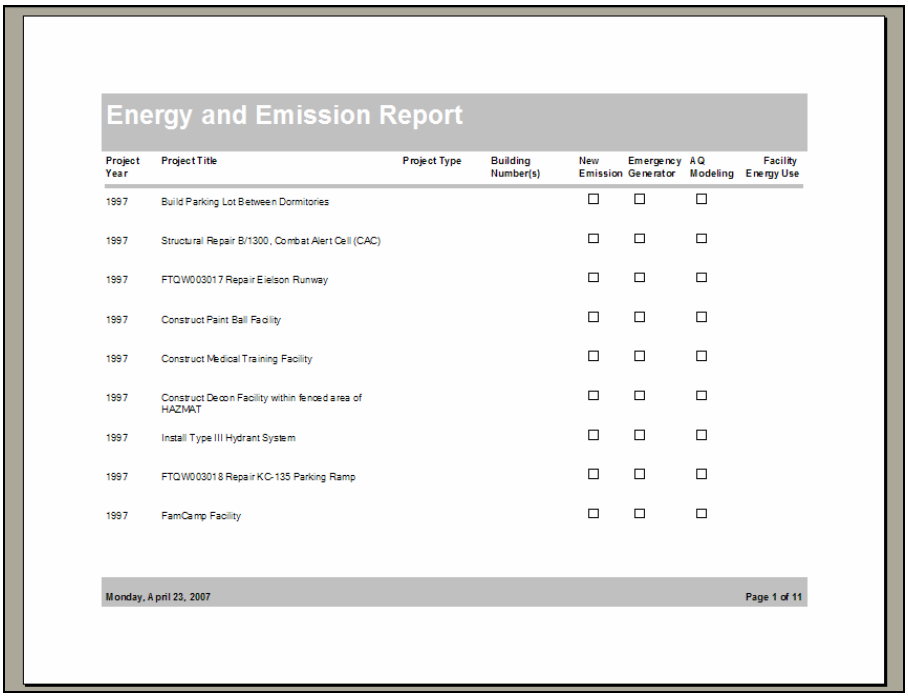


Figure B-4. Example of an Explanatory Text Box (may be opened by hovering over a text box)



From the Main Menu, the user may generate reports as well as enter and view specific project data. For example, selecting "Energy Report" will summarize input energy information for projects (Figure B-5).

Figure B-5. Example Summary Report.



Energy and Emission Report

Project Year	Project Title	Project Type	Building Number(s)	New Emission	Emergency Generator	AQ Modeling	Facility Energy Use
1997	Build Parking Lot Between Dormitories			☐	☐	☐	
1997	Structural Repair B/1300, Combat Alert Cell (CAC)			☐	☐	☐	
1997	FTQW003017 Repair Eielson Runway			☐	☐	☐	
1997	Construct Paint Ball Facility			☐	☐	☐	
1997	Construct Medical Training Facility			☐	☐	☐	
1997	Construct Decon Facility within fenced area of HAZMAT			☐	☐	☐	
1997	Install Type III Hydrant System			☐	☐	☐	
1997	FTQW003018 Repair KC-135 Parking Ramp			☐	☐	☐	
1997	FamCamp Facility			☐	☐	☐	

Monday, April 23, 2007 Page 1 of 11

CONCLUSION

This database serves as a trial or "beta" version, but if kept up-to-date, it will provide an efficient tool for planners to identify general environmental concerns, potential cumulative effects, and monitor inemental changes. As planners at Eielson AFB actively use the data entry forms (Appendix A) and overall database, they may note changes and additions they would like to make in later versions. Microsoft Access was selected to prepare the Implementation Tracking Database because it is readily available and generally easy to modify. Eielson AFB users should be able to benefit from several iterations of this database for years to come.

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APPENDIX C
AGENCY COORDINATION

Sent: Wednesday, May 02, 2007 9:09 AM
To: Nolke James E Civ 354 CES/CEVP
Subject: Eielson AFB Infrastructure Development EA in Support of Red Flag Alaska

Jim:
The ADNR, Office of Habitat Management and Permitting (OHMP) has reviewed the information provided for the above referenced project. The proposed project includes mission-supporting construction and renovation projects within the already developed portion of the base to support an aggressor squadron transformation and training activities.

A Fish Habitat Permit from the OHMP would not be required for any part of this project as it will not affect streams that support fish. The OHMP has no comment and no objection to the proposed plan.

Thank you for the opportunity to comment,

Nancy Ihlenfeldt
Habitat Biologist
AK Department of Natural Resources
Office of Habitat Management & Permitting Fairbanks Office
907-459-7287

Sample IICEP Letter

DEPARTMENT OF THE AIR FORCE
PACIFIC AIR FORCES

9 April 2007

MEMORANDUM FOR: Alaska Department of Natural Resources
Office of Habitat Management & Permitting
Fairbanks Area (III) Office
1300 College Road
Fairbanks, AK 99701-1551

FROM: James Nolke, Chief Environmental Planner
354 CES/CEV
2310 Central Avenue, Suite 100
Eielson AFB AK 99702

SUBJECT: Eielson Air Force Base Infrastructure Development Environmental Assessment in Support of Red Flag Alaska

1. The United States Air Force (Air Force) is in the process of preparing a programmatic Environmental Assessment (EA) to evaluate the potential environmental consequences of:

- Mission-supporting construction and renovation projects including those planned for Red Flag Alaska Major Flying Exercises at Eielson Air Force Base (AFB).

- Transforming Eielson's 354th Fighter Wing and its F-16s to a dedicated aggressor squadron supporting realistic training exercises such as Red Flag Alaska.

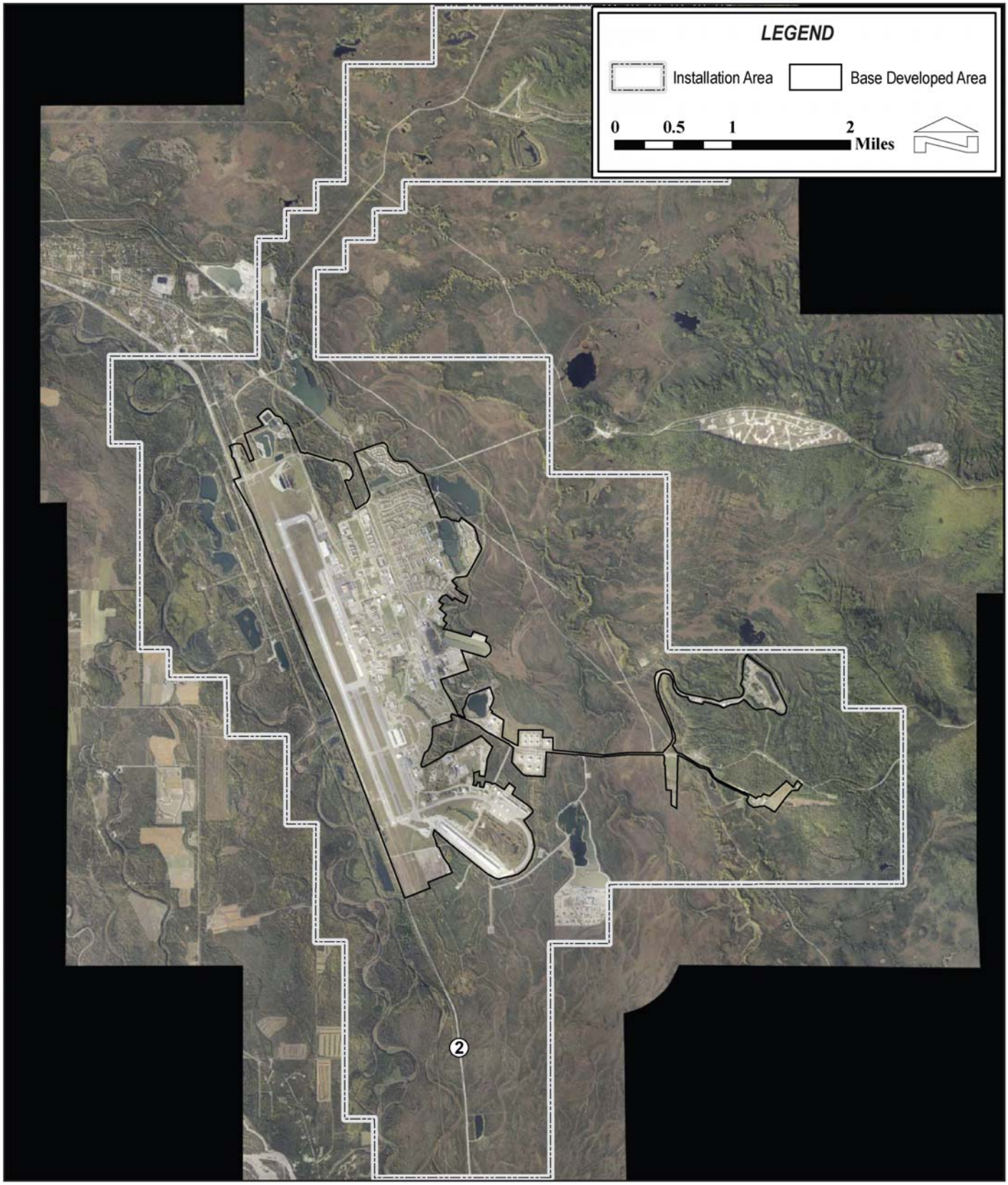
2. The purpose of the projects covered by the Draft EA is to allow Eielson infrastructure within the already-developed portion of the base to become increasingly well-suited to mission demands, such as Alaska's premier Red Flag training exercises; function more effectively; and update aging facilities.

3. Construction and renovation projects addressed by the Draft EA would be those planned within the filled, graded portion of Eielson AFB property that are outside of wetlands and 100-year floodplains and not subject to 30-day public review as detailed in Title 32 CFR Part 989.15(e)(2). The aggressor squadron transformation would involve a one-for-one swap of aircraft. The Proposed Action would not involve changes to airspace or range use. In addition to the Proposed Action, a No Action Alternative will be analyzed in the EA. Attachment 1 is a map of Eielson AFB showing the location of the base developed area where construction and renovation projects associated with the Proposed Action would take place.

4. As part of the National Environmental Policy Act process, the Air Force is seeking comments on their proposal. We look forward to receiving your comments as part of this process. Please respond to: Mr. James Nolke, 354 CES/CEVP, 2310 Central Avenue, Suite 100, Eielson AFB AK 99702 or at (907) 377-3365. Thank you for your assistance in this matter.

James Nolke
Chief Environmental Planner

Attachment:
1. Map of Eielson AFB



Attachment 1
Map of Eielson AFB

Final EA Distribution List

Company	Last Name	First Name	Address1	Address2	Address3	City	State	Zip
	Murkowski	The Honorable Lisa	101 12th Avenue, Room 216			Fairbanks	AK	99701
	Murkowski	The Honorable Lisa	709 Hart Senate Building			Washington	DC	20510
	Stevens	The Honorable Ted	101 12th Avenue, Room 206			Fairbanks	AK	99701
	Stevens	The Honorable Ted	522 Hart Senate Office Bldg.			Washington	DC	20510
	Young	The Honorable Don	101 12th Avenue, # 10			Fairbanks	AK	99701-6275
	Young	The Honorable Don	2111 Rayburn HOB			Washington	DC	20515
Alaska Department of Natural Resources	Ihlenfeldt	Nancy	Office of Habitat Management & Permitting	Fairbanks Area (III) Office	1300 College Road	Fairbanks	AK	99701-1551
Alaska State Library			333 Willoughby Avenue, 8th floor	P.O. Box 110571		Juneau	AK	99801
Bureau of Land Management			Northern Field Office	1150 University Ave.		Fairbanks	AK	99709
CSU-CEMML CTR	Sayre	Roger	1060 Gaffney Rd #4500			Fort Wainwright	AK	99703
Eielson AFB Library			3340 Central Ave., Ste. 100			Eielson AFB	AK	99702-1299
Fairbanks North Star Borough	Conner	James	809 Pioneer Rd.	P.O. Box 71267		Fairbanks	AK	99707
Fairbanks North Star Borough Public Library			Noel Wien Library	1215 Cowles St.		Fairbanks	AK	99701-4313

Company	Last Name	First Name	Address1	Address2	Address3	City	State	Zip
Governor of Alaska	Palin	The Honorable Sarah	240 Main St., Ste. 300	Court Plaza Bldg.		Juneau	AK	99801
North Pole Branch Library			601 Snowman Ln.			North Pole	AK	99705
Tanana Chiefs Conference			122 1st Avenue			Fairbanks	AK	99701-4871
U.S. Environmental Protection Agency			Alaska Operations	222 W. 7th Ave., #19		Anchorage	AK	99513-7588
U.S. Fish and Wildlife Service			Fairbanks Field Office	101 12th Ave., Room 110		Fairbanks	AK	99701-6237
University of Alaska Fairbanks			Elmer E. Rasmuson Library	310 Tanana Dr.	P.O. Box 756811	Fairbanks	AK	99775-6800