Bryant Army Airfield
Bird-Wildlife Aircraft Strike Hazard (BASH) Plan
Environmental Assessment

Final EA

Alaska Army National Guard
P.O. Box 5800
JBER, AK 99505

October 2018

ENVIRONMENTAL ASSESSMENT ORGANIZATION

This Environmental Assessment (EA) evaluates the potential environmental, socioeconomic, and cultural effects of the Alaska Army National Guard's (AKARNG's) proposed implementation of a Bird-Wildlife Aircraft Strike Hazard (BASH) Plan for Bryant Army Airfield (BAAF), which is a component of the 73,000-acre Joint Base Elmendorf-Richardson (JBER). JBER is located in Anchorage, a 1,961-square-mile unified home rule municipality in Southcentral Alaska.

As required by the National Environmental Policy Act of 1969 (NEPA; 42 United States Code (USC) 4321 *et seq.*), the Council on Environmental Quality (CEQ) Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and 32 CFR Part 651 (Environmental Analysis of Army Actions, Final Rule), the potential effects of the Proposed Action are analyzed. This EA will facilitate the decision-making process by the AKARNG and the National Guard Bureau (NGB) regarding the Proposed Action and its considered alternatives, and is organized as follows:

- **EXECUTIVE SUMMARY:** Describes the Proposed Action and its considered alternatives; summarizes environmental, cultural, and socioeconomic consequences; and compares potential effects associated with the two considered alternatives, including the No Action Alternative.
- **SECTION 1.0: PURPOSE OF AND NEED FOR THE PROPOSED ACTION:** Summarizes the purpose of and need for the Proposed Action, provides relevant background information, and describes the scope of the EA.
- **SECTION 2.0: DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES:** Describes the Proposed Action and presents alternatives for implementing the Proposed Action, including applied screening criteria, alternatives retained for further analysis, and alternatives eliminated, as well as a brief explanation of the rationale for eliminating certain alternatives.
- **SECTION 3.0: AFFECTED ENVIRONMENT:** Describes relevant components of the existing environmental, cultural, and socioeconomic setting of the considered alternatives.
- **SECTION 4.0: ENVIRONMENTAL CONSEQUENCES:** Identifies individual and cumulative potential environmental, cultural, and socioeconomic effects of implementing the considered alternatives; and identifies proposed mitigation and management measures, as and where appropriate.
- **SECTION 5.0: COMPARISON OF ALTERNATIVES AND CONCLUSIONS:** Compares the environmental effects of the two considered alternatives and summarizes the significance of potential individual and cumulative effects from these alternatives.
- **SECTION 6.0: REFERENCES:** Provides bibliographical information for cited sources.
- **SECTION 7.0: LIST OF PREPARERS:** Identifies document preparers and their areas of expertise.
- **SECTION 8.0: AGENCIES AND INDIVIDUALS CONSULTED:** Lists agencies and individuals consulted during preparation of this EA.

✓ ENVIRONMENTAL ASSESSMENT SIGNATURE PAGE

LEAD AGENCY:	National Guard Bureau (NGB)
COOPERATING AGENCIES:	None
TITLE OF PROPOSED ACTION:	Proposed Bryant Army Airfield (BAAF) Bird-Wildlife Aircraft Strike Hazard (BASH) Plan
AFFECTED JURISDICTION:	Anchorage, Alaska
POINT OF CONTACT:	Kelly Hope ("Mandy"), AKARNG NEPA Program Manager, Construction and Facilities Management Office 907-428-7157
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DOCUMENT DESIGNATION: Final Environmental Assessment

ABSTRACT: The AKARNG proposes to implement a BASH Plan to prevent personal injury and damage to aircraft by bird and wildlife strikes at BAAF. The action would employ fencing, habitat modification, hazing, and other actions to exclude birds and wildlife. Aircraft operations would be modified as needed to reduce strike hazards. Other training and administrative actions are being conducted and would continue. Fencing proposed in the BASH Plan has been completed under another program, but is addressed because it is an integral part of the Plan.

This EA evaluates the individual and cumulative effects of the Proposed Action (Implementation of the BASH Plan) and the No Action Alternative with respect to the following criteria: geographic setting and location, land use, air quality, noise, geology, topography, soils, water resources, biological resources, cultural resources and Native American concerns, socioeconomics, utilities, transportation and traffic, hazardous and toxic materials/wastes, and infrastructure. The evaluation performed in this EA concludes that there would be no significant adverse impact, either individually or cumulatively, to the local environment or quality of life associated with the implementation of the Proposed Action, provided routine Best Management Practices specified in this EA are implemented. As such, the EA recommends implementation of the Proposed Action.

DRAFT FINDING OF NO SIGNIFICANT IMPACT (DRAFT FNSI)

FOR

IMPLEMENTATION OF A BIRD-WILDLIFE AIRCRAFT STRIKE HAZARD (BASH) PLAN

BRYANT ARMY AIRFIELD

ANCHORAGE, ALASKA

Introduction

The Alaska Army National Guard (AKARNG) has prepared an Environmental Assessment (EA) to identify and evaluate potential environmental effects from implementing a Bird-Wildlife Aircraft Strike Hazard (BASH) Plan at Bryant Army Airfield (BAAF) at Joint Base Elmendorf-Richardson (JBER). JBER is in Anchorage, a 1,961-square-mile unified home rule municipality in Southcentral Alaska. The action is needed to prevent personal injury and damage to aircraft by bird and wildlife strikes at BAAF. The EA has been prepared in accordance with the National Environmental Policy Act of 1969 (NEPA; 42 USC 4321 *et seq*.), the (CEQ) Regulations Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] 1500-1508), and *Environmental Analysis of Army Actions* (32 CFR Part 651).

1. Description of the Proposed Action and Alternatives

The AKARNG identified four alternatives and compared each against seven screening criteria. The Proposed Action is the Preferred Action Alternative.

Proposed Action

The Proposed Action will implement measures to protect aircraft from bird-wildlife strikes at BAAF and in airspace controlled by BAAF. Aircraft operations will be modified during high-risk periods, and birds and wildlife will be excluded from the airfield and airfield environment by fencing and active hazing. Further, 212 acres of habitat in the 589-acre airfield and the approach-departure clear zone will be substantially modified to reduce habitat attractiveness to birds and wildlife and to ensure that birds and wildlife in the runway environment can be seen by operations personnel. Ongoing actions required for Anti-Terrorism Force Protection (ATFP) have cleared 55 acres and erected a 19,221-foot chain-link perimeter fence in the Proposed Action area.

Move Operations to Elmendorf Air Force Base

This alternative would close BAAF and move aviation assets and activities to the nearby Elmendorf Air Force Base (EAFB), which already has an active BASH program. This would eliminate the need for a BASH program and attendant bird and wildlife dispersal and habitat modification actions at BAAF. This alternative would avoid impacts on birds, wildlife, and their habitat at BAAF, but would cause disproportionate adverse effects to the AKARNG and Air Force missions at JBER. Co-joining operations at EAFB would substantially reduce AKARNG and Air Force capability to respond rapidly and effectively; would expend hundreds of millions of dollars and require years of construction and substantial habitat disturbance to construct new AKARNG support facilities at the EAFB Airfield; and would create a potentially unsafe mix of larger, faster Air Force aircraft and slower, more maneuverable AKARNG aircraft. Potential costs and detriments to operations and safety would be disproportionate to impacts from implementing the Proposed Action. This alternative was eliminated from further consideration.

Avoid Habitat Modification

This alternative would implement the exclusion, dispersal, education, reporting, and aircraft operations provisions of the BASH Plan, but would not actively manage habitat to discourage bird and wildlife use and would not level, clear, or fill to improve line-of-sight for BASH purposes. Dispersion and exclusion

techniques can appreciably reduce potential for aircraft strikes from birds and wildlife; however, studies of bird behavior, including studies of Canada geese in the Anchorage-JBER area, show that birds may become habituated so that hazing and dispersal actions lose effectiveness. Hazing-dispersal techniques alone do not provide an adequate measure of safety for aircraft. This alternative would not provide the means to implement BASH planning and would not adequately protect aircraft and aircrews from potential bird-wildlife strikes. Because a BASH Plan based on this alternative could not be approved, and changes in regulations that would allow it to be approved would be unlikely, this alternative is equivalent to the No Action Alternative. The Avoid Habitat Modification Alternative was eliminated from further analysis. The need for minimization of impacts on habitat is recognized, and incremental adaptive clearing is incorporated into the Proposed Action.

No Action Alternative

AKARNG analyzed a No Action Alternative to serve as a benchmark against which the Proposed Action can be evaluated. The No Action Alternative would result if the AKARNG did not take any action to implement habitat modification, wildlife exclusion, and bird dispersion and ceased all current actions to haze, capture, or otherwise remove birds and mammals to meet the requirements of a BASH Plan. The No Action Alternative would not alter the present use or ownership of BAAF lands, buildings, and other facilities. Clearing and fencing implemented previously for wildlife exclusion and ATFP would remain in place, but no further clearing or fencing would be implemented for BASH purposes. Air traffic control measures would continue to be implemented as needed to protect aircraft and crews.

Screening Criteria:

1. Maintain separation between heavy/high performance and lighter fixed-wing and rotary-wing aircraft
2. Meet AKARNG aviation mission requirements
3. Create and maintain visibility in designated areas for monitoring of aircraft movement, birds, and wildlife
4. Provide for measures to exclude birds and wildlife from the airfield environment
5. Provide for dispersal of birds and wildlife to protect aircraft operation
6. Eliminate or minimize ponded water
7. Reduce food sources for birds and wildlife

2. Environmental Analysis

The potential environmental impacts associated with the Proposed Action are fully described in the EA. The EA identifies the environmental resources that could be affected by the Proposed Action and determines the significance of impacts, if any, to each of those resources. Based on the analysis in the EA, the AKARNG determined that the known adverse impacts from the Proposed Action on geographic setting and location, land use, air quality, noise, geology, topography, soils, water resources, biological resources, cultural resources and Native American concerns, socioeconomics, utilities, transportation and traffic, hazardous and toxic materials/wastes, and infrastructure will not be significant.

3. Mitigation

No mitigation measures will be necessary to reduce potential adverse environmental impacts to below significant levels. Additionally, the AKARNG will implement appropriate Best Management Practices (BMPs) and applicable AKARNG construction guidelines. Vegetation clearing will be minimized to the extent practicable consistent with BASH Plan objectives. AKARNG will obtain all necessary permits and conduct all required agency coordination prior to implementation of this action.

4. Regulations

The Proposed Action will not violate NEPA, the CEQ Regulations, 32 CFR 651, or any other Federal, state, or local environmental regulations.

5. Commitment to Implementation

The National Guard Bureau (NGB) and AKARNG affirm their commitment to implement this EA in accordance with NEPA. Implementation is dependent on funding. The AKARNG and the NGB's Installations and Environment Directorate and Training Directorate will ensure that adequate funds are requested in future years' budgets to achieve the goals and objectives set forth in this EA.

6. Public Review and Comment

The final EA and draft FNSI will be available for public review and comment for 30 days following publication of a public notice in the Anchorage Daily News. Locations where the final EA and draft FNSI will be available for public review will be listed in that public notice. The public may obtain information on the status and progress of the EA, as well as submit written comments on the EA during the 30-day public review period, through Ms. Kelly Hope ("Mandy"), Environmental Program Specialist, Alaska Army National Guard, Construction and Facilities Management Office, Environmental Section, P.O. Box 5800, JBER, AK 99505-0800; Phone: (907) 428-7157; Email: Ms. Kelly Hope at mandy.hope@alaska.gov.

7. Finding of No Significant Impact

After careful review of the EA, I have concluded that implementation of the Proposed Action will not generate controversy or have a significant adverse impact on the quality of the natural or human environment. The FNSI will be signed and the action will be implemented. This analysis fulfills the requirements of NEPA and the CEQ Regulations. An Environmental Impact Statement will not be prepared, and the National Guard will issue this FNSI.

_____ _____

Date

WILLIAM M. MYER
COL, GS
I&E, Army National Guard

EXECUTIVE SUMMARY

ES1 Purpose and Need

The purpose of the Proposed Action is to adopt measures to exclude birds and wildlife from critical areas of the BAAF airfield environment, modify habitat to discourage bird and wildlife use, modify terrain to improve line-of-sight monitoring, and implement operating procedures to reduce potential for aircraft strikes.

The need for this action is to reduce the potential for birds and other wildlife to strike, be struck by, or to otherwise damage or interfere with aircraft or aircraft operations at or near BAAF, which in turn reduces the potential for personal injury and damage to aircraft.

The area addressed by the BASH Plan encompasses 1,673 acres of terrestrial BASH management area with a core area of 589 acres comprising the active airfield and clear zone (Figure ES-1).

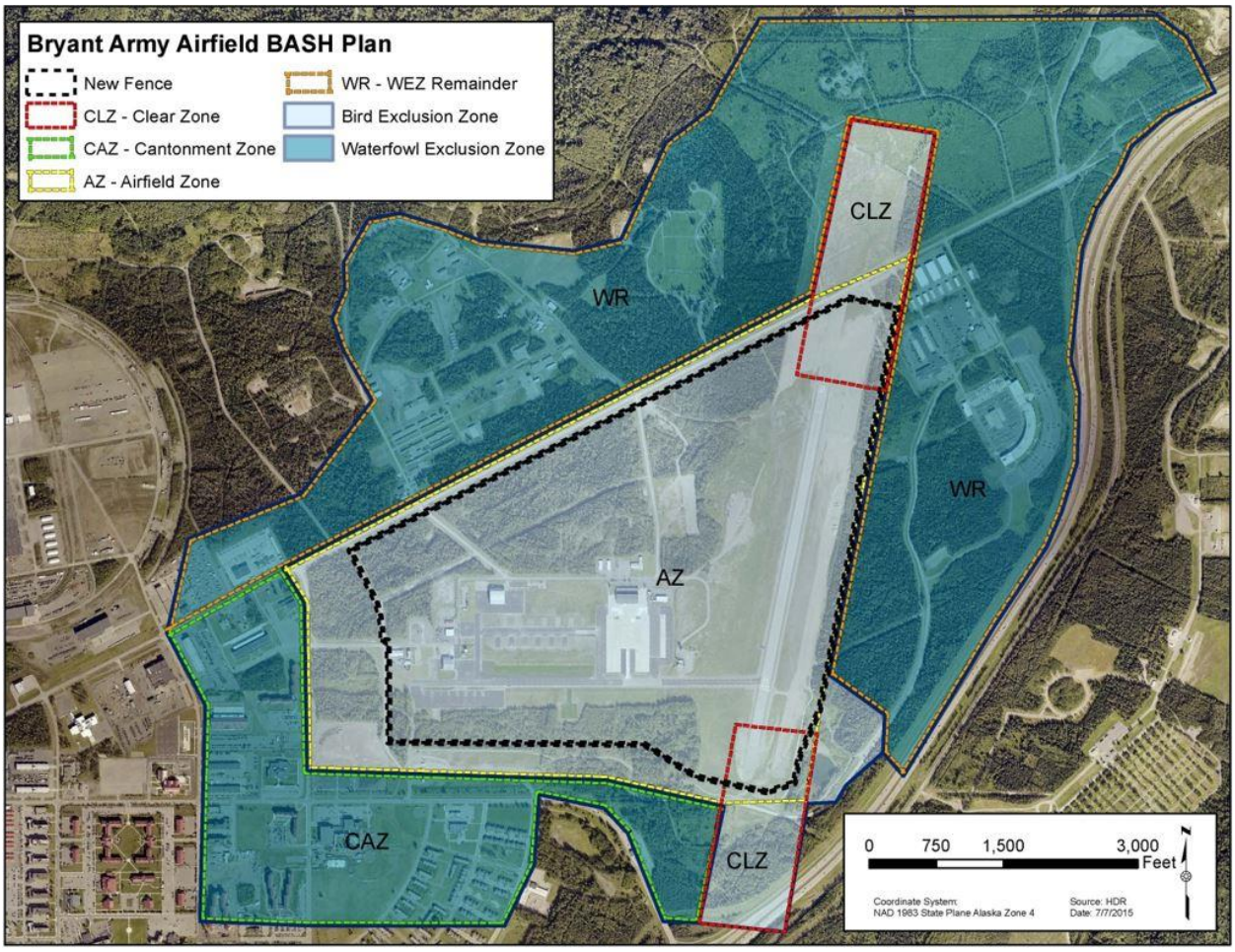

Figure ES-1. BAAF BASH Zones as defined in the BAAF BASH Plan

The Environmental Assessment (EA) identifies and considers the cultural and environmental resources that could be affected by the action, including the following:

- Land Use
- Air Quality

- Noise
- Geology, Topography, and Soils
- Water Resources
- Biological Resources
- Cultural Resources
- Socioeconomics
- Environmental Justice
- Infrastructure
- Hazardous and Toxic Materials/Wastes

The BASH Plan provides for bird, wildlife, and habitat management and for administrative, training, and aviation flight control measures. Most of the training, management, record-keeping, monitoring, and air traffic control measures identified in the BASH Plan have already been implemented, along with other administrative and operations measures. The EA focuses on the habitat and bird and wildlife management measures with the potential to affect resources of concern. Administrative, training, and air traffic control measures would be unlikely to adversely affect resources of concern.

Resource and regulatory agencies were invited to participate in scoping for this action. The US Environmental Protection Agency (USEPA) identified a site in the affected area that is known to have hazardous waste (Figure ES-2). No other substantive comments have been received.

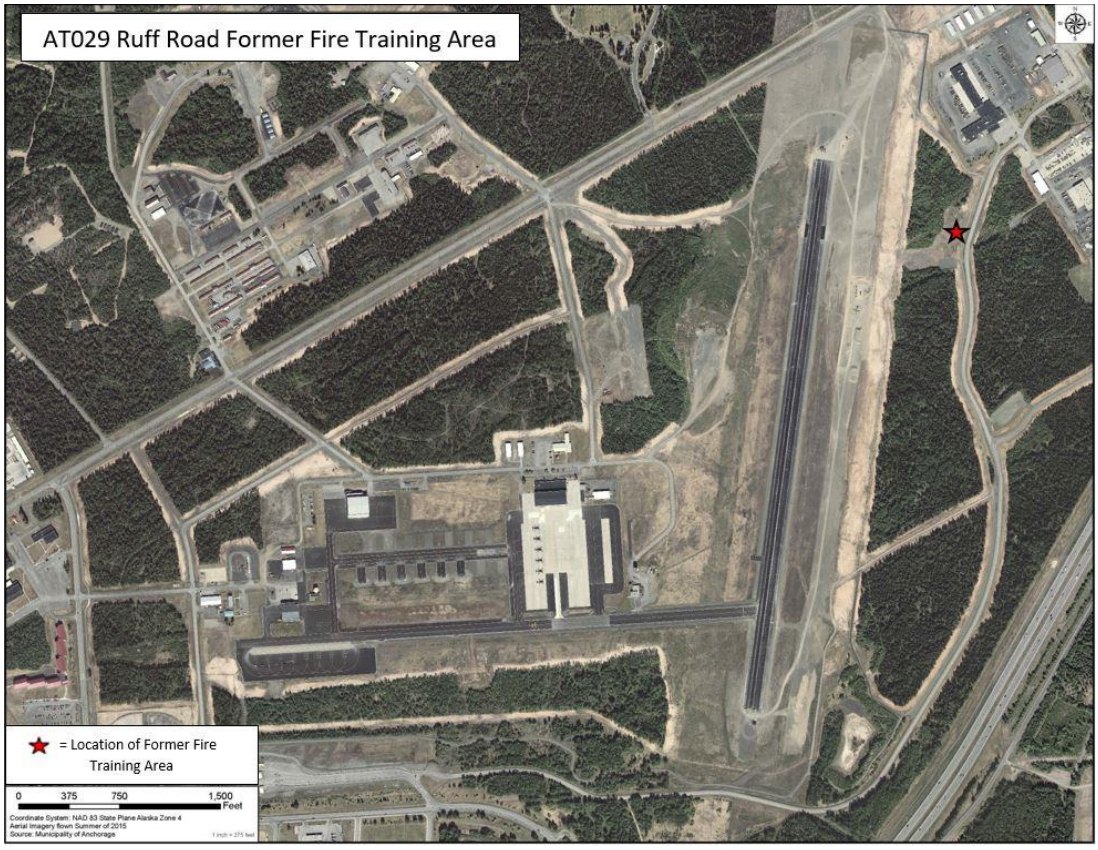

Figure ES-2. Location of Former Fire Training Area in Relation to BAAF

ES2 Description of the Proposed Action and Alternatives

Two alternatives, the Proposed Action and the No Action Alternative, are addressed in the EA.

ES2.1 The Proposed Action

The Proposed Action would implement the BASH Plan, which encompasses four zones in and around BAAF (see Table ES1). The plan recognizes that bird-wildlife risks are greatest in the immediate airfield and approach-departure environments and that management requirements should be most stringent in those environments.

Table ES1. BAAF BASH Zones

Zone	Area (acres)
Airfield Zone (AZ)	589
Clear Zone (CLZ)	67*
Waterfowl Exclusion Zone (WR)**	783
Cantonment Zone (CAZ)	234
Total	1,673
*Not including overlap with AZ **Areas outside the cantonment	

The Proposed Action would manage the 589-acre Airfield Zone (AZ) to eliminate or minimize bird and wildlife presence and threat. In the 67 acres of the Clear Zone (CLZ), the BASH Plan focuses management actions on bird exclusion. The 783-acre Waterfowl Exclusion Zone (WR) would be managed to discourage use by all birds and larger wildlife, and management actions would be implemented specifically to exclude use by waterfowl. The 234-acre Cantonment Zone (CAZ) would be managed with the same objectives, but specific management measures would be adapted to accommodate the more urban characteristics of the CAZ.

The following measures would be employed to reduce bird-wildlife presence and threat in the airfield environment and are discussed in further detail below:

- Erect barriers to restrict wildlife access to the BAAF
- Conduct dispersal and capture operations
- Minimize open water
- Bird-proof structures to minimize nesting and roosting habitat
- Control vegetation, prey species, and other food sources
- Cut and fill to level the ground surface

Erect barriers to restrict wildlife access to the BAAF

The BASH Plan calls for fencing to be placed around the AZ to further limit potential for wildlife and domestic animal incursion into the airfield environment. A 6-foot-high, 19,221-foot-long chain-link perimeter fence was erected for ATFP in 2014 and 2015 (Figure ES-3). It augments previously existing fences to completely enclose the AZ and meets BASH Plan fencing objectives for wildlife exclusion.

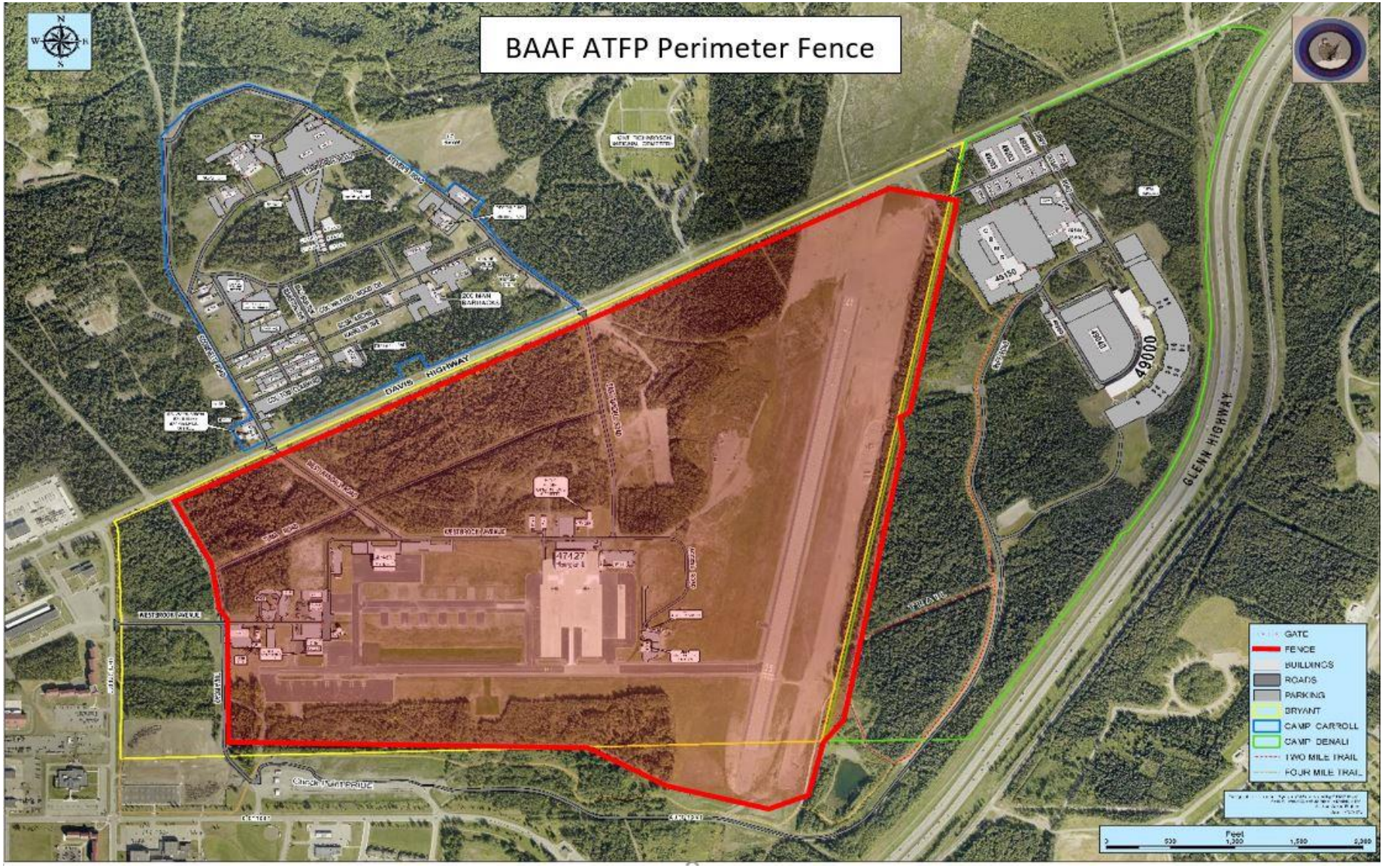

Figure ES-3. BAAF ATFP Perimeter Fence

Conduct dispersal and capture operations

The Wildlife Services office of the US Department of Agriculture (USDA) Animal and Plant Health Inspection Service (APHIS) is funded to keep the airfield and the surrounding areas clear of birds and wildlife as required to meet BASH objectives. Exclusion activities are directed at all birds in the AZ and CLZ and all wildlife in the AZ. Exclusion activities in the WR and CAZ would focus on waterfowl and other birds that represent high BASH risks. APHIS (2015) reported that their methods for dispersing wildlife (including birds) "*include the use of a paintball gun, vehicle harassment, physical harassment, shooting/harassment shooting, pyrotechnics, and nest removal."*

Minimize open water

The Proposed Action would improve drainage in the AZ and CLZ and in other areas close to BAAF. This would minimize the extent and duration of thaw ponds and would improve drainage in ditches. Low areas would be filled as material became available from other construction activities. No jurisdictional wetlands would be filled through these actions.

Bird-proof structures to minimize nesting and roosting habitat

Buildings, towers, and other structures in the AZ would be modified to eliminate potential nesting sites and to prevent birds, particularly large raptors and corvids (crow-like birds, including ravens and jays), from perching or roosting on elevated sites. New construction in the BASH Plan area would incorporate bird-proofing design measures. Screens and other impediments to bird use would be placed to impede nesting and perching throughout the BASH Plan area.

Control vegetation, prey species, and other food sources

Actions to control vegetation and prey species would reduce availability of seeds, berries, forage plants, insects, and small rodents that are food sources for birds and larger wildlife. Vegetation control would also encourage tall grass and other vegetation types and densities that would make potential habitat less acceptable to geese and other birds. Vegetation would be cleared and trees would be thinned to reduce perching and roosting habitat and to improve the ability of airport personnel to observe bird-wildlife presence.

The BASH Plan calls for clearing up to 212 acres of woodlands and associated vegetation in the AZ and adjacent areas of the WR and CAZ. This would include all trees within 300 meters of Runway 17-35 and other aircraft operation areas. In the CLZ, 67 acres of woodlands and shrubs would be cut short to promote growth of low brushy vegetation.

Downed trees would be removed from the site and would be conveyed to the contractor or offered as firewood. Stumps, roots, and other vegetative material would be grubbed or excavated and used as fill in the AZ or would be disposed offsite in an upland location.

A portion of the proposed clearing (55 acres) has been completed as an Anti-Terrorism Force Protection (ATFP) measure. The Alaska Department of Military and Veterans Affairs addressed fencing and clearing for the fence and runway environment, and findings of that document were reviewed prior to ATFP fence installation (Appendix G).

Cut and fill to level the ground surface

Small depressions, mounds, and other topographical features in the AZ may obscure birds and wildlife from view. Those features would be leveled so birds and wildlife would be readily observed in the airfield runway and operations environment. Terrain in the AZ is relatively flat, so the affected area would be limited.

ES2.2 Evaluated Alternatives

Two alternatives, the Proposed Action and the No Action Alternative, were considered in detail.

The No Action Alternative would result if the AKARNG did not take any action to implement habitat modification, wildlife exclusion, and bird dispersion and if they ceased all current actions to haze, capture, or otherwise remove birds and mammals to meet requirements of a BASH Plan. The No Action Alternative would not alter the present use or ownership of BAAF lands, buildings, and other facilities. Clearing and fencing implemented previously for wildlife exclusion and ATFP would remain in place, but no further clearing or fencing would be implemented for BASH purposes. While the No Action Alternative would not satisfy the purpose of or need for the Proposed Action, this alternative was retained to provide a comparative baseline against which to analyze the effects of the Proposed Action.

ES2.2.1 Alternatives Eliminated from Further Consideration

Move Operations to Elmendorf Air Force Base (EAFB)

Moving BAAF operations to EAFB would avoid impacts of the Proposed Action, but was not considered in detail because it would increase airspace hazards, would be disproportionately expensive, and would not meet the AKARNG aviation mission requirement.

Avoid Habitat Modification

This alternative would implement the exclusion, dispersal, education, reporting, and aircraft operations provisions of the BASH Plan, but would not actively manage habitat to discourage bird and wildlife use and would not level, clear, or fill to improve line-of-sight for BASH purposes. It would rely on hazing and other dispersion methods to exclude birds. Birds, however, become habituated to hazing. This alternative would not adequately protect aircraft and aircrews from potential bird-wildlife strikes. Because a BASH Plan based on this alternative could not be approved, and changes in regulations that would allow it to be approved would be unlikely, this alternative was not considered in detail.

ES2.2.2 Alternatives Comparison

The Alternatives Comparison Matrix identifies the principal resources and areas of concern that were considered in this document and summarizes potential impacts of the Proposed Action and No Action Alternative.

Table ES2. Alternatives' Impacts Comparison Matrix

Technical Resource Area	No Action Alternative	Proposed Action
Geographic Setting and Location	No impact attributable to AKARNG action.	No impact attributable to AKARNG action.
Land Use	No impact attributable to AKARNG action. ATFP fencing and clearing would remain. ATFP features would cause long-term, localized and less-than-significant adverse impacts to access and land use.	Fencing would cause long-term, localized, less-than-significant adverse impacts to access and land use. Air traffic control actions would cause long-term, localized, and less-than-significant impacts to civil and military aviation.
Air Quality	No impact attributable to AKARNG action. Ongoing operations' emissions would continue.	Long-term, localized, low-intensity, less-than-significant adverse impacts from land clearing and maintenance activities; largely confined to the project area. Short-term, localized less-than-significant adverse impacts associated with the potential for dust generation from construction activities.

Table ES2. Alternatives' Impacts Comparison Matrix		
Technical Resource Area	**No Action Alternative**	**Proposed Action**
		Short- and long-term, low-intensity, less-than significant adverse impacts associated with the potential for carbon dioxide to be released by burning or decomposition of growing plants. Impacts would be managed with implementation of BMPs.
Noise	No impact attributable to AKARNG action. Ongoing operations noise would continue.	Potential short-term localized less-than-significant adverse impact due to the potential for noise generation from construction activities and occasional hazing in the AZ. Impacts would be managed with implementation of BMPs.
Geology, Topography, and Soils	No impact attributable to AKARNG action.	Short- and long-term, low-intensity, localized, less-than-significant adverse impact to soils during terrain leveling and reduction of melt-water ponds. Impacts would be managed with implementation of BMPs.
Water Resources	No impact attributable to AKARNG action.	No impact attributed to AKARNG action; however, BMPs would be implemented for soil-disturbing activities requiring a construction general permit and SWPPP.
Biological Resources	Potential localized, low-intensity, short- and long-term, less-than-significant adverse impact to birds and wildlife due to injury and mortality from aircraft strikes. Beneficial impact to birds and wildlife from broader habitat availability.	Potential localized, low-intensity, short- and long-term, less-than-significant adverse impact to birds, mammals, and their habitat due to vegetation clearing, habitat modification, destruction of nests and eggs, removal and dispersion from BAAF and adjacent areas, and from destruction of nuisance individuals. Impacts would be managed with implementation of BMPs. Potential beneficial impacts to furbearers and large mammals as a result of fencing and dispersal lessening the potential to be struck by aircraft. Potential beneficial impacts to birds as a result of hazing and habitat modification, reducing bird mortality from aircraft strikes.

Table ES2. Alternatives' Impacts Comparison Matrix		
Technical Resource Area	**No Action Alternative**	**Proposed Action**
Cultural Resources and Native American Concerns	No impact attributable to AKARNG action.	No impact attributable to AKARNG action; however, BMPs would be implemented in the event that archaeological materials or human remains were discovered during ground-disturbing activities.
Socioeconomics (including Environmental Justice and Protection of Children)	Potential long-term **significant adverse** socioeconomic and safety impacts to the public, military personnel, and children from increased possibility that a bird strike could cause an aircraft crash and human injury or loss of life. Potential for long-term, regional, **significant adverse** impacts on BAAF mission performance and long-term viability if BASH program is not implemented.	Local and regional, short- and long-term, potentially **significant beneficial** impacts to the public, military personnel, and children from reduced potential that a bird strike could cause an aircraft crash resulting in human injury or loss of life.
Utilities	No impact attributable to AKARNG action.	No impact attributable to AKARNG action.
Transportation and Traffic	No impact attributable to AKARNG action.	No impact attributable to AKARNG action.
Infrastructure	No impact attributable to AKARNG action. Elements of the BASH Plan as authorized by NEPA Categorical Exclusions to reduce potential for bird-aircraft strikes would continue.	Minor, local, long-term, less-than-significant adverse impacts to existing and future buildings. Minor, local, adverse and beneficial impacts to aviation operations. Potentially beneficial impacts resulting from implementation of air traffic control procedures to prevent bird strikes.
Hazardous and Toxic Materials/Wastes	No impact attributable to AKARNG action.	Local, temporary, and less-than-significant adverse impacts associated with implementing the Proposed Action in the vicinity of a former ADEC contaminated site. Impacts would be managed with implementation of BMPs.

ES3 Best Management Practices

Per established protocols, procedures, and requirements, the AKARNG will implement BMPs and will satisfy all applicable regulatory requirements in association with the Proposed Action. BMPs are included as components of the Proposed Action and are described below. BMPs are regulatory compliance measures that the AKARNG regularly implements as part of their activities, as appropriate, across the State of Alaska. These are different from "mitigation measures," which are defined as project-specific requirements (not routinely implemented by the AKARNG) necessary to reduce identified potentially significant adverse environmental impacts to less-than-significant levels. No project-specific mitigation

measures are needed to reduce impacts to less-than-significant levels. With implementation of the following routine BMPs, the Proposed Action would not result in significant adverse impacts to the current environmental setting.

Air Quality

The AKARNG will ensure dust control associated with ground-disturbing activities is conducted. Available methods include application of water, replacing woodland vegetation with grass and/or low-lying shrubs to increase net photosynthesis in cleared areas, and not burning cleared woody material on-site. To minimize dust generated by vehicles and equipment on unpaved surfaces, the AKARNG will maintain an appropriate speed. Equipment will be shut down when it is not in use. Equipment will be repaired and serviced in accordance with the regular maintenance schedule recommended for each individual equipment type, and cleaned of excess soil before leaving work zones to prevent off-site transport. These dust-reducing measures will be briefed to the contractor or Soldiers responsible for implementing these activities. The AKARNG's on-site manager would be responsible for bringing air quality issues, if they arise, to the attention of the AKARNG for resolution.

Noise

Land-clearing activities would be well separated from sensitive noise receptors and would not likely exceed noise generated by flight operations and other activities on JBER. The following BMPs could be employed as appropriate to limit noise impacts during land conversion activities:

- Locate stationary equipment as far away from sensitive receptors as possible
- Shut down noise-generating heavy equipment when it is not needed
- Maintain noisy equipment per manufacturers' recommendations
- Encourage personnel to operate equipment in the quietest manner practicable (i.e., speed restrictions, retarder brake restrictions, engine speed restrictions, etc.)

These noise-reducing measures would be briefed to the contractor or Soldiers responsible for implementing these activities. The AKARNG's on-site manager would be responsible to bring noise issues, if they arise, to the AKARNG for resolution. This information will be incorporated into construction contracts.

Geology, Topography, and Soils

Cut and fill during terrain-leveling activities would affect soils and topography in the Proposed Action area. BMPs to reduce impacts include re-vegetation and stabilization practices, silt fences, fiber rolls, etc. These BMPs will be employed as identified in the project's Stormwater Pollution Prevention Plan (SWPPP).

Water Resources

Project activities that result in soil disturbance (e.g., clearing, grading, or excavating) of one acre or more require a construction general permit, to be filed concurrently by the AKARNG Environmental Office, per the Alaska Pollution Discharge Elimination System (APDES). This permit may be obtained from the Alaska Department of Environmental Conservation (ADEC). The contractor, airfield personnel or maintenance workers conducting land disturbing activities would be responsible for obtaining this permit, as appropriate, in consultation with the AKARNG Environmental Office. Following receipt of this permit, land disturbance activities would be permissible. The AKARNG would comply with the terms of the permit. In addition, a site-specific SWPPP would be developed for land disturbing activities. The plan must include all phases of the land disturbing activities and identify the location and size of erosion and sediment (E&S) controls. The plan would be maintained onsite during these activities. Periodic visual inspections by the AKARNG would also be required to verify that the E&S Control Plan is being followed and is working.

In addition to obtaining a SWPPP, grass would be planted at exposed soil sites to reduce sediments in runoff.

Biological Resources

The following BMPs would be utilized during implementation of the Proposed Action in order to minimize impacts to biological resources:

- While the Proposed Action could clear a maximum of 90 additional acres of mixed woodlands in the AZ, clearing would be limited to the minimum required to meet BASH Plan objectives.
- Methodology for all hazing, capture, and other actions required to disperse or remove wildlife and birds would be coordinated with the USFWS and the ADF&G.
- All bird and wildlife dispersal or removal activities would be reported to the USFWS and the ADF&G.
- All hazing, capture, and other actions required to disperse or remove wildlife and birds would be conducted by trained personnel and would be selected to meet mission requirements with the minimum impact on birds and wildlife.
- All vegetation clearing would be timed to avoid migratory bird nesting periods established by the USFWS.
- Vegetation clearing with timber greater than 2 inches in diameter at breast height would be stockpiled and made available as personal-use firewood.
- Egg and hatchling takes could be minimized if sweeps were done during the nesting season. Nests could be destroyed before eggs are laid. No permit would be needed unless the species is protected, threatened, or endangered.
- All take of migratory birds and eagles would be done in accordance with the MBTA and the Bald and Golden Eagle Protection Act (BGEPA).
- Vegetation clearing and habitat conversion actions would follow guidelines established in the Integrated Natural Resources Management Plan for Elmendorf Air Force Base (US Air Force, 2016).

Cultural Resources

Should archaeological materials or human remains be inadvertently discovered during ground-disturbing activities, all work would cease immediately and the ADMVA Cultural Resources Manager would be notified.

HTMW

An area in the CRZ is listed as a formerly contaminated site, but with a "Cleanup Complete- Institutional Controls" status according to the ADEC, as described in Section 3.12. The HTMW site would be delineated and marked prior to vegetation trimming. A safety plan including site entry, activity, safety equipment, training, and emergency actions would be completed and reviewed by the project safety officer before any action in the site. The plan would include provisions to ensure contaminants would not be released or carried offsite. Those provisions would include training and briefings and cleanup of equipment and clothing after site entry. Per the ICs in place for the site, all units and tenants are informed annually of ICs on contaminated soils and groundwater in effect at the Post. Compliance with ICs is reported in the Annual Monitoring Report. Additionally, JBER requires all projects that involve soil disturbance to obtain a "dig permit" as described in section 3.12. The dig permit provides site-specific information on land use controls and other applicable environmental requirements.

During land clearing activities, all HTMW that would be used or generated would be handled and disposed of in compliance with the AKARNG Hazardous Material & Waste Management Plan (2017).

ES4 Affected Environment

Geographic Setting and Location

Activities related to the Proposed Action would be in the 1,673-acre BASH Plan area around BAAF and in the airspace above and adjacent to it. The area of effect for ground-disturbing activities would be entirely within the BASH Plan area. The area of potential environmental effect would vary among the resources of concern, but generally would be within or immediately adjacent to the BASH Plan area. BAAF is in the northeastern area of JBER in a glacial and river depositional area at the base of the Chugach Mountain foothills. The climate at JBER is transitional between the maritime climate zone to the south and the continental climate zone to the north. Precipitation averages about 16 inches per year.

Land Use

BAAF lies entirely within JBER, which is bounded by the Municipality of Anchorage and Bureau of Land Management (BLM) lands to the south and west, by the estuarine waters of the Knik Arm of Cook Inlet to the north and west, and by the community of Eagle River and Chugach State Park to the east. The 73,000-acre JBER installation is bisected by the Glenn Highway.

BAAF is northeast of downtown Anchorage and immediately west of the Glenn Highway. Flight operations are conducted on Runway 17-35, supported by adjacent taxiways and hardstand. A control tower, passenger terminal, and aviation support facilities are on the airfield. In addition to the Glenn Highway, military roads, utilities, training and support facilities, woodlands, and open areas are adjacent to the airfield, including the Fort Richardson National Cemetery. The closest schools, military housing, and parks are approximately 1 mile from BAAF. The closest hospital is approximately 3 miles from BAAF.

Light aircraft flying into and out of Anchorage from the northeast typically transition past BAAF and the Anchorage Regional Landfill by flying over the Glenn Highway. Pilots are required to contact the BAAF control tower for clearance when the tower is in operation and may receive traffic advisories and instructions.

Air Quality

Fort Richardson, JBER, and BAAF have not exceeded Clean Air Act (CAA) air quality standards and are outside maintenance areas established for the Municipality of Anchorage. CAA, Section 176 General Conformity has been evaluated according to the requirements of 40 CFR Part 93, Subpart B. The requirements of this rule are not applicable to the Proposed Action.

Geology, Topography, and Soils

BAAF is in a low-relief glacial outwash plain. Topography is gently rolling, rising into the Chugach Mountains to the north and east. Soils typically are well-drained, gently sloping, with little ponding, and with depth to water table of more than 72 inches. There is no permafrost in the BASH Plan area.

Water Resources

There are no streams on BAAF lands and no natural water bodies. There are no jurisdictional wetlands or other waters of the US in areas that would be affected by the Proposed Action.

Biological Resources

Biological resources at BAAF are similar to those in much of JBER. Habitat is a mix of highly modified lands that are now buildings, other facilities, and lawns; second-growth mixed woodlands; and lands that were previously disturbed and are now in various stages of succession. No reptiles are native to Southcentral Alaska and there is only one native amphibian species (wood frog) that has been reported in

more than isolated instances in Southcentral Alaska. No fish have been reported at BAAF or in the vicinity of the airfield.

Predominant vegetation in the undeveloped areas of BAAF is a mixed evergreen/hardwood second growth forest community. Similar forest assemblages are common throughout JBER. Understory vegetation in the forested areas consists of willow, high bush cranberry, Labrador tea, lingonberry, crowberry, bunchberry, various grasses, mosses, and fungi. Cleared areas adjacent to runways and roads have a similar shrub and herb composition, but with more grasses and forbs, notably lupine and fireweed.

Vegetation in the CAZ is typically lawns with gardens and ornamental trees and shrubs. Vegetation in the CLZ is primarily early succession woodlands. Trees in the CLZ have previously been cleared to eliminate obstructions to aircraft landing and departing from BAAF Runway 17-35.

Mammals

Mammal populations on JBER are typical of those in Southcentral Alaska. The following could at least occasionally be found at or near BAAF:

- *Small mammals*: Snowshoe hare, red squirrel, North American porcupine, little brown bat, and various species of shrews, mice, and voles
- *Furbearers*: Red fox, coyote, short-tailed weasel, and possibly mink
- *Large mammals*: Black bear, brown bear, and moose

Fencing generally excludes furbearers and large mammals from BAAF, but USDA Wildlife Services (2015a, 2015b) reported 198 hazing incidents involving moose, 27 involving red fox, 65 involving black bear, and the removal and relocation of 1 porcupine at and near BAAF in the 15-month period between 1 July 2014 and 28 September 2015.

Birds

Most bird species in Southcentral Alaska are present, at least occasionally, in the wide range of habitats on JBER. Bird populations on JBER vary with the seasons, with migratory pulses in the spring and autumn. Presence of high-risk species is greatest during the spring and autumn. Canada geese abundance is especially likely to increase in autumn as the geese stage in the Anchorage area for migration. Bald eagles feeding at the nearby Anchorage Regional Landfill may perch or roost in trees near BAAF and frequently are present in BAAF airspace.

Birds may be attracted into JBER by feeding opportunities. Geese graze on lawns and low-growing grass, many birds eat grass seed heads, and the seeds and fruits in trees and shrubs attract waxwings, chickadees, redpolls, and others that winter in the region.

Some bird species travel and feed in flocks that could lead to multiple airstrikes in a single incident; ducks, geese, shorebirds, starlings, and Bohemian waxwings are notable in this regard. Habitat suitable for ducks and shorebirds is limited in the mixed habitat at and near BAAF, but Bohemian waxwings, starlings, and geese may find feeding or other habitat at or near BAAF unless measures are taken to make the area unattractive to them.

USDA Wildlife Services hazed 4,170 birds at or near BAAF, largely waterfowl, shorebirds, and corvids in the 15-month period between 1 July 2014 and 28 September 2015. They also reported that in the first 9 months of 2015 they destroyed or removed 50 bird eggs, captured and relocated 2 birds, and destroyed 13 birds (1 magpie, 8 ravens, 1 mew gull, and 3 semipalmated plovers).

The Anchorage Regional Landfill, northeast of BAAF, attracts scavengers, including bald eagles, ravens and other corvids, and gulls. USDA Wildlife Services used Audubon Alaska Christmas Bird Count data to estimate that a minimum of 1,000 ravens and 300 bald eagles used the landfill during peak winter months. They also reported that they harassed an estimated 1,632 gulls, 10,649 ravens, and 28,471 bald eagles at the landfill in 2014. The report noted aircraft flying at low altitude over and near the landfill and

the potential for bird strikes. USDA Wildlife Services personnel communicate with BAAF and execute bird dispersal actions to minimize potential for bird and wildlife aircraft strikes.

Special Status Species

- Bald and Golden Eagle Protection Act (BGEPA). No eagle nests have been identified in the vicinity of BAAF. All eagle hazing incidents are reported to the US Fish and Wildlife Service.
- Endangered Species Act (ESA). There are no listed endangered or threatened species that would be in the vicinity of BAAF. There is no nexus between listed marine mammals and the Proposed Action.
- Migratory Bird Treaty Act (MBTA). Migratory birds may nest in the vicinity of BAAF and fly in in the airspace used by BAAF flight operations. Most of the birds in Southcentral Alaska are protected by this Act.

Cultural Resources

There are no listed cultural resources in the BASH Plan area. The nearby Fort Richardson National Cemetery is eligible for National Register of Historic Places (NRHP) listing. It contains the graves of American, Japanese, Soviet, Canadian, and British World War II (WWII) soldiers along with veterans and family members who have died more recently. It also is the burial site of Kermit Roosevelt, son of President Theodore Roosevelt.

Socioeconomics

The estimated 2014 population of Anchorage was 301,010, almost 41 percent of the state population of 736,732. The population of JBER was estimated to be more than 13,000 military personnel with almost 20,000 family members. Part-time and full-time National Guard units with about 1,900 Army National Guard and more than 1,400 Air National Guard personnel also use the base. Age, racial, ethnic, gender, income, and other population data are not available for JBER. The nearest civilian populations are several miles from the Proposed Action and outside the potential socioeconomic influences of that action.

BAAF contributes to performance of the JBER mission and the continued presence of JBER as an element of the Anchorage economy.

Environmental Justice

BAAF is more than 3 miles from the nearest civilian population. The Proposed Action would be confined to BAAF and its immediate surroundings. Separate gender, racial, and economic data are not available for the population segment in JBER.

Infrastructure

The nearby Glenn Highway is about 1,000 feet southeast of the approach end of BAAF Runway 35. A bicycle and pedestrian trail parallels the highway. All other infrastructure in the immediate vicinity of BAAF is military. JBER land southwest of the Glenn Highway extends beyond Eagle River, more than 2

miles west of BAAF. The only non-military infrastructure in that area is the Anchorage Regional Landfill, which is 1.7 miles northeast of the departure end of BAAF Runway 35.

Hazardous and Toxic Materials/Wastes (HTMW)

A former fire training area where petroleum, oil, and lubricants; brake fluid; and solvents were burned, identified by the ADEC as ATO29 Ruff Road Fire Training Area, is in the CLZ off the departure end of BAAF Runway 35. No other contaminated sites have been identified in areas that would be disturbed by the Proposed Action.

ES5 Environmental Consequences

Potential impacts of the Proposed Action and the No Action Alternative are compared in the Alternatives' Impacts Comparison Matrix (Table ES2).

The No Action Alternative would avoid adverse impacts and lessen potential for less-than-significant adverse direct and cumulative impacts to land use, noise, local topography, soils, water resources, air quality, biological resources, and for potential release or exposure to HTMW; however, the No Action Alternative presents the potential for significant adverse impacts to children and other members of the surrounding military and civilian populace from a bird-aircraft strike that could lead to a crash and loss of human life. Ability of BAAF to meet mission requirements could also be significantly affected if a BASH Plan were not in place.

The Proposed Action would produce direct, localized, low-intensity adverse effects to land use, noise, local topography, soils, water resources, air quality, and biological resources, and for potential release or exposure to HTMW. Those adverse effects would be less-than-significant. No indirect adverse or beneficial effects were identified. There is potential for significant beneficial impact to children and other members of the surrounding military and civilian populace from lessening potential for a bird-aircraft strike that could lead to a crash and loss of human life. Ability of BAAF to meet mission requirements also could be significantly and beneficially affected with implementation of an effective and compliant BASH Plan.

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Acronyms and Abbreviations

3 WG	3rd Wing
176 WG	176th Wing
ACHP	Advisory Council on Historic Preservation
ADF&G	Alaska Department of Fish and Game
ADMVA	Alaska Department of Military and Veterans Affairs
AKARNG	Alaska Army National Guard
AKSHPO	Alaska State Historic Preservation Office/Officer
APHIS	USDA Animal and Plant Health Inspection Service
ARPA	Archaeological Resources Protection Act
ARNG	Army National Guard
ATFP	Anti-Terrorism Force Protection
AWACS	Airborne Warning and Control System
AZ	Airfield Zone
BAAF	Bryant Army Airfield
BASH	Bird-Wildlife Aircraft Strike Hazard
BHWG	Bird Hazard Working Group
BLM	Bureau of Land Management
BWC	Bird Watch Condition
CAA	Clean Air Act
CAZ	Cantonment Zone
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CEQ	Council on Environmental Quality
CFR	Code of Federal Regulations
CZMA	Coastal Zone Management Act
CWA	Clean Water Act
CLZ	Clear Zone
DOI	US Department of Interior
DOPAA	Description of Proposed Action and Alternatives
EA	Environmental Assessment
EAFB	Elmendorf Air Force Base
FAA	Federal Aviation Administration
FG	Fighter Group
FNSI	Finding of No Significant Impact
FWCA	Fish and Wildlife Conservation Act
HTMW	Hazardous and Toxic Materials/Wastes
JBER	Joint Base Elmendorf-Richardson
NEPA	National Environmental Policy Act
NGB	National Guard Bureau
NHPA	National Historic Preservation Act
NRCS	National Resources Conservation Service

NRHP	National Register of Historic Places
RCRA	Resource Conservation and Recovery Act
SDWA	Safe Drinking Water Act
SWPPP	Stormwater Pollution Prevention Plan
US	United States
USC	United States Code
USDA	US Department of Agriculture
USEPA	US Environmental Protection Agency
USFWS	US Fish and Wildlife Service
WR	Waterfowl Exclusion Zone

1.0 PURPOSE OF AND NEED FOR THE PROPOSED ACTION

1.1 Introduction

This section addresses the AKARNG purpose and need for implementing a BASH Plan for BAAF, which is a component of the 73,000-acre JBER. JBER is located in Anchorage, a 1,961-square-mile unified home rule municipality in Southcentral Alaska (Figure 1).

The purpose of the Proposed Action is to adopt measures to exclude birds and wildlife from critical areas of the airfield environment, modify habitat to discourage bird and wildlife use, modify terrain to improve line-of-sight monitoring, and implement operating procedures to reduce potential for aircraft strikes.

The need for this action is to reduce the potential for birds and other wildlife to strike, be struck by, or to otherwise damage or interfere with aircraft or aircraft operations at or near BAAF, which in turn reduces the potential for personal injury and damage to aircraft.

Implementing the BASH Plan is a proposed Federal action in the context of the National Environmental Policy Act (NEPA). The responsible agencies are the AKARNG, which is the holding agency for properties in this action, and the NGB. The AKARNG is a composite state-federal agency that is resourced and supported by the Army National Guard (ARNG) and the Alaska Department of Military and Veterans Affairs (ADMVA).

This EA was prepared by the AKARNG and satisfies the requirements of the NEPA (1969, as amended (42 U.S. Code [USC] 4321 et seq.)); Council on Environmental Quality (CEQ) implementing regulations (40 CFR Parts 1500-1508) and 32 CFR Part 651 (Environmental Analysis of Army Actions; Final Rule, 29 March 2002); and the Army National Guard NEPA Handbook (ARNG 2011). It was also prepared consistent with the requirements of 32 CFR Chapter VII (Department of the Air Force) Subchapter T (Environmental Protection), Subpart 989.14 (Environmental assessment).

1.2 Purpose and Need for Action

The purpose of this action is to approve the AKARNG BASH Plan designed to reduce potential for birds and other wildlife to strike, be struck by, or to otherwise damage or interfere with aircraft or aircraft operations at or near BAAF. A further purpose is to comply with AFPAM 91-212 (Bird/Wildlife Aircraft Strike Hazard (BASH) Management Techniques) and AFI 91-212 (The US Air Force Mishap Prevention Program).

The action is needed to prevent personal injury and damage to aircraft by bird and wildlife strikes at BAAF. All military airfields are required to develop BASH plans and to implement measures to reduce risks of aircraft strikes with birds and wildlife (DOD, 2003). BASH plans develop measures to warn pilots of persistent and current hazards, modify airfield and flight operations during high-risk periods, exclude birds and wildlife from the airfield environment, and reduce habitat value and attractiveness to birds and wildlife in specified areas near the airfield. Pacific Air Force (PACAF) 3rd Wing Instruction 91-212 defines subjects to be addressed in the BASH Plan and requires implementation of appropriate measures in those plans.

The action is needed because aircraft strikes by birds and terrestrial wildlife have been, and continue to be threats to military and civil aircraft and their passengers and crews. The Federal Aviation Administration (FAA) compiles reports of civilian aircraft strikes by birds and wildlife. The following data are from the FAA (2015):

- There were about 142,000 bird-wildlife strikes with civil aircraft in the United States (US) between 1990 and 2013 (about 11,000 strikes at 650 airports in 2013).

- From 1990 to 2013, there were 25 human fatalities attributed to bird-wildlife strikes with US civil aircraft.
- From 1990 to 2013, there were 279 human injuries attributed to bird-wildlife strikes with US civil aircraft.
- From 1990 to 2013, there were 62 civil aircrafts in the US either destroyed or damaged beyond repair due to bird-wildlife strikes.
- While 97 percent of all strikes with civil aircrafts in the US involve birds, aircraft strikes with other animals such as deer, moose, coyotes, turtles, skunks, bats, and alligators have also been reported. White-tailed deer were the most commonly struck non-bird species between 1990 and 2012.

On April 20, 2016, a light plane crashed near Birchwood Airport, 10 miles northeast of BAAF, after striking a bald eagle. The pilot and three passengers died in the crash (Klint 2016).

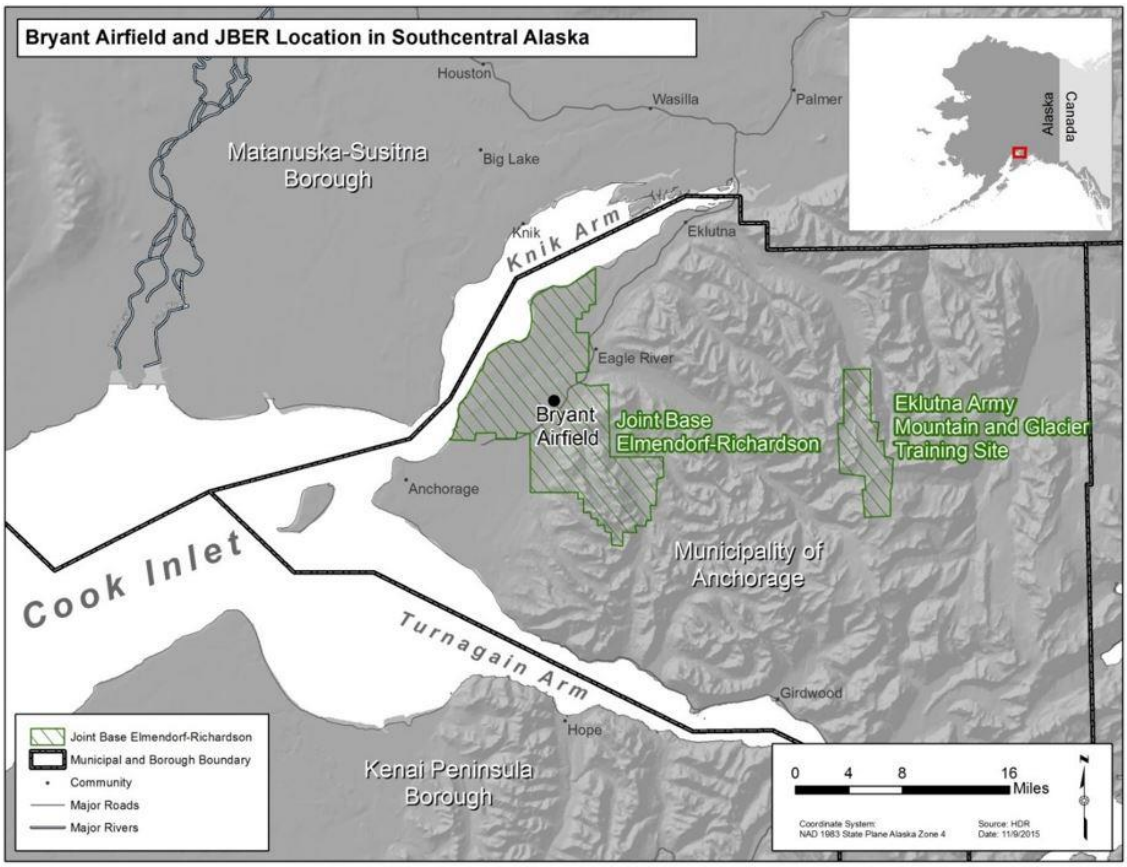

Figure 1. BAAF and JBER location in Southcentral Alaska

The FAA data do not include military bird-wildlife strikes. A 1995 bird strike incident at EAFB, now part of JBER, resulted in the destruction of an Airborne Warning and Control System (AWACS) aircraft and the death of 24 Air Force crewmembers. The Air Force BASH Team reported that more than 140 bird-wildlife strikes were recorded by the 3rd Wing (3 WG), 176th Wing (176 WG), 477th Fighter Group (477 FG), and transient aircraft using JBER between 1995 and 2013. Strikes to military aircraft at and near JBER involved Canada geese, ducks, red-tailed hawks, American kestrels, sandpipers, plovers, mew gulls, glaucous-winged gulls, sandhill cranes, rock pigeons, ravens, American robins, rusty blackbirds, Bohemian waxwings, sparrows, buntings, and longspurs, as well as other small songbirds, many of which were not identified.

The AKARNG BASH Plan (Appendix A) has been established to meet the stated need for action and is part of the Airfield Safety and Accident Prevention Program. The Plan is designed to*:

- Establish procedures to minimize the hazard to the US Army, AKARNG, and all other aircraft operating at the airfield and in adjacent areas.
- Establish procedures for reporting potentially hazardous bird and wildlife activity and altering or discontinuing flying operations. Reporting is intended to be a collective effort between all air and ground personnel operating in the airfield environment.
- Establish procedures to identify potentially hazardous situations and to aid supervisors and aircrews in disseminating information, issuing alerts, and altering or discontinuing flying operations when required.
- Establish active and passive techniques to disperse birds and wildlife from the airfield and decrease airfield attractiveness to birds and wildlife.
- Establish procedures to identify, provide information, and eliminate or reduce environmental conditions that attract birds and wildlife to the airfield.
- Maintain an airfield Bird Hazard Working Group (BHWG) and designate responsibilities to its members. Designated representatives also are part of the JBER BHWG and attend semi-annual meetings.

*From the AKARNG BASH Plan, Section 2-1.

1.3 Scope of the Environmental Assessment

JBER was established on 30 July 2010 by combining installation management functions of the EAFB 3 WG and the US Army Garrison at Fort Richardson. JBER is one of 12 joint bases that were established by Base Realignment and Closure actions initiated in 2005. JBER is operated and maintained for air sovereignty, combat training, force staging, and throughput operations in support of worldwide contingencies. JBER occupies over 73,000 acres.

The AKARNG operates BAAF as an active aerodrome in the Fort Richardson component of JBER. The aerodrome provides operations, maintenance, and crew support for fixed-wing and rotary-wing aircraft. BAAF is a strategic platform for intrastate and regional aviation functions to support training for combat, combat deployments, and state and national emergencies. The BAAF mission is to manage resources to provide Department of Defense (DOD)-compliant maintenance facilities, training resources, mobilization, and operational assets to include airspace and composite risk-managed plans to support the JBER commander. Figure 2 is an aerial photograph of BAAF.

Implementation of the BASH Plan is a proposed Federal action subject to regulations for implementing NEPA. In accordance with 32 CFR 651 and 989, the EA analyzes environmental effects of implementing the plan. The EA also documents coordination and status of public and agency involvement, required interagency coordination, compliance with regulations and executive orders, and permit acquisition for the action.

This EA addresses the Proposed Action, which would implement the BASH Plan, and alternatives to the Proposed Action, including the No Action Alternative. It also identifies other alternatives that were not considered in detail and identifies the reason they were dismissed from consideration.

The EA identifies and considers the cultural and environmental resources that could be affected by the action, including the following:

- Land Use
- Air Quality
- Noise

- Geology, Topography, and Soils
- Water Resources
- Biological Resources
- Cultural Resources
- Socioeconomics
- Environmental Justice
- Infrastructure
- Hazardous and Toxic Materials/Wastes

The area addressed by the BASH Plan encompasses 1,673 acres of terrestrial BASH management area with a core area of 589 acres comprising the active airfield and clear zones. Figure 3 shows BAAF and the BASH Plan area. The BASH Plan also addresses airspace controlled by the BAAF control tower and adjacent military airspace.

The BASH Plan would provide for bird, wildlife, and habitat management and for administrative, training, and aviation flight control measures. Most of the training, management, record-keeping, monitoring, and air traffic control procedures identified in the BASH Plan have already been implemented along with other administrative and operational measures. Those measures are briefly identified in Section 2.2, Proposed Action, but the EA focuses on the habitat and bird and wildlife management measures with potential to affect resources of concern. The full BASH Plan is provided in Appendix A.

Along with administrative and operational measures, some of the proposed habitat, bird, and wildlife management measures overlap other program objectives. Some of the clearing, fencing, and other measures proposed in the BASH Plan have been or are being accomplished to meet other program requirements. The status of those completed and in-progress measures is reported in Section 2.2, and the environmental consequences of those completed and ongoing actions are addressed along with other BASH Plan measures in Section 4.0. These overlapping actions are described so that reviewers and decision-makers are fully informed about the extent of the action. This avoids “segmenting” as defined by NEPA regulations (40 CFR Parts 1502.4(c) and 1508.25).

Figure 2. Aerial view of BAAF

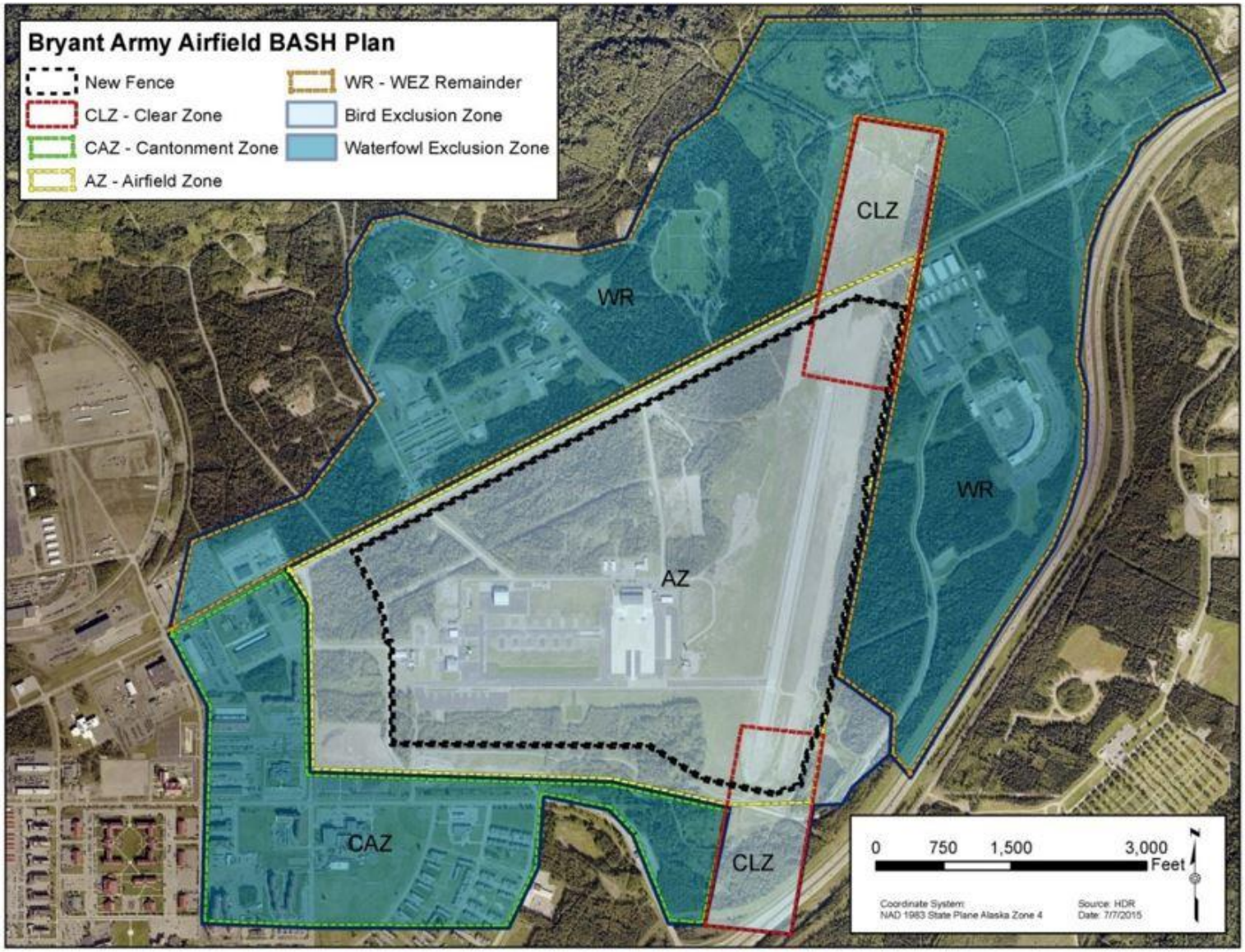

Figure 3. BAAF BASH Zones as defined in the BAAF BASH Plan

1.4 Decision-Making

At the conclusion of public and agency review of the final EA, and after all comments have been addressed, the Federal decision-maker will sign a Finding of No Significant Impact (FNSI) that will allow the action to proceed or will determine that an Environmental Impact Statement is required. The Federal decision-maker for this action is the Chief, Installations and Environment Directorate. Components of the BASH Plan that are being or already have been carried out for other programs could be revised by the FNSI or other NEPA decision at the conclusion of this review. A No Action decision would prevent further clearing and habitat modification for BASH objectives, but would not affect ongoing actions that are addressed by previous EAs or Categorical Exclusions, including airspace control and administrative actions such as training and record-keeping.

Pursuant to DOD Directive 5105.77, NGB, dated 30 OCT 15, the NGB serves as the principal advisor to the U.S. Army on matters involving the ARNG, and is responsible for implementing DOD guidance on the structure and strength authorizations of the ARNG. The NGB is responsible for ensuring that ARNG activities are performed in accordance with applicable policies and regulations. As such, NGB is the lead federal agency responsible for preparation of NEPA-compliant documentation on projects for which the AKARNG is the proponent. In that capacity, the NGB is ultimately responsible for environmental analyses and documentation; however, the local responsibility for NEPA document preparation falls upon AKARNG.

1.5 Public and Agency Involvement

The AKARNG has directly contacted elected Federal, state, and local representatives; Federally recognized tribes; the regional Native corporation; and other organizations likely to be interested in the action, including the following (Appendix C):

- US Fish and Wildlife Service (USFWS)
- National Oceanic and Atmospheric Administration (NOAA)
- US Army Corps of Engineers (USACE)
- Alaska Department of Natural Resources (AKDNR)
- State Historic Preservation Office/Officer (AKSHPO)
- Alaska Department of Fish and Game (ADF&G)
- Alaska Department of Environmental Conservation (ADEC)

Potentially affected tribes were offered opportunities for government-to-government consultation. Notice of availability for public review of the EA will be published in newspaper(s) with regional distribution. Public and agency scoping and coordination, along with site data and observation of site conditions, are used in the EA to narrow descriptions of the affected environment and to focus analysis of environmental impacts. Scoping comments and related correspondence are provided in Appendix D.

Concerns identified during initial scoping and literature review included potential effects of hazing, nest destruction, and habitat modification on birds and wildlife; impacts to wetlands, water quality, and cultural resources; potential for contaminant exposure pathways; and cumulative impacts to forest vegetation and attendant cumulative impacts to atmospheric carbon dioxide sequestration and global warming. Agencies and the public also have expressed concerns related to civil and military aircraft safety and the need for continued safe military presence and training in Alaska.

While resource agencies, non-government organizations, and individuals in Anchorage support preservation of wildlife and their habitats, there also is strong support for aviation and concern for flight safety. Anchorage is a major state, national, and international aviation hub. Flights to and from Anchorage International Airport, Lake Hood (the largest seaplane base in the world), Merrill Field, and

other airfields in the Anchorage area are the transportation lifelines to rural Alaska communities, lodges, camps, mines, commercial fishing sites, and recreational opportunities. Only approximately 18 percent of communities in Alaska can be reached by road (McKinley et al. 2014).

Nationally, less than 0.02 percent of Americans held pilot licenses in 2003 (FAA 2004, US Census Bureau 2015a). More recent data indicate that the number of pilots has not kept pace with population growth and that the national percentage of pilots is even lower now (AOPA 2011). In Alaska, by contrast, 1.3 percent of Alaskans are licensed aircraft pilots (McKinley et al. 2014).

Bird strike avoidance programs similar to the proposed BAAF action have been instituted at Anchorage International Airport, Lake Hood Seaplane Base, EAFB at JBER, and at other airfields in the Anchorage area and across Alaska. Concurrent programs to control nuisance birds in city public areas have reduced resident Canada goose populations in Anchorage by more than 50 percent since the 1995 AWACS incident (Crowley 1997). Those programs have destroyed nests of gulls, geese, and other birds, destroyed birds and other animals on airport property, hazed nuisance birds and wildlife away from the airfield environments, modified habitat, and instituted other measures to protect aviation activities. Regulatory and resource agencies consistently have supported measures required to assure aircraft safety while minimizing impacts to wildlife. Similar support for BASH programs in Alaska has been expressed in public comments and during public participation in regional BASH planning.

1.6 Related NEPA, Environmental, and Other Documents and Processes

NEPA and other documents for various construction and operations actions that support or are associated with BAAF and the BASH Plan include:

- ADMVA 1998. Bryant Army Airfield and Camp Denali Improvements, Fort Richardson, Alaska. Alaska Department of Military and Veterans Affairs. May 1998.
- AKARNG 2014. Bryant Army Airfield Wildlife Bird Aircraft Strike Hazard Plan (BASH), Department of Military and Veterans Affairs, Alaska Army National Guard, Bryant Army Airfield, Joint Base Elmendorf-Richardson (JBER), Alaska. 1 October 2014.
- US Air Force (USAF) 2007. EAFB Integrated Natural Resources Management Plan.
- USAF 2011a. 2010 Update and Interim Joint Base Elmendorf-Richardson Integrated Natural Resources Management Plan. 673d Civil Engineer Group, JBER.
- USAF 2016. Environmental Conservation Program Integrated Natural Resources Management Plan (Final).
- US Army Corps of Engineers (USACE) 2010. Environmental Assessment of Military Housing Privatization, Joint Base Elmendorf-Richardson, AK. USACE, Mobile District. Prepared for Commander, 673d Air Base Wing.
- 2003 Memorandum of Agreement Between the FAA, the USAF, the US Army, the USEPA, the USFWS, and the USDA to Address Aircraft-Wildlife Strikes.
- Hahn, Robert J., Capt., US Air Force, "Elmendorf AFB BASH Program" (2001). 2001 Bird Strike Committee-USA/Canada, Third Joint Annual Meeting, Calgary, AB. Paper 10.

1.7 Regulatory Framework

The following regulations, executive orders, and memoranda are applicable or may be associated with the Proposed Action. Notes that accompany the list address how those regulations, executive orders, and memoranda are considered in the process of developing this EA.

Regulations

- **Advisory Council on Historic Preservation (ACHP), Protection of Historic and Cultural Properties [36 CFR Part 800].** Evaluation of effects is required for Federal actions. This requirement is addressed in the EA.
- **Archaeological Resources Protection Act (ARPA) of 1979 [Public Law 96-95; 16 United States Code (USC) § 470 (aa)-470 (mm)].** Protection of any eligible cultural resources is required and is addressed in the EA.
- **Army Regulation 385-10, The Army Safety Program, (27 November 2013).** Ensure that safety is a principal element in all aviation operations and apply RM procedures in each phase of the training management cycle to identify hazardous conditions and correct shortcomings responsible for these conditions.
- **Bald and Golden Eagle Protection Act of 1940 [16 USC § 668-668c].** Eagles could be affected. Provisions are in place to prevent or minimize take and to coordinate with USFWS if take is required. Eagle Depredation Permits issued under Bald and Golden Eagle Protection Act (50 CFR 22.23) authorize certain eagle management and control activities necessary to provide for human health and safety, protect personal property, or allow resolution of other injury to people or property. The Act is addressed in the EA.
- **Clean Air Act (CAA) of 1970 [42 USC § 7401 *et seq.*; 40 CFR Parts 50-87) (amended through Public Law Number (No.) 108-201 (1990)].** This is addressed in the EA.
- **Clean Water Act (CWA) of 1972 (33 USC § 1251 *et seq.*].** Wetland delineation and jurisdictional determination for areas affected by the action has been completed by JBER and this is addressed in the EA. A Stormwater Pollution Prevention Plan (SWPPP) is required to control non-point discharge from soil disturbance during vegetation clearing and grubbing. The plan will be prepared by the contractor for ground-disturbing activities. The plans will be coordinated with, and approved by, the ADEC before clearing is initiated.
- **Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) of 1980 [42 USC 9601 (amended through Public Law No. 107-377 (2002)].** The action will not require actions subject to CERCLA. Further consideration is not required.
- **Coastal Zone Management Act (CZMA) of 1972 [Public Law No. 92-583; 16 USC § 1451-1464].** The project area is on Federal land and therefore is not in a designated coastal zone. The Alaska Coastal Zone Management program was repealed by the state. Activities would be consistent with enforceable standards of the program, but there is no review process or requirement for a determination of consistency. Further consideration is not required.
- **CEQ *Regulations for Implementing the Procedural Provisions of the National Environmental Policy Act* [40 CFR Parts 1500-1508].** The BAAF BASH EA is intended to fully meet requirements of the NEPA and its implementing regulations. Completion of the NEPA process will entail public and agency review and action by the ARNG decision-maker.
- **Endangered Species Act (ESA) of 1973 [Public Law 93-205; 16 USC § 1531 *et seq.*].** Threatened and endangered species are addressed in the EA.
- **Farmland Protection Policy Act (FPPA) of 1981 [Public Law 97-98; 7 USC § 4201].** None of the activities in the Proposed Action are on or near farmland. Further consideration is not required.

- **Fish and Wildlife Conservation Act (FWCA) of 1980 [Public Law 96-366; 16 USC § 2901-2911].** Coordination was conducted with the US Department of Interior (DOI) to offer opportunities for comment regarding the project alternatives.
- **Magnuson-Stevens Fishery Conservation and Management Act of 1976 [16 USC § 1801-1884].** The action alternatives and reasonably foreseeable cumulative effects would not affect fish or their habitat. This is documented in the EA.
- **Marine Mammal Protection Act (MMPA) of 1972 [Public Law 92-522; 16 USC § 1361-1407].** None of the actions addressed would be in or near marine mammal habitat or would have any foreseeable potential for effect to marine mammals. Further consideration is not required.
- **Marine Protection, Research, and Sanctuaries Act of 1972 [Public Law 92-532; 33 USC § 1401-1445; 16 USC § 1431-1445].** Sites for Proposed Actions are not in or near protected marine areas and proposed or cumulative actions would not affect those areas. Further consideration is not required.
- **Migratory Bird Treaty Act (MBTA) of 1918, as amended [16 USC § 703-712].** Actions could affect migratory birds at and near BAAF. This was addressed in coordination with the DOI and is addressed in the EA. BAAF and EAFB airfields haze or conduct other "take" of migratory birds under permits issued under this authority.
- **National Historic Preservation Act (NHPA) of 1966, as amended [Public Law No. 89-665; Public Law No. 102-575; 16 USC § 470 *et seq*.].** Measures to comply with NHPA are documented in the EA.
- **Resource Conservation and Recovery Act (RCRA) of 1976 [Public Law No. 94-580; 42 USC § 6901 *et seq*.].** This action will not introduce or otherwise use or remove substances subject to RCRA. The EA will address potential contaminated sites and actions that would be taken in any contaminated sites.
- **Safe Drinking Water Act (SDWA) of 1974 [Public Law No. 93-523; 40 USC § 100 *et seq.*].** The Proposed Action and alternatives would not directly or cumulatively affect availability or quality of drinking water. Further consideration is not required.
- **Wild and Scenic Rivers Act of 1968 [16 USC § 1271].** The action area is not near any river designated under this Act. The action would not directly or cumulatively affect designated rivers or attributes associated with those rivers. Further consideration is not required.
- **US Department of Agriculture (USDA) Wildlife Services WS Form 37.** USDA Wildlife Services verifies depredation or other wildlife problems in Form 37, which is attached to the USFWS Bird Depredation permit. This form has been completed and is regularly updated.

Executive Orders, Memoranda and other Guidance Publications

- **Memorandum for Heads of Executive Departments and Agencies on Government-to-Government Relations with Native American Tribal Governments, (29 April 1995).** Actions taken to meet the requirements and intent of the memorandum are addressed in the EA.
- **Floodplain Management: Executive Order No. 11988, (24 May 1977).** Requires that Federal agencies evaluate the potential effects of any actions in a floodplain, and to avoid impacts to the floodplain. No alternative would be in or would affect any designated floodplain. Further consideration is not required.

- **Protection of Wetlands: Executive Order No. 11990, (24 May 1977).** Requires that Federal agencies take action to minimize the destruction, loss, or degradation of wetlands to achieve "no net loss." No jurisdictional wetlands would be affected.
- **Federal Actions to Address Environmental Justice in Minority Populations and Low-Income populations: Executive Order No. 12898, (11 February 1994).** Limits actions by Federal agencies subjecting minority and low-income populations and tribes to disproportionately high and adverse environmental effects. Amended by EO 12948. Environmental justice considerations are addressed in the EA.
- **Protection of Children from Environmental Health Risks and Safety Risks: Executive Order No. 13045, (21 April 1997).** Requires that Federal agencies identify and assess environmental health and safety risks that may disproportionately affect children. Protection of children is considered in the EA.
- **Invasive Species: Executive Order No. 13112, (3 February 1999).** Federal agencies shall prevent, monitor, and manage the introduction of invasive species. The potential for this action to introduce invasive species and the monitoring and management of invasive species are addressed in the EA.
- **Consultation and Coordination with Indian Tribal Governments: Executive Order No. 131756, (November 2000).** Requires that Indian tribes be consulted whenever an action is taken by a Federal agency that may in some way impact a tribe. Government-to government consultation was offered to Federally recognized tribes. Coordination is documented in the EA.
- **Responsibilities of Federal Agencies to Protect Migratory Birds: Executive Order No. 13186, (10 January 2001).** Establishes guidelines for the protection of migratory birds and their nests and habitats. The EA considers effects on migratory birds and actions to mitigate those effects.
- **Department of Defense Instruction (DODI) 4165.57, Air Installations Compatible Use Zones, (27 November 2013).** Prohibit any use of the land that would unnecessarily attract birds, such as, but not limited to, operation of sanitary landfills, maintenance of feeding stations, or growing of certain types of vegetation attractive to birds.
- **Unified Facilities Criteria (UFC) 3-260-01, Airfield Heliport Planning and Design, (17 November 2008).** Specific runway designs are based on type of aircraft and mission parameters.

2.0 DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

2.1 Introduction

Actions addressed in this EA have not been identified as a project in NGB planning and funding documents. No MILCON number has been assigned. The action is not yet programmed for implementation. This section describes the Federal action proposed by the AKARNG and how alternatives were screened and developed to identify the Proposed Action, alternatives considered in detail, and alternatives that were eliminated from further consideration. Section 1.0 identified the need for the action. The principal concerns raised during initial scoping are identified in Section 1.5. In accordance with ARNG guidance (2011) the alternatives considered in this section are focused on addressing those needs and concerns.

The Proposed Action was developed to meet requirements of the AKARNG and regulations and guidance for developing, implementing, and maintaining a BAAF BASH Plan.

2.2 Proposed Action

AKARNG completed a BASH Plan for BAAF in October 2014 (Appendix A) and proposes to implement that plan. The BASH Plan includes fencing and land clearing objectives that have been partially met since the BASH Plan was completed. Those fencing and clearing actions were undertaken in a separate action to meet standards set for Anti-Terrorism Force Protection (ATFP) and are within the scope of an earlier EA (ADMVA 1998). During the EA process, the Department of Natural Resources, Division of Parks and Recreation, Office of History and Archaeology was consulted in order to meet the requirements of Section 106 of the National Historic Preservation Act. The State Historic Preservation Officer concurred that the actions proposed in the EA would not affect any historic properties (concurrence letter dated 10 November 1997 is included in Section 10.2 of the EA). The fencing and clearing and their environmental effects are addressed as part of the Proposed Action because they would be integrated with, and would be additive to, the remaining features of the BASH Plan. BMPs required to offset adverse impacts associated with the Proposed Action, if necessary, will be summarized in Section 4.12.

Scope of the BASH Plan

The BASH Plan is an integrated program to reduce bird-wildlife strike hazards. The plan addresses activities in the BAAF airspace and management of the surface areas in and around the airfield that require action to reduce or eliminate bird-wildlife threats to aviation safety. The BASH Plan builds upon and incorporates lessons learned from earlier multi-agency efforts to reduce Canada goose populations and other bird threats to aviation in Anchorage.

The BASH Plan encompasses approximately 1,673 acres in and around BAAF. The plan recognizes that bird-wildlife risks are greatest in the immediate airfield and approach-departure environments and that management requirements should be more stringent in those environments. It also recognizes that less stringent measures may be acceptable farther from the airfield. Figure 3 shows the four BASH zones, and Table 1 lists the zones and their acreages.

The BASH Plan would manage the 589-acre Airfield Zone (AZ) to eliminate or minimize bird and wildlife presence and threat. In the 67 acres of the Clear Zone (CLZ), the BASH Plan focuses management actions on bird exclusion. Those two zones are bird exclusion zones and are depicted in light blue in Figure 3.

The 783-acre Waterfowl Exclusion Zone (WR) would be managed to discourage use by all birds and larger wildlife, and management actions would be implemented specifically to exclude use by waterfowl. The 234-acre Cantonment Zone (CAZ) would be managed with the same objectives, but specific management measures would be adapted to accommodate the more urban characteristics of the Fort

Richardson CAZ. The WR and CAZ, where waterfowl would be excluded, are depicted in dark blue in Figure 3.

Table 1. BAAF BASH Zones	
Zone	**Area (acres)**
Airfield Zone (AZ)	589
Clear Zone (CLZ)	67*
Waterfowl Exclusion Zone (WR)	783
Cantonment (CAZ)	234
Total	1,673
*Not including overlap with AZ	

BASH Plan Implementation

Measures proposed for BASH Plan implementation can be grouped as follows:

1. Measures ordinarily required and performed at BAAF
    - Training, management, record-keeping, monitoring, and notification to ensure awareness of potential bird-wildlife strike hazards and to document actions to be taken to minimize hazards
    - Air traffic control procedures to be implemented as needed to avoid or lessen aircraft exposure to bird-wildlife strike hazards
2. Measures to be implemented under the Proposed Action*
    - Measures to reduce bird-wildlife presence and threat in the airfield environment

*Some of the measures under group 2 have already been implemented as part of ATFP actions and/or other actions.

Item 1 - Training, Management, Record-Keeping, Monitoring, and Notification

These measures encompass administrative procedures that would not cause discernible environmental effects and that are currently being conducted in accordance with NEPA Categorical Exclusions (32 CFR Ch. 5 Pt. 661, App. B)[1] which define types of actions that do not require further NEPA evaluation. Administrative and operational activities, including instruction, record-keeping, and the normal range of

[1] (b) Administration/operation activities:

(5) Normal personnel, fiscal, and administrative activities involving military and civilian personnel (recruiting, processing, paying, and records keeping).

(8) Preparation of administrative or personnel-related studies, reports, or investigations.

(c) Construction and demolition:

(4) Studies, data collection, monitoring and information gathering that do not involve major surface disturbance. Examples include topographic surveys, bird counts, wetland mapping, and other resources inventories (REC required).

(i) Training and testing:

(2) Training entirely of an administrative or classroom nature.

(b) Administration/operation activities:

(5) Normal personnel, fiscal, and administrative activities involving military and civilian personnel (recruiting, processing, paying, and records keeping).

(8) Preparation of administrative or personnel-related studies, reports, or investigations.

air traffic control actions, are categorically excluded provided that screening criteria are met and, in some instances, that they have been addressed in previous master plans or similar documents. The Base Integrated Natural Resource Management Plan (US Air Force 2011b) provides supporting environmental documentation for these identified actions. The BASH Plan (Appendix A) identifies training requirements, implementation responsibilities, and other administrative requirements. BASH training typically is integrated into initial pilot orientation briefings and safety meetings.

Item 2 - Air Traffic Control Procedures

Air traffic control procedural measures addressed in the BASH Plan are within the scope of actions ordinarily required and performed in the airspace surrounding BAAF and are being conducted in accordance with NEPA Categorical Exclusions (32 CFR Ch. 5 Pt. 661, App. B)[2]. They do not require alteration of airspace designations or regulations, but do establish mandatory and discretionary procedures for air traffic controllers when risks of bird-wildlife strike are elevated.

During those periods of elevated risk, air traffic control is required to:

a. Report relevant observed bird-wildlife activity to Base Operations/Flight Dispatch and pilots
b. Issue relevant Bird Watch Condition (BWC) advisories to aircrews
c. Warn pilots of any potential bird activity observed as radar targets
d. Recommend missed approaches or delayed takeoffs when possible wildlife hazards appear on air traffic control radar
e. Ensure that under BWC SEVERE status, pilots understand the condition and are provided the option to delay, divert, or continue the proposed operation into the hazardous area
f. Recommend appropriate operational changes or options to pilots and aviation units to avoid areas of known hazardous wildlife concentrations, mission permitting

Air traffic control and commanders may implement the following measures during periods of increased bird and wildlife activity:

a. Raise pattern altitude
b. Change pattern direction to avoid bird concentrations
c. Avoid takeoffs and landings within 1 hour of dawn and dusk
d. Limit or prohibit formation takeoffs and landings
e. Depart pattern in trail; rejoin 3,000 feet above ground level
f. Reschedule local training or transition elsewhere
g. Raise altitude en route to low level or training areas

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[2] (j) Aircraft and airfield activities:

(1) Infrequent, temporary (less than 30 days) increases in air operations up to 50 percent of the typical installation aircraft operation rate (REC required).

(2) Flying activities in compliance with Federal Aviation Administration Regulations and in accordance with normal flight patterns and elevations for that facility, where the flight patterns/elevations have been addressed in an installation master plan or other planning document that has been subject to NEPA public review.

(4) Studies, data collection, monitoring and information gathering that do not involve major surface disturbance. Examples include topographic surveys, bird counts, wetland mapping, and other resources inventories (REC required).

(i) Training and testing:

(2) Training entirely of an administrative or classroom nature.

h. Limit time on low level routes to the minimum required for training
i. Select low level routes or training areas based on bird hazard data
j. Split formations during recovery
k. Discontinue formation instrument approaches
l. Authorize only full stop landings
m. Provide BWC advisories to civilian aviation traffic transiting through BAAF airspace

Item 3 - Measures to Reduce Bird-Wildlife Presence and Threat in the Airfield Environment

These measures could directly impact birds, wildlife, and their habitats, and humans located in and surrounding the BASH zones (Figure 3). The following actions are developed in the BASH Plan and are intended to reduce bird and wildlife presence and bird-wildlife strike risk in the airfield environment:

a. Erect fencing to restrict wildlife access to the BAAF
b. Conduct dispersal and capture operations
c. Minimize open water
d. Bird-proof structures to minimize nesting and roosting habitat
e. Control vegetation, prey species, and other food sources
f. Cut and fill to level the ground surface

a. Erect barriers to wildlife access

The BASH Plan calls for fencing to be placed around the AZ to further limit potential for wildlife and domestic animal incursion into the airfield environment. A 6-foot-high, 19,221-foot-long chain-link perimeter fence was erected for ATFP in 2014. It augments previously existing fences to completely enclose the AZ and meets BASH Plan fencing objectives for wildlife exclusion. The perimeter fence alignment is illustrated in Figure 3.

When the fence was erected, vegetation was cleared in a swath that was a maximum of 33 feet wide on both sides of the fence alignment. Vegetation was cleared primarily with heavy brush-cutting machinery using a rotary chain system and was augmented with hand clearing. Dozers, front-end loaders, and other heavy equipment were used to level the ground for fence alignment and elevation. Downed trees 4 inches or greater in diameter were hauled to the JBER woodlot and made available as personal-use firewood. Other cleared vegetation was chipped and left in place or hauled to upland fill and disposal sites along with excavated stumps and roots. Approximately 55 acres of vegetation were cleared for the fence and associated ATFP requirements. All clearing was completed outside the migratory bird nesting period (1 May through 15 July) identified by USFWS for Southcentral Alaska. No fill was placed in wetlands or other waters of the US. Work in the area had been coordinated previously with AKSHPO.

b. Conduct dispersal and capture operations

The Wildlife Services Office of the USDA Animal and Plant Health Inspection Service (APHIS) is funded to keep the airfield and the surrounding areas clear of birds and wildlife as required to meet BASH objectives.

Dispersal and capture operations have been and continue to be conducted as required to protect against loss of human life or property. Those actions are on an interim basis, pending completion of the NEPA process. Required coordination and permitting have been accomplished as interim actions. These permits are listed in Table 2 and Appendix C.

Table 2. Permits Already Obtained			
Permitting Agency	**Permit Number**	**Type of Permit**	**Regulation**
ADF&G	17-063	Public Safety Permit (nest removal and hazing/take of birds)	AS 16.05.930
USFWS	MB748033-0	Depredation at Airports (migratory birds)	16 USC 703-712 50 CFR 13 50 CFR 21.41
USFWS	MB122978-0	Purposeful Eagle Take for Safety/Eagle Nest Take	50 CFR 13 50 CFR 22.23 50 CFR 22.27

Bird-wildlife exclusion objectives for the four BASH zones illustrated in Figure 3 are as follows:

- Airfield Zone (AZ) – Wild and domestic animals are harassed out of the AZ, captured, or as a last resort, destroyed. All birds are excluded, with particular emphasis on exclusion of waterfowl and other high risk avian BASH species (Appendix B). Bird nests, eggs, and hatchlings found in the AZ are destroyed.
- Clear Zone (CLZ) – Wild and domestic animals may be allowed in parts of the CLZ that are outside the airfield perimeter fence. All birds are to be excluded, with particular emphasis on exclusion of waterfowl and other high risk avian BASH species. Bird nests, eggs, and hatchlings found in the CLZ are destroyed.
- Waterfowl Exclusion Zones (WR and CAZ) – Dispersal actions focus on exclusion of waterfowl and other high risk avian BASH species in this area and surrounding the BAAF. Wildlife also may be harassed out of this area to minimize the potential for incursion into the AZ and to meet other wildlife management objectives not associated with the BASH Plan.

Bird dispersal activities and taking of nests, eggs, and hatchlings are closely coordinated with the 673rd Civil Engineering Squadron, USFWS, and ADF&G. USDA APHIS Wildlife Service personnel trained in bird and wildlife hazing/taking activities have been used in past programs and would be expected to conduct this work as part of the Proposed Action. APHIS (2015) reported that their methods for dispersing wildlife (including birds) "*include the use of a paintball gun, vehicle harassment, physical harassment, shooting/harassment shooting, pyrotechnics, and nest removal."*

ADF&G and USFWS permits (see Table 2) are required for taking birds and protected wildlife. Coordination, reporting, and permit acquisitions or renewals are conducted annually.

c. Minimize open water

Open water can provide nesting and feeding habitat for waterfowl, shorebirds, and other birds and may attract mammals. There are no perennial water bodies in the BASH Plan area. A 1.9-acre, man-made wetland (designation HRCHE2156) between the approach end of BAAF Runway 35 and the Glenn Highway (Figure 4) partially fills with run-off in the winter and spring. This wetland has been determined to be non-jurisdictional (Appendix F). Because the wetland is partially located in the CLZ, it has the potential to attract birds and other wildlife that are hazardous to air traffic. For this reason, it may become necessary to modify or fill the wetland. This would be accomplished through a separate environmental review in accordance with Executive Order 11990 and NEPA, in coordination with the 773rd Engineering Squadron on JBER. Dispersal activities would be employed to exclude waterfowl and other birds until such review can occur.

Source: Alaska Army National Guard 2013

Figure 4. Runway, taxiway, and buildings at BAAF facing northwest (man-made wetland circled in red)

As snow thaws in the spring, the snowmelt may pond across the frozen ground, sometimes thawing during the day and re-freezing at night until the ground beneath thaws and drains. Ice in ditches and other water courses also may impede runoff and cause ponding. Those thaw ponds vary in size and location from year to year. The thaw ponds are present for only a few weeks in the spring and are not jurisdictional wetlands. This annual "breakup" event is usually about the same time as the spring waterfowl migration, so ducks, geese, and other migratory birds may be attracted to the open water until they move to nesting habitat.

The Proposed Action would improve drainage in the AZ and CLZ and in other areas close to the BAAF. This would minimize the extent and duration of thaw ponds and would improve drainage in ditches. Low areas would be filled as material became available from other construction activities. Those improvements would be implemented during periodic maintenance activities and would be a continuing series of actions that would respond to conditions observed during breakup each year. No jurisdictional wetlands would be filled through these actions.

BMPs, including mulching, screening, and seeding would be employed to prevent non-point source pollution in stormwater runoff from ground disturbed by the actions.

d. Bird-proof structures to minimize nesting and roosting habitat

Buildings, towers, and other structures in the AZ would be modified to eliminate potential nesting sites and to prevent birds, particularly large raptors and corvids (crow-like birds, including ravens and jays) from perching or roosting on elevated sites. All new construction in the AZ would incorporate bird-proofing design measures.

Sites where birds roost outside the AZ but close to the airfield would also be bird-proofed. Modifications could include screening to prevent access to building openings, placement of obstructions that would impede landing or roosting, and other minor modifications. New construction in the CAZ and WR zones would incorporate measures to reduce potential for nesting and roosting. This ongoing program would be coordinated with AKSHPO to ensure that cultural resources would be protected.

e. Control vegetation, prey species, and other food sources

Actions to control vegetation and prey species would reduce availability of seeds, berries, forage plants, insects, and small rodents that are food sources for birds and larger wildlife. Vegetation control would also encourage tall grass and other vegetation types and densities that would make habitat less acceptable to geese and other birds. Vegetation would be cleared and trees would be thinned to reduce perching and roosting habitat and to improve the ability of airport personnel to observe bird-wildlife presence.

The BASH Plan calls for clearing up to 155 acres of woodlands and associated vegetation in the AZ and adjacent areas of the WR and CAZ and reducing vegetation height in the remaining 67 acres of the CLZ. This would include all trees within 1,000 feet of Runway 17-35 and other aircraft operation areas. Downed trees would be removed from the site and made available for personal use firewood. Stumps, roots, and other vegetative material would be grubbed or excavated and used as fill in the AZ or would be disposed offsite in an upland area that is consistent with the installation master planning. Other unusable woody material could be chipped and used as on-site mulch or at other construction locations.

Part of the AZ area clearing (55 acres) has been completed as an ATFP measure. Environmental effects of fencing were addressed earlier by ADMVA (1998) and findings of that document were reviewed prior to ATFP fence installation. Figure 5 shows the area identified for clearing in the BASH Plan. The hashed area in Figure 5 was cleared for ATFP. ATFP clearing primarily occurred along the perimeter fence alignment and adjacent to the runway and ground access points. Stumps and roots were not removed from all the areas cleared in the ATFP action. Remaining stumps and roots would be grubbed if needed to prepare the cleared area for re-vegetation and mowing. Cleared areas would be re-vegetated and maintained in accordance with the BASH Plan.

The remaining 157 acres identified for action in the BASH Plan (90 acres to be cleared in the AZ and 67 acres of vegetation height reduction in the CLZ) may be cleared or trimmed as funding becomes available. Measures employed to meet BASH objectives, however, are adaptive. Clearing vegetation in incremental steps would allow airfield and land managers to evaluate the effectiveness of each increment of clearing. This process may reduce the total area that is cleared while still meeting BASH Plan objectives. Effort would be taken to ensure that trees were felled and brush cleared before and after the migratory bird nesting season, which the USFWS lists as 1 May through 15 July in Southcentral Alaska (USFWS 2009).

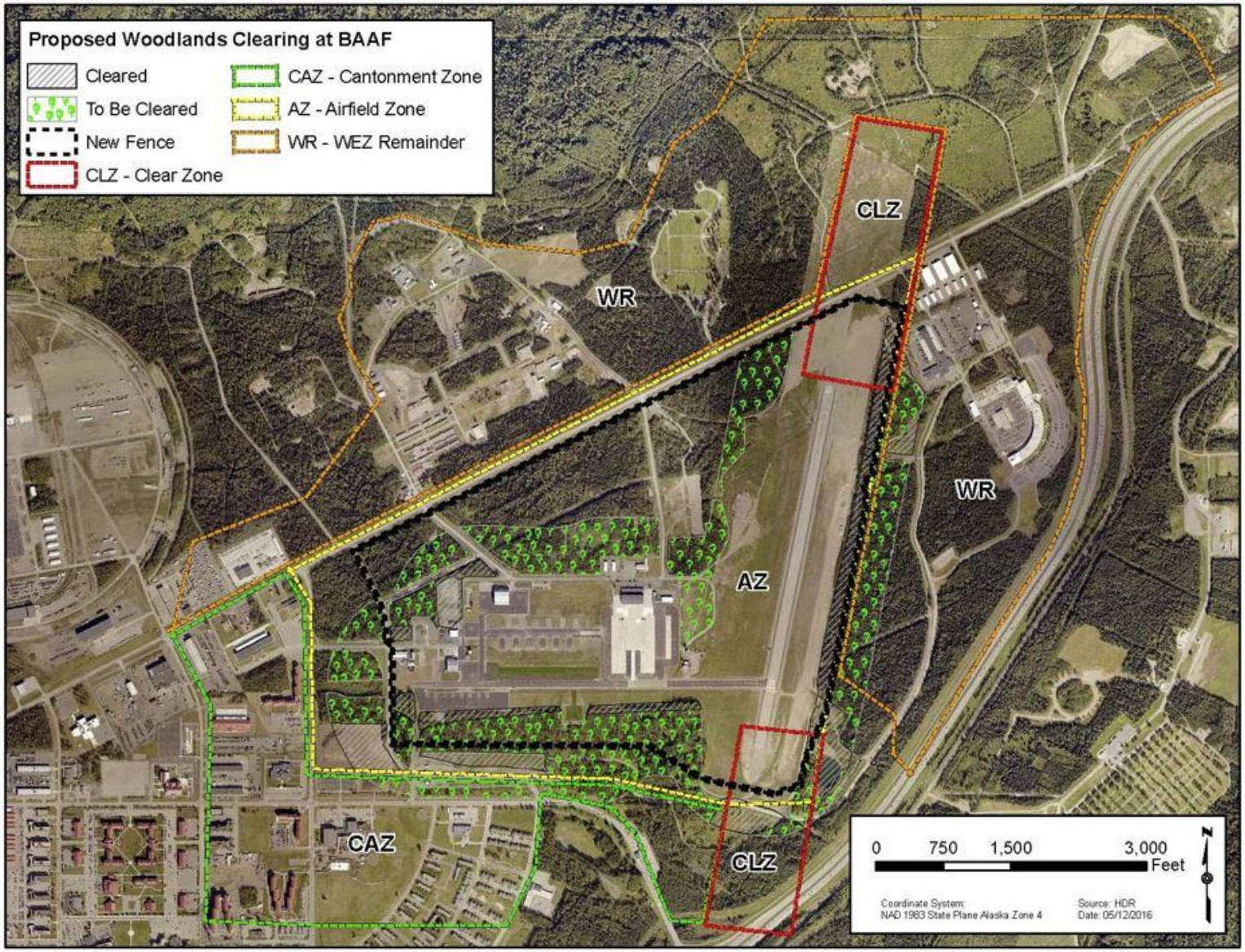


Figure 5. Proposed woodlands clearing at BAAF

EAFB and later, JBER, entered into agreements with USDA Wildlife Services and the National Resources Conservation Service (NRCS) to provide technical support and conduct evaluations of habitat around the EAFB Airfield. Changes were made to the types of grass planted near the airfield (less palatable species are now planted) as well as adjustments in mowing schedules, which allowed the grass to grow higher to discourage geese presence.

Cleared areas in the AZ at BAAF would be planted with the same grass species and varieties that are being used around EAFB. Grassed areas in the AZ would be maintained to minimize weeds and woody vegetation and would be mowed as required to prevent grasses from developing seed heads that might attract birds and wildlife. Grass would be maintained at a height of least 11 inches during spring and late summer-early autumn bird migration periods to discourage grazing and feeding by geese and other birds. Grass also would be planted on barren ground to discourage bird use for dusting or as a source of grit. Remaining trees in the AZ would be pruned as needed to reduce roosting habitat. Undergrowth could be cleared to reduce habitat value to birds and wildlife. Trees and other vegetation that bear fruit, berries, or seeds in the AZ would be eliminated.

The 67 acres of the CLZ outside the AZ would be maintained as shrublands, which would be trimmed or topped periodically to maintain low woody growth. Broadleaf weeds and other plants that bear seeds, berries, or fruits would be eliminated.

Ornamental trees and shrubs that bear fruits or berries would not be planted anywhere in the BASH Plan area. Construction of new, large, open areas of short grass or lawns near BAAF would be discouraged. Selective planting and dispersal measures would be used to discourage waterfowl use of existing ballfields, playgrounds, and other large grassy areas near BAAF.

Trash containers would be bear-proofed and other potential bird and wildlife food sources from humans, including bird feeders and barbeque grills, would be eliminated throughout the BASH Plan area.

f. Cut and fill to level the ground surface

Small depressions, mounds, and other topographical features in the AZ may obscure birds and wildlife from view. Those features would be leveled so birds and wildlife would be readily observed in the airfield runway and operations environment. Terrain in the AZ is relatively flat, so the area affected would be limited. Soil from leveling high areas would be used to fill low areas. Any additional material needed would be brought in from other construction activities. Any excess material would be used to fill depressions at the airfield or for off-site fill. Total area that would be affected has not been determined, but all leveling would be in the open areas of the AZ. Leveling would likely be conducted during clearing and stump removal actions. Any impacts to cultural resources would be coordinated with AKSHPO and would be avoided or mitigated as required.

2.3 Alternatives Considered

2.3.1 Alternatives Development (Screening Criteria)

The BAAF BASH plan is a part of the Airfield Safety and Accident Prevention Program. The plan is designed to: establish procedures to minimize the hazard to US Army, Alaska Army National Guard, and all aircraft operating at the airfield and in adjacent operating areas; establish active/passive techniques to disperse wildlife from the airfield and decrease airfield attractiveness to wildlife; and establish procedures to identify, provide information, and eliminate or reduce environmental conditions that attract wildlife to the airfield.

The following considerations were developed to address 1) safety requirements identified in Army aviation safety regulations, SOPs, and requirements[3]; 2) BASH regulations and guidance; and, 3) concerns about potential adverse effects to natural and cultural resources:

1. Ensure that safety is a principal element in all aviation operations
2. Establish Clear Zones (CZs) at the end of all active runways
3. Prohibit any use of the land that would unnecessarily attract birds, including growing certain types of vegetation attractive to birds
4. Identify features attractive to birds and wildlife and impose changes to either remove the attraction or deny wildlife access to it
5. Provide cultural resources management in accordance with Section 106 and Section 110 of the National Historic Preservation Act (16 USC Section 470, as amended), the Archeological Resources Protection Act (16 USC Section 470aa-47011), the American Indian Religious Freedom Act (42 USC), the Native American Graves Protection and Repatriation Act (25 USC Section 3001 et seq.), EO 11593 (Protection and Enhancement of Cultural Environment), and Air Force Instruction 32-7065
6. Consider the release of carbon dioxide sequestered in growing plants when planning activities that result in burning or decomposition, such as vegetation clearing

Based on the above considerations, the screening criteria of the AKARNG are as follows:

1. Maintain separation between heavy/high performance and lighter fixed-wing and rotary-wing aircraft
2. Meet AKARNG aviation mission requirements
3. Create and maintain visibility in designated areas for monitoring of aircraft movement, birds, and wildlife
4. Provide for measures to exclude birds and wildlife from the airfield environment
5. Provide for dispersal of birds and wildlife to protect aircraft operation
6. Eliminate or minimize ponded water
7. Reduce food sources for birds and wildlife

Alternatives to meet the AKARNG needs for action were identified in four conceptual approaches to alternatives. Those conceptual approaches and the alternatives based on those approaches are as follows:

[3] Documents reviewed during development of screening criteria:

- AR 385-10
- DODI 4165.57
- Bryant Army Airfield Wildlife Bird Aircraft Strike Hazard Plan (BASH), 2014
- Integrated Natural Resources Management Plan (Final), United States Air Force, JBER, AK Environmental Conservation Program, 2016

- **Alternative #1 No Action Alternative**. Take no further action to alter the airfield environment or to disperse birds and wildlife. Training, management, and other administration actions would continue in accordance with NEPA Categorical Exclusions, as would air traffic control actions to reduce potential for bird strikes.
- **Alternative #2 Proposed Action**, which is presented in Section 2.2.
- **Alternative #3 Move Operations to EAFB Alternative**, which would consolidate operations at Elmendorf and Bryant Airfields, thus avoiding the need for habitat modifications and dispersal actions at BAAF.
- **Alternative #4 Avoid Habitat Modification Alternative**, which would avoid impacts to habitat for BASH purposes, but implement all other components of the Proposed Action.

Table 3 lists the alternatives initially developed and evaluates their responsiveness to the screening criteria of the AKARNG, based on the considerations listed above. The Proposed Action meets all criteria and is evaluated further in Section 2.3.2. The No Action Alternative is also evaluated, as required by NEPA regulations.

Table 3. Action Alternatives Screening Criteria Matrix

Screening Criteria	**Action Alternatives**			
	Alternative #1 No Action	Alternative #2 Proposed Action	Alternative #3 Move Operations to Elmendorf Airfield	Alternative #4 Avoid Habitat Modification
1. Maintain separation between heavy/high performance and lighter fixed-wing and rotary-wing aircraft	Yes	Yes	No	Yes
2. Meet AKARNG aviation mission requirements	Yes	Yes	No	Yes
3. Create and maintain visibility in designated areas for monitoring of aircraft movement, birds, and wildlife	No	Yes	Yes	No
4. Provide for measures to exclude birds and wildlife from the airfield environment	No	Yes	Yes	Yes
5. Provide for dispersal of birds and wildlife to protect aircraft operation	No	Yes	Yes	Yes
6. Eliminate or minimize ponded water	No	Yes	Yes	No
7. Reduce food sources for birds and wildlife	No	Yes	Yes	No

2.3.2 Evaluated Alternatives

The screening process described in Section 2.3.1 identified alternatives that should be evaluated further in an EA and that should be reported to the Federal decision-maker. Those alternatives are:

- Alternative #1 No Action Alternative
- Alternative #2 Proposed Action

Alternative #1 No Action Alternative

The No Action Alternative would result if the AKARNG did not take any action to implement habitat modification, wildlife exclusion, and bird dispersion and ceased all current actions to haze, capture, or otherwise remove birds and mammals to meet the requirements of a BASH Plan. The No Action Alternative would not alter the present use or ownership of BAAF lands, buildings, and other facilities. Clearing and fencing implemented previously for wildlife exclusion and ATFP would remain in place, but no further clearing or fencing would be implemented for BASH purposes.

While the No Action Alternative would not satisfy the purpose of or need for the Proposed Action, this alternative was retained to provide a comparative baseline against which to analyze the effects of the Proposed Action, as required under the CEQ Regulations (40 CFR Part 1502.14). The No Action Alternative reflects the status quo and serves as a benchmark against which the effects of the Proposed Action can be evaluated. Further, consideration of the No Action Alternative is required in every EA.

Alternative #2 Proposed Action

The Proposed Action is described in Section 2.2.

2.3.3 Alternatives Eliminated from Further Consideration

Alternative #3 Move Operations to EAFB

This alternative would close BAAF and move aviation assets and activities to the nearby EAFB, which already has an active BASH program. This would eliminate the need for a BASH program and attendant bird and wildlife dispersal and habitat modification actions at BAAF.

This alternative would avoid impacts on birds, wildlife, and their habitat at BAAF, but would cause disproportionate adverse effects to the AKARNG and Air Force missions at JBER. Co-joining operations at EAFB would substantially reduce AKARNG and Air Force capability to respond rapidly and effectively; would expend hundreds of millions of dollars and require years of construction and substantial habitat disturbance to construct new AKARNG support facilities at the EAFB Airfield; and would create a potentially unsafe mix of larger, faster Air Force aircraft and slower, more maneuverable AKARNG aircraft. Potential costs and detriments to operations and safety would be disproportionate to impacts from implementing the Proposed Action. This alternative was eliminated from further consideration.

Alternative #4 Avoid Habitat Modification

This alternative would implement the exclusion, dispersal, education, reporting, and aircraft operations provisions of the BASH Plan, but would not actively manage habitat to discourage bird and wildlife use and would not level, clear, or fill to improve line-of-sight for BASH purposes.

Dispersion and exclusion techniques can appreciably reduce potential for aircraft strikes from birds and wildlife; however, studies of bird behavior, including studies of Canada geese in the Anchorage-JBER area, show that birds may become habituated so that hazing and dispersal actions lose effectiveness (York et al. 2000a, York et al. 2000b). Hazing-dispersal techniques alone do not provide an adequate measure of safety for aircraft. This alternative would not provide the means to implement BASH planning and would not adequately protect aircraft and aircrews from potential bird-wildlife strikes. Because a BASH Plan based on this alternative could not be approved, and changes in regulations that would allow it to be approved would be unlikely, this alternative is equivalent to the No Action Alternative. The Avoid Habitat Modification Alternative was eliminated from detailed consideration. The need for minimization of impacts on habitat is recognized, and incremental adaptive clearing is incorporated into the Proposed Action.

2.3.4 Alternatives' Impacts Comparison Matrix

Determining Impact Significance

The CEQ Regulations specify that in determining the significance of effects, consideration must be given to both context and intensity (40 CFR Part 1508.27):

- ***Significance*** is determined based on the ***context*** and ***intensity*** of a potential effect. The threshold at which an impact is considered significant is often based on the specifics of a Proposed Action and its location, among other factors.
    - ***Context*** refers to how extensive the effect will be felt by society as a whole (human and national), by an affected region, by affected interests, or just by the locality. In other words, the context measures how far the effect would be felt.
    - ***Intensity*** refers to the magnitude or severity of the effect, whether it is beneficial or adverse. Intensity refers to the strength of the effect within the context involved.

The significance of potential direct, indirect, and cumulative effects must be determined through a systematic evaluation of the Proposed Action, alternatives, and mitigation measures/BMPs in terms of their effects on each individual environmental resource component (e.g., ecosystems, water resources, and air quality).

Land use. If an alternative would conflict with adopted plans and goals of the affected community or if it would result in a substantial alteration to the present or planned land use of an area, it could have a significant direct effect. If an alternative would result in substantial new development or prevent such development elsewhere, it could have a significant indirect effect. In addition, an alternative could significantly affect visual resources if it resulted in abrupt changes to the complexity of the landscape and skyline (i.e., in terms of vegetation, topography, or structures) when viewed from points readily accessible by the public.

Air quality. An alternative could have a significant air quality effect if it would result in substantially higher air pollutant emissions or cause established air quality standards to be exceeded.

Noise. An alternative could have a significant noise effect if it would generate new sources of substantial noise, increase the intensity or duration of noise levels to sensitive receptors, or result in exposure of more people to unacceptable levels of noise.

Geology and soils. If an alternative would result in an increased geologic hazard or a change in the availability of a geologic resource, it could have a significant effect. Such geologic and soil hazards would include, but not be limited to, seismic vibration, land subsidence, and slope instability.

Water resources. If an alternative would result in a reduction in the quantity or quality of water resources for existing or potential future use, it could have a significant effect. Based on existing water rights, a significant effect would occur if the demand exceeded the capacity of the potable water system. An alternative also could have a significant effect on water resources if it would cause substantial flooding or erosion, if it would subject people or property to flooding or erosion, or if it would adversely affect a significant water body, such as a stream or lake.

Biological resources. The effect of an alternative on biological resources and ecosystems could be significant if it would disrupt or remove any endangered or threatened species or its designated critical habitat. The loss of a substantial number of individuals of any plant or animal species (sensitive or non-sensitive species) that could affect the abundance or diversity of that species beyond normal variability could also be considered significant. The measurable degradation of sensitive habitats, particularly wetlands, could also be significant.

Cultural resources. An alternative could have a significant effect on cultural resources if it would: result in damage, destruction, or demolition to an archaeological site or building that is eligible or listed on the National Register of Historic Places (NRHP); promote neglect of such a resource, resulting in resource deterioration or destruction; introduce audio or visual intrusion to such a resource; or decrease access to resources of value to Federally recognized Native American Tribes. Impact assessment for cultural resources focuses on properties that are listed in or considered eligible for the NRHP or are National Historic Landmarks, as well as resources that are considered sensitive by Federally recognized Native American Tribes.

Socioeconomics. If an alternative would substantially alter the location and distribution of the population within the geographic region of influence, cause the population to exceed historical growth rates, or substantially affect the local housing market and vacancy rates, the effect would be significant. Significant effects could occur if an alternative caused disproportionate risks to children that resulted from environmental health risks or safety risks. In addition, an alternative could have a significant effect if it would create a need for new or increased fire or police protection, or medical services, beyond the current capability of the local community, or would decrease public service capacities so as to jeopardize public safety.

Environmental justice. Significant effects could occur if an alternative would disproportionately affect minority or low-income populations.

Infrastructure. An alternative could have a significant effect on infrastructure if it would increase demand over capacity, requiring a substantial system expansion or upgrade, or if it would result in substantial system deterioration over the current condition. For instance, an alternative could have a significant effect on traffic if it would increase the volume of traffic beyond the existing road capacity, cause parking availability to fall below minimum local standards, or require new or substantially improved roadways or traffic control systems.

Hazardous and toxic materials and wastes. An alternative could have a significant effect if it would result in a substantial increase in the generation of hazardous substances, increase the exposure of persons to hazardous or toxic substances, increase the presence of hazardous or toxic materials in the environment, or place substantial restrictions on property use due to hazardous waste, materials, or site remediation.

The Alternatives Impact Comparison Matrix is presented in Table 4.

Table 4. Alternatives' Impacts Comparison Matrix

Technical Resource Area	No Action Alternative	Proposed Action
Geographic Setting and Location	No impact attributable to AKARNG action.	No impact attributable to AKARNG action.
Land Use	No impact attributable to AKARNG action. ATFP fencing and clearing would remain. ATFP features would cause long-term, localized and less-than-significant adverse impacts to access and land use.	Fencing would cause long-term, localized, less-than-significant adverse impacts to access and land use. Air traffic control actions would cause long-term, localized, and less-than-significant impacts to civil and military aviation.
Air Quality	No impact attributable to AKARNG action. Ongoing operations' emissions would continue.	Long-term, localized, low-intensity, less-than-significant adverse impacts from land clearing and maintenance activities; largely confined to the project area.

Table 4. Alternatives' Impacts Comparison Matrix		
Technical Resource Area	**No Action Alternative**	**Proposed Action**
		Short-term, localized less-than-significant adverse impacts associated with the potential for dust generation from construction activities. Short- and long-term, low-intensity, less-than significant adverse impacts associated with the potential for carbon dioxide to be released by burning or decomposition of growing plants. Impacts would be managed with implementation of BMPs.
Noise	No impact attributable to AKARNG action. Ongoing operations noise would continue.	Potential short-term localized less-than-significant adverse impact due to the potential for noise generation from construction activities and occasional hazing in the AZ. Impacts would be managed with implementation of BMPs.
Geology, Topography, and Soils	No impact attributable to AKARNG action.	Short- and long-term, low-intensity, localized, less-than-significant adverse impact to soils during terrain leveling and reduction of melt-water ponds. Impacts would be managed with implementation of BMPs.
Water Resources	No impact attributable to AKARNG action.	No impact attributed to AKARNG action; however, BMPs would be implemented for soil-disturbing activities requiring a construction general permit and SWPPP.

Table 4. Alternatives' Impacts Comparison Matrix		
Technical Resource Area	**No Action Alternative**	**Proposed Action**
Biological Resources	Potential localized, low-intensity, short- and long-term, less-than-significant adverse impact to birds and wildlife due to injury and mortality from aircraft strikes. Beneficial impact to birds and wildlife from broader habitat availability.	Potential localized, low-intensity, short- and long-term, less-than-significant adverse impact to birds, mammals, and their habitat due to vegetation clearing, habitat modification, destruction of nests and eggs, removal and dispersion from BAAF and adjacent areas, and from destruction of nuisance individuals. Potential beneficial impacts to furbearers and large mammals as a result of fencing and dispersal lessening the potential to be struck by aircraft. Impacts would be managed with implementation of BMPs. Potential beneficial impacts to birds as a result of hazing and habitat modification, reducing bird mortality from aircraft strikes.
Cultural Resources and Native American Concerns	No impact attributable to AKARNG action.	No impact attributable to AKARNG action; however, BMPs would be implemented in the event that archaeological materials or human remains were discovered during ground-disturbing activities.
Socioeconomics (including Environmental Justice and Protection of Children)	Potential long-term **significant adverse** socioeconomic and safety impacts to the public, military personal, and children from increased possibility that a bird strike could cause an aircraft crash and human injury or loss of life. Potential for long-term, regional, **significant adverse** impacts on BAAF mission performance and long-term viability if BASH program is not implemented.	Local and regional, short- and long-term, potentially **significant beneficial** impacts to the public, military personal, and children from reduced potential that a bird strike could cause an aircraft crash and human injury or loss of life.
Utilities	No impact attributable to AKARNG action.	No impact attributable to AKARNG action.

Table 4. Alternatives' Impacts Comparison Matrix		
Technical Resource Area	**No Action Alternative**	**Proposed Action**
Transportation and Traffic	No impact attributable to AKARNG action.	No impact attributable to AKARNG action.
Infrastructure	No impact attributable to AKARNG action. Elements of the BASH Plan as authorized by NEPA Categorical Exclusions to reduce potential for bird-aircraft strikes would continue.	Minor, local, long-term, less-than-significant adverse impacts to existing and future buildings. Minor, local, adverse and beneficial impacts to aviation operations. Potentially beneficial impacts resulting from implementation of air traffic control procedures to prevent bird strikes.
Hazardous and Toxic Materials/Wastes	No impact attributable to AKARNG action.	Local, temporary, and less-than-significant adverse impacts associated with implementing the Proposed Action in the vicinity of a former ADEC contaminated site. Impacts would be managed with implementation of BMPs.

3.0 AFFECTED ENVIRONMENT

3.1 Location Description

Section 1.3 briefly describes the location, history, and mission of BAAF. Figure 2 shows the operations environment of BAAF and the area immediately surrounding it. Activities related to the Proposed Action (Section 2.2) would be conducted in this area and in the airspace above and adjacent to it. The area of effect for ground-disturbing activities would be entirely within the area shown in Figure 3. The area of potential environmental effect would vary among the resources of concern, but generally would be within or immediately adjacent to the area shown in Figure 3.

BAAF is in the northeastern area of JBER in a glacial and riverine depositional area at the base of the Chugach Mountain foothills. Climate at JBER is transitional between the maritime climate zone to the south and the continental climate zone to the north. Precipitation averages about 16 inches per year.

BAAF is entirely within JBER, which is bounded by the Municipality of Anchorage and Bureau of Land Management (BLM) lands to the south and west, by the estuarine waters of the Knik Arm of Cook Inlet to the north and west, and by the community of Eagle River and Chugach State Park to the east (Figure 1). The 73,000-acre installation is bisected by the Glenn Highway.

3.2 Land Use

BAAF is northeast of downtown Anchorage and immediately west of the Glenn Highway. Flight operations are conducted on Runway 17-35, supported by adjacent taxiways and hardstand. A control tower, passenger terminal, and aviation support facilities are on the airfield. BAAF has four hangars and several storage buildings in addition to the runway system and parking aprons. In addition to the Glenn Highway, military roads, utilities, training and support facilities, woodlands, and open areas, including the Fort Richardson National Cemetery, are adjacent to the airfield. The closest schools, military housing, and parks are approximately 1 mile from BAAF. The closest hospital is approximately 3 miles from BAAF.

JBER land use is addressed in integrated natural resource land use management plans, which are updated annually (US Air Force 2011a). Land use planning at JBER, including BAAF, is coordinated with other Federal, state, and municipal agencies. JBER is not in a coastal management zone.

Landscaping and architecture are consistent with the military mission. BAAF is largely separated from the cantonment area by fencing and trees. It is screened by terrain and trees from the nearby Glenn Highway and its adjacent bicycle trail.

Civilian access to JBER is limited and is controlled at all road access points. The waterfowl exclusion zone (WR and CAZ in Figure 3) is accessible to and is regularly used by military personnel and others who have authorized access onto JBER. Access to BAAF is limited by the perimeter fence (Figure 3) and surrounding training and logistical facilities. Access to the airfield environment is controlled by the airfield manager and is limited to flight operations and maintenance activities. The perimeter fence has recently been extended and vegetation adjacent to the alignment has been cleared to meet ATFP requirements.

3.3 Air Quality

Fort Richardson, JBER, and BAAF meet CAA air quality standards and are outside of the maintenance area established for the Municipality of Anchorage for carbon dioxide. CAA, Section 176 General Conformity has been evaluated according to the requirements of 40 CFR Part 93, Subpart B (Determining Conformity of General Federal Actions to State or Federal Implementation Plans). Per Subpart B, these requirements shall not apply to Federal actions which would result in no emissions increase or an increase in emissions that is clearly de minimis (per subsection (x), actions, […] with respect to existing structures, properties, facilities and lands where future activities conducted will be similar in scope and operation to

activities currently being conducted at the existing structures, properties, facilities, and lands, […].). Because the Proposed Action is not anticipated to result in a significant increase in emissions, it is not likely to have significant impacts on air quality.

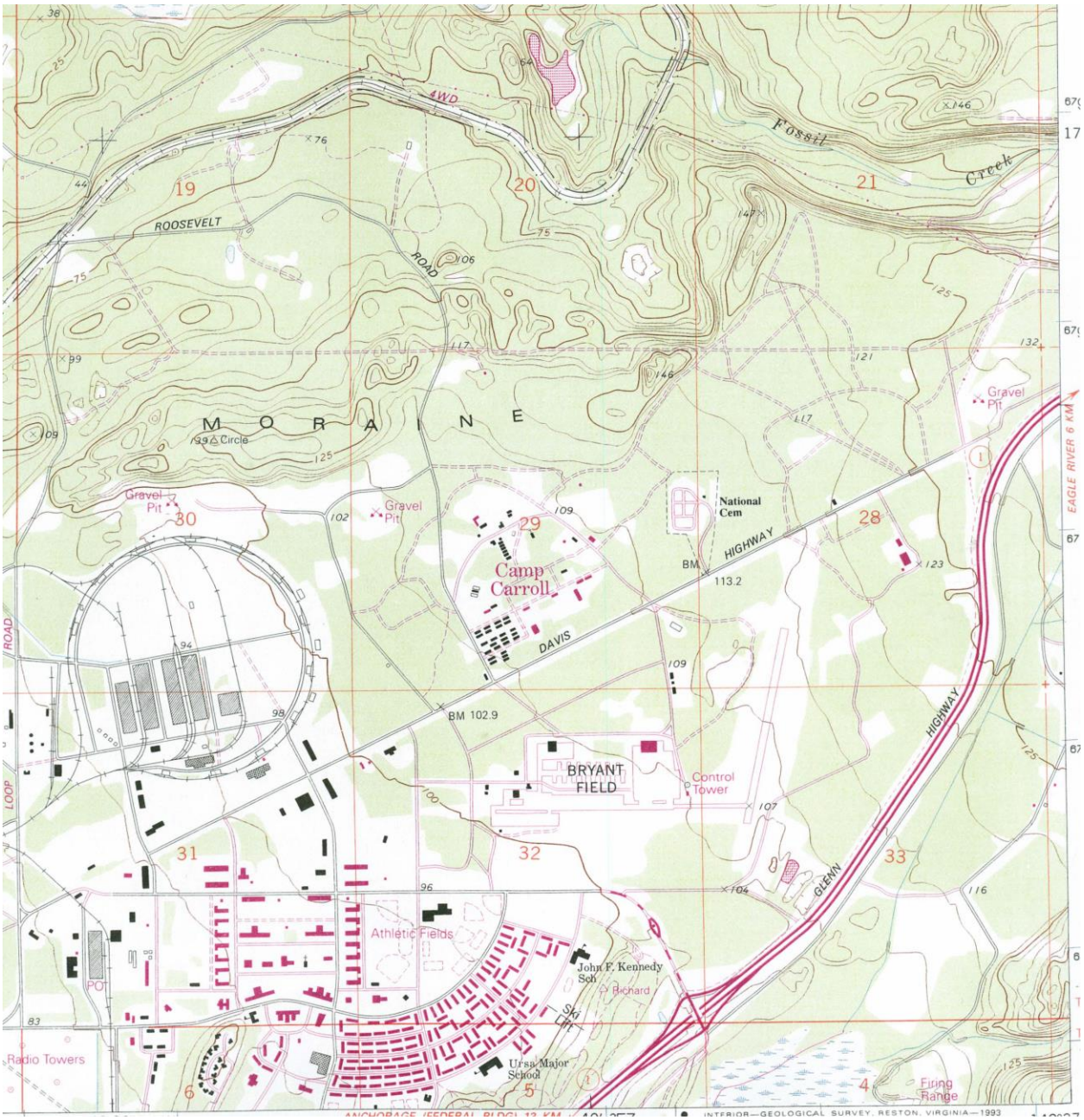
3.4 Noise

BAAF contributes fixed-wing and rotary-wing aircraft noise to other noise sources that include military aircraft from the EAFB Airfield, civil aircraft flying the corridor over the Glenn Highway to and from Anchorage, road traffic, weapons fired from JBER ranges, and other training activities on JBER. Housing, schools, hospitals and other noise-sensitive areas are located more than 1,640 feet from BAAF. Noise guidance is in place to reduce noise impacts of aircraft operations, training, weapons fired, and other activities (USACE 2010). The increase in noise generated by equipment such as chainsaws, bush hogs, dozers, and front-end loaders that would be employed in ground filling/leveling, brush cutting, and/or tree felling as part of the Proposed Action may be significant; however, this increase would be temporary and is not anticipated to have long-term effects. Such noise-generating activity is necessary for implementation of the BASH Plan.

The AKARNG has an Operational Noise Management Plan (ONMP) that was published in 2005 and remains in effect, which includes noise contours for BAAF and other commonly-used runways (see Appendix H). Per the ONMP, there are no urban or residential areas in the immediate vicinity of the airfield. The nearest noise-sensitive receptor is John F. Kennedy School, over a half mile to the southwest. It is unlikely that noise generated by the aforementioned sources would affect operations at the school; particularly because the majority of such activities can be expected to take place in the summer (when the ground is thawed), outside of normal school sessions.

3.5 Geology, Topography, and Soils

JBER is largely in the Cook Inlet-Susitna Lowlands, which was formed by glacial and fluvial processes. BAAF is in a low-relief glacial outwash plain (DOI 2009). Topography is gently rolling at BAAF, rising into the Chugach Mountains to the north and east. A topographic map from 1993 shows the area of BAAF as mostly level, with a slight increase in elevation (about 10 feet total) from southwest to northeast. Soils are classified predominately as “Kashwitna and similar soils” (USDA and NRCS no date), which typically are well-drained, gently sloping, with little ponding, and with depth to water table of more than 72 inches. These soils typically are silt-loam in the upper strata, becoming sandy, gravelly, or rocky at depth. There are no prime farmland soils in Alaska (USDA, 2016). Isolated pockets of permafrost are present on JBER (US Air Force 2011a), but none have been identified in the BASH Plan. A wetlands delineation performed in June of 2017 identified two wetlands in the BASH Zones (see Figure 7). Neither of these wetlands will be modified or filled as part of the Proposed Action. Any modification of wetlands will require a separate environmental review in accordance with NEPA and EO 11990.



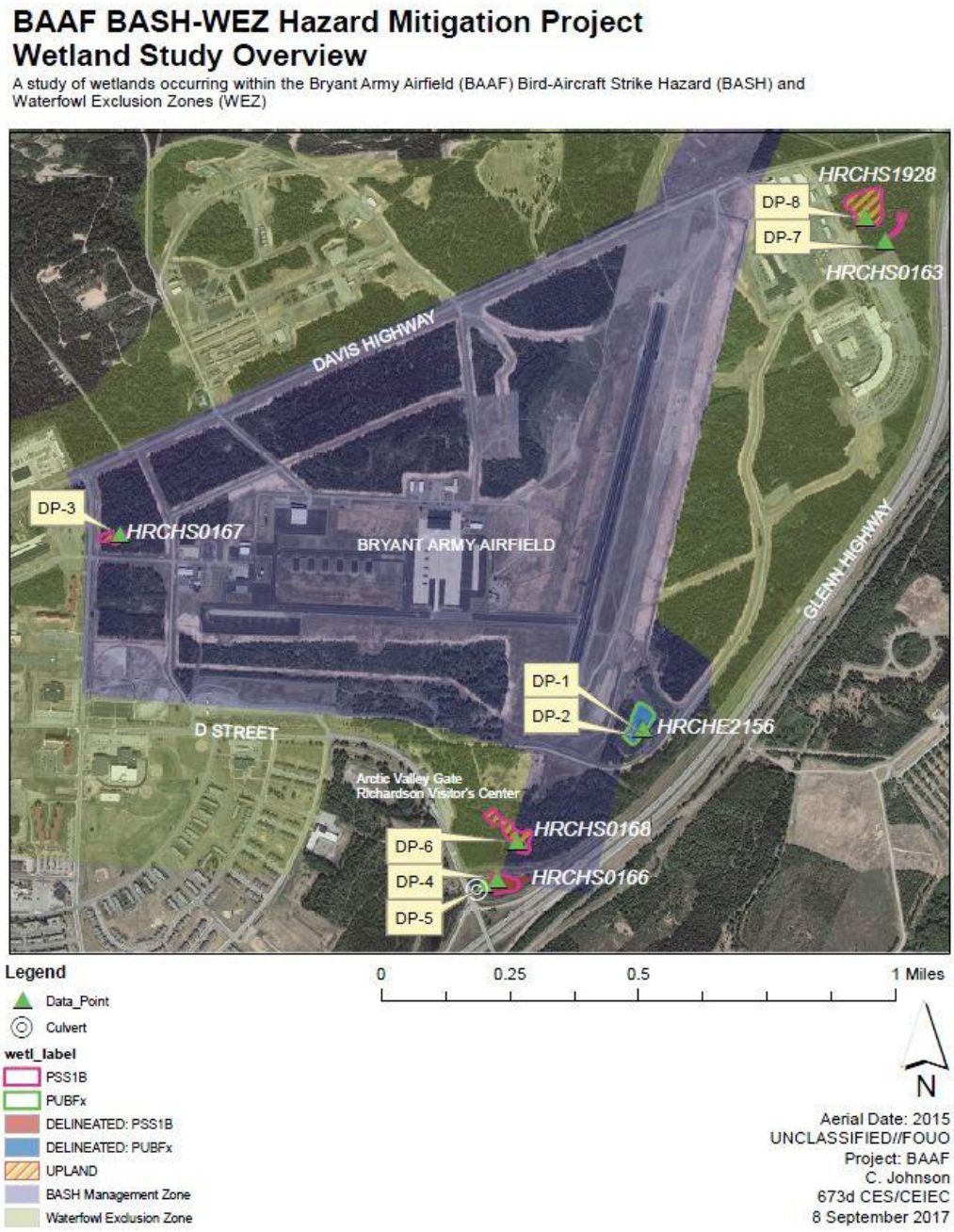
Source: EDR, 2010

Figure 6. JBER-Fort Richardson Topographic Map (north at top of figure)

3.6 Water Resources

Charlene Johnson, JBER Wetland Ecologist (P.W.S. #1868) reviewed aerial photographs, soil survey mapping, and existing wetland inventory mapping to determine the presence of wetlands or other waters of the U.S. within the BAAF BASH Zones. A total of six areas were identified in the inventory (Figure 7). Field reconnaissance occurred on 22, 23, and 26 June 2017. One additional site visit was performed on 29 August at one of the locations where vegetation was not discernible during the original site visit. In the field, characteristic wetland and upland areas were studied using the three parameter method of determining an area's wetland status outlined in the Regional Supplement to the Corps of Engineers

Wetland Delineation Manual: Alaska Region (USACE 2007) and the 1987 Corps of Engineers Wetlands Delineation Manual (USACE 1987). Of the six areas, four failed to meet criteria that define a wetland. Two wetland areas were delineated (HRCHE2156 and HRCHS0168). Neither of the two wetland areas delineated appeared to have a surface water connection to a navigable waterway. USACE reviewed the report and issued concurrence memoranda for these areas (Appendix F). There are no streams on BAAF lands and no natural water bodies. There are no jurisdictional wetlands or other waters of the United States in areas that would be affected by the Proposed Action. Snowmelt accumulates in low areas during spring thaws and may persist until the underlying soil thaws. This ephemeral ponding may persist for several weeks each spring. The Proposed Action would not occur in a floodplain (Figure 8).



Source: Johnson, 2017

Figure 7. Potential Wetland Areas within the BASH Zones

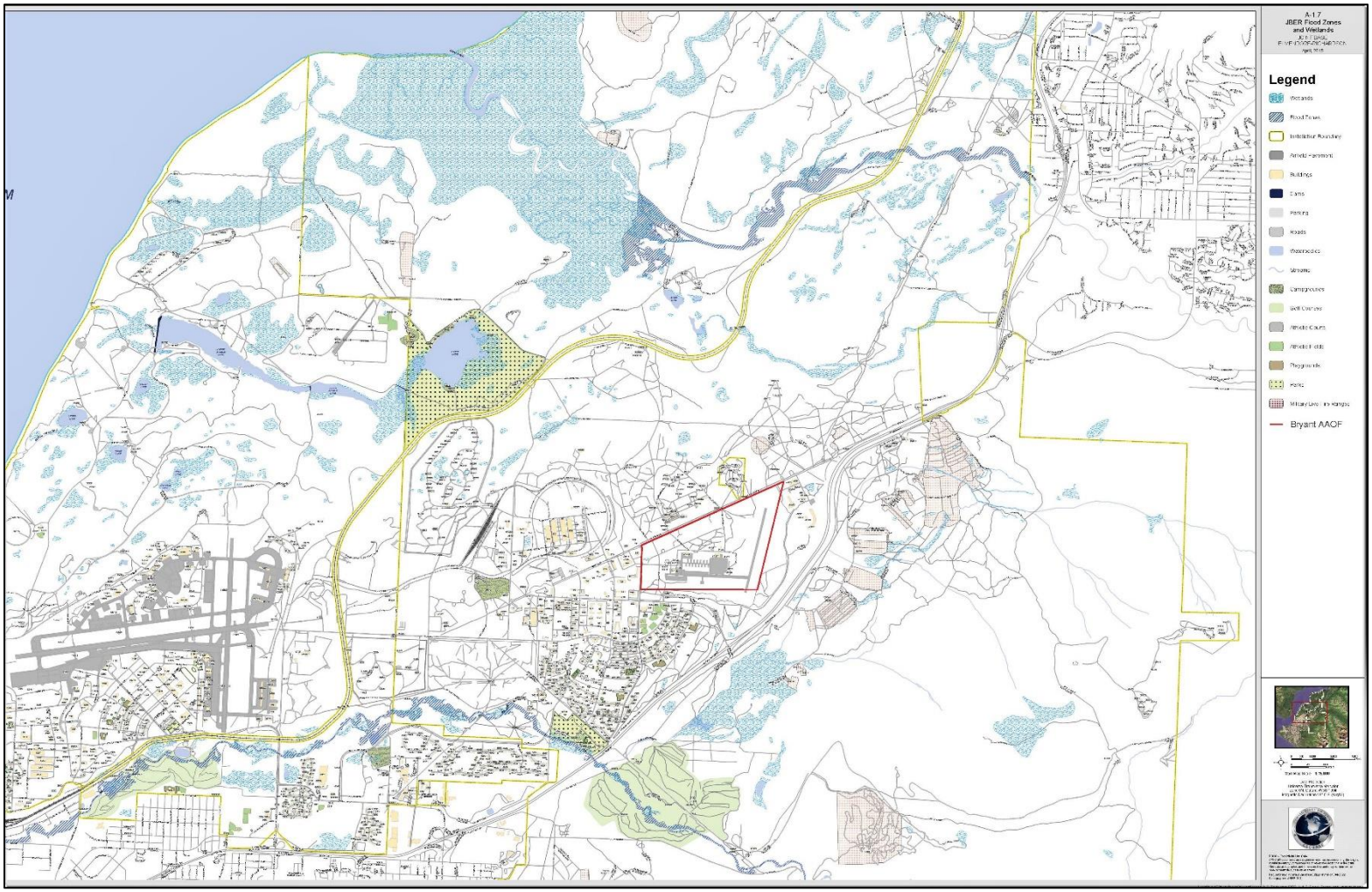


Figure 8. Floodplain Map of Joint Base Elmendorf-Richardson (BAAF Outlined in Red)

3.7 Biological Resources

Natural resources at BAAF are similar to those of the surrounding CAZ and open spaces. Habitat is a mix of highly modified lands that are now buildings, other facilities, and lawns; second-growth mixed woodlands; and lands that were previously disturbed and are now in various stages of succession. No reptiles are native to Southcentral Alaska and only one native amphibian species (wood frog) has been reported in more than isolated instances in Southcentral Alaska. No fish have been reported at BAAF or in the vicinity of the airfield.

Vegetation

Predominant vegetation in the undeveloped areas of BAAF is a mixed evergreen/hardwood second growth forest community composed primarily of white and black spruce, birch, quaking aspen, balsam poplar, and cottonwood. Similar forest assemblages are common throughout JBER (Lichvar et al. 1997). Understory vegetation in the forested areas consists of willow, high bush cranberry, Labrador tea, lingonberry, crowberry, bunchberry, various grasses, mosses, and fungi. Cleared areas adjacent to runways and roads have a similar shrub and herb composition, but with more grasses and forbs, notably lupine and fireweed.

An area immediately north of BAAF was developed in the WWII era. Improvements were cleared from that site about 50 years ago, and the area is slowly succeeding to forest assemblages typical to the area. Predominant vegetation is willow, poplar, cottonwood, aspen, and birch, with white spruce beginning to appear.

Vegetation in the CAZ is typically lawns with gardens and ornamental trees and shrubs. Fruit and seed-bearing plants, however, are being eliminated at and near BAAF as a measure to discourage birds from feeding in the area. Other measures that affect the type, location, and density of trees and shrubs are employed to reduce habitat value to birds.

Vegetation in the CLZ is primarily early succession woodlands. Trees in the CLZ have previously been cleared to eliminate obstructions to aircraft landing and departing from BAAF Runway 17-35.

Mammals

Mammal populations on JBER are typical of those in Southcentral Alaska. Species associated with water bodies (beaver, otter, and muskrat) or mountainous terrain (ground squirrel, wolverine, and marten) or that generally avoid humans (wolves) would be unlikely to be seen at BAAF. The most recent JBER Integrated Natural Resource Management Plan (US Air Force 2011a) indicates that the following could at least occasionally be found at or near BAAF:

- *Small mammals*: Snowshoe hare, red squirrel, North American porcupine, little brown bat, and various species of shrews, mice, and voles
- *Furbearers*: Red fox, coyote, short-tailed weasel, and possibly mink
- *Large mammals*: Black bear, brown bear, and moose

Brown bear numbers are highest during mid to late summer, when salmon runs attract bears from inland areas (Farley et al. 2008). Numbers of both bear species are likely lowest in the winter and in the autumn, prior to denning, when some bears move to higher elevations to feed on berries. Brown bears den primarily at higher elevations, outside JBER, but one sow was recorded denning less than a mile from EAFB, where she birthed two cubs. Bear populations vary from year to year. Reports in the last decade have estimated that JBER was home to 35 to 40 black bears, not including cubs-of-the-year, and a minimum of 18 brown bears (Farley et al. 2008).

JBER shares the North Anchorage Moose Herd (estimated population of 500 to 600) with adjacent areas of Chugach State Park. Distribution of that population between JBER and the park varies seasonally. An

estimated 30 to 120 of those moose range into the EAFB portion of JBER, depending on the time of year, with highs occurring in the late spring calving season and early summer. Moose may calve in almost any undeveloped area of the base and calving sometimes is close to base facilities (US Air Force 2011a).

USDA Wildlife Services (2015a, 2015b) reported 198 hazing incidents involving moose, 27 involving red fox, 65 involving black bear, and the removal and relocation of 1 porcupine at and near BAAF in the 15-month period between 1 July 2014 and 28 September 2015.

Birds

Most of the bird species observed in Southcentral Alaska are present, at least occasionally, in the wide range of habitats on JBER (US Air Force 2011a). A regional bird list is presented in Appendix B. Bird populations on JBER vary with the seasons, with migratory pulses in the spring and autumn. Species that would be likely to pose the greatest threat to aircraft at BAAF are of greatest concern. Those high-risk species are identified in the Appendix B bird list. Presence of high-risk species, as indicated by bird hazing reports, is greatest during the spring and autumn. Canada geese abundance is especially likely to increase as the geese stage in the Anchorage area for autumn migration. Flight paths of some species, notably herring gulls flying to and from the Anchorage Regional Landfill and migratory waterfowl, may intersect BAAF operations (US Air Force 2011b). Bald eagles feeding at the landfill may perch or roost in trees near BAAF.

Birds may be attracted into JBER by feeding opportunities. Geese graze on lawns and low-growing grass, many birds eat grass seed heads, and the seeds and fruits in trees and shrubs attract waxwings, chickadees, redpolls, and others that winter in the region. Insects in and adjacent to open areas also may attract warblers and other insectivores. Small mammals and birds may attract raptors to the open areas in the runway environment, and dead insects and small rodents may attract scavengers and opportunistic feeders to roads and runways.

Many birds travel and feed in flocks that could lead to multiple airstrikes in a single incident. Ducks, geese, shorebirds, starlings, and Bohemian waxwings are notable in this regard. Habitat suitable for ducks and shorebirds is limited in the mixed habitat at and near BAAF, but Bohemian waxwings, starlings, and geese may find feeding or other habitat at or near BAAF unless measures are taken to make the area unattractive to them.

USDA Wildlife Services (2015a, 2015b) reported hazing a total of 4,170 birds, largely waterfowl, shorebirds, and corvids from the BASH Plan area and adjacent open grassy areas in the 15-month period between 1 July 2014 and 28 September 2015. They also reported that in the first 9 months of 2015 they destroyed or removed 50 bird eggs, captured and relocated 2 birds, and destroyed 13 birds (1 magpie, 8 ravens, 1 mew gull, and 3 semipalmated plovers).

The Anchorage Regional Landfill, northeast of BAAF, attracts large numbers of scavengers, including bald eagles, ravens and other corvids, and gulls. USDA Wildlife Services (2014) used Audubon Alaska Christmas Bird Count data to estimate that a minimum of 1,000 ravens and 300 bald eagles used the landfill during peak winter months. They also reported that they harassed an estimated 1,632 gulls, 10,649 ravens, and 28,471 bald eagles at the landfill in 2014. The report noted aircraft flying at low altitude over and near the landfill and the potential for bird strikes. USDA Wildlife Services personnel communicate with BAAF and time bird dispersal actions to minimize potential for bird and wildlife aircraft strikes.

Special Status Species

Some species require special consideration in the planning and regulatory processes. Applicable regulations and requirements and their relationship to species in the project vicinity are as follows:

- Bald and Golden Eagle Protection Act. No eagle nests have been identified in the vicinity of BAAF. USDA Wildlife Services (2015b) reported 187 hazing actions for bald eagles at BAAF in

the first 9 months of 2015. No golden eagles were reported. All eagle hazing incidents were reported to USFWS in accordance with permits and agreements.

- Endangered Species Act. The USFWS Information for Planning and Consultation (IPaC) system was accessed on 05 October 2018. An official species list from the USFWS states that there are 0 threatened, endangered, or candidate species expected to occur in the vicinity of BAAF (Appendix E). There is no nexus between listed marine mammals and the Proposed Action.
- Migratory Bird Treaty Act. Migratory bird nests are present at BAAF and in the airspace used by flight operations. Most of the birds listed in Appendix B are protected by this Act. All migratory bird hazing and take incidents were reported in accordance with permits and agreements.

3.8 Cultural Resources

BAAF is situated on the eastern portion of the Cook Inlet, a region that appears to have been populated by Pacific Eskimo peoples prior to being replaced by Athabaskan speaking Dena'ina culture-bearing groups that moved in from the north around 1650 AD (Blanchard 2014). There is a low density of archaeological remains from any prehistoric culture in the Cook Inlet region. The early Russian and Euro-American expression is also sparse on the landscape (Daugherty and Saleeby 1998). Settlement and the intensity of use of the area changed dramatically with WWII.

BAAF and nearby Camp Carroll and Camp Denali are within the original Fort Richardson Army Installation, which was constructed in the early 1940s and used during WWII. Few of the buildings from that era remain, and those that do remain are outside the BASH Plan area. Older buildings in the proposed project area, including the 183rd General Hospital, were removed in the original and subsequent BAAF construction and expansion projects that began in the 1960s. Those projects included extensive vegetation removal and earth moving activities and are documented in historical ground and aerial photographs. Approximately 90 percent of the BASH Plan area was cleared and highly modified during the earlier BAAF construction actions conducted over the past five decades (Guilfoyle and Stern 2012: Figure 24).

A review of the statewide inventory of archeological and historical sites maintained by the Alaska Department of Natural Resources, Office of History and Archeology indicates that there is one property near BAAF that is listed on the NRHP: the Fort Richardson National Cemetery (ANC-13), also known as the Kermit Roosevelt Memorial Cemetery. ANC-13 is north of Davis Highway, approximately 2,000 feet from the north end of Runway 17-35 and just north and west of the BASH Plan area. This national cemetery contains the graves of American, Japanese, Soviet, Canadian, and British WWII soldiers along with veterans and family members who have died more recently. It also is the burial site of Kermit Roosevelt, son of President Theodore Roosevelt. The Roosevelt family donated the gate and a memorial plaque at the entrance to the cemetery. The cemetery was listed on the NRHP in 2012.

The 16 buildings at the BAAF were built between 1958 and 2010. All 16 buildings are recorded with the Alaska Office of History and Archaeology Alaska Heritage Resources Survey (AHRS) site database (ANC-47420, 47424, 47425, 47427, 48428, 47429, 47430, 47431, 47432, 47433, 47436, 47437, 47438, 47633, 48000, and 48010). Based on research and evaluations (Gomez 2010; Sneddon and Miller 2012) and consultation with AKSHPO, the buildings and runways were determined to be not eligible for listing on the NRHP.

Employing the evaluations referenced above, Section 106 of the NHPA evaluations were conducted in November 2015 for BASH ground-disturbing activities that might be associated with the Proposed Action. In consultation with the AKSHPO (see Appendix D for copies of the consultation letters), it was determined that no historic properties would be affected by the Proposed Action. That consultation included this statement from the AKSHPO:

> "However, should unidentified archaeological resources be discovered during removal of trees and plants within the APE, work must be interrupted until the resources have been evaluated in terms of the NRHP eligibility criteria (36 CFR 60.4) or the Alaska Landmarks Register in consultation with our office.
>
> "Please note that as stipulated in 36 CFR 800.3, other consulting parties such as the local government and Tribes are required to be notified of the undertaking. Additional information provided by the local government, Tribes, or other consulting parties cause our office to re-evaluate our comments and recommendations (letter from AKSHPO to AKARNG dated November 13, 2015)."

Pursuant to the NHPA, in accordance with DODI 4710.02 (DOD Interactions with Federally Recognized Tribes), AKARNG consulted in 2015 with the Native Village of Eklutna, the Federally recognized tribe associated with JBER lands, for the BASH Plan. The Environmental Department for the Native Village of Eklutna responded by commenting that

- They are always against cutting trees, especially when that resource is wasted.
- Trees are not merely natural resources. They are integrated into the cultural fabric of native peoples, and considered a cultural resource, too. As is wildlife.
- It would be good if AKARNG could collect felled trees and distribute that resource to those that could use it.
- Other than pointing out the cultural element of the flora and fauna, there was no mention of cultural resources that might be present within the BASH EA impact area.
- Mr. Lemoreaux added that if AKARNG is proposing to shoot birds as part of the BASH program, then please consider working with the Native Village of Eklutna members to do that.

3.9 Socioeconomics

The estimated 2014 population of Anchorage was 301,010, almost 41 percent of the state population of 736,732 (US Census Bureau 2015b). The population of JBER was estimated to be more than 13,000 military personnel with almost 20,000 family members (AQP Publishing 2014), although population fluctuates with personnel rotations, unit reassignments, and deployments. This is approximately the 2010 population of the city of Fairbanks (31,535) and of the city of Juneau (31,275). Fairbanks and Juneau are the second and third largest cities in Alaska. JBER also has more than 3,000 civilian employees. Part-time and full-time National Guard units with about 1,900 Army National Guard and more than 1,400 Air National Guard personnel also use the base (AQP Publishing 2014), along with smaller Marine Reserve and Navy units and other Federal offices and facilities.

Age, racial, ethnic, gender, income, and other population data are not available for JBER. Those data are reported in the Anchorage census. The nearest civilian populations are several miles from the Proposed Action and outside the potential socioeconomic influences of that action.

While there are no firm numbers for the combined economic impact of Fort Richardson and EAFB, the Air Force estimated the indirect contribution of Elmendorf alone to the Anchorage economy at $882 million annually in 2005 (Jenson 2012). BAAF contributes to performance of the JBER mission and the continued presence of JBER as an element of the Anchorage economy.

3.10 Environmental Justice

Per EO 12898 (Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations), federal agencies must identify and address the disproportionately high and adverse human health or environmental effects of their actions on minority and low-income populations, to the greatest extent practicable and permitted by law. Separate gender, racial, and economic data are not

available for the population segment in JBER; however, BAAF is more than 3 miles from the nearest civilian population, and the Proposed Action would be confined to BAAF and its immediate surroundings; additionally, public involvement during the scoping process did not identify any socioeconomic concerns. Therefore, the Proposed Action is not anticipated to have an effect on low-income, racial, or other minority populations.

3.11 Infrastructure

BAAF is approximately 5 miles west of the runways at the EAFB Airfield. BAAF is approximately 387 feet above sea level and has one active north-south runway (Runway 17-35). The runway is 100 by 4,088 feet and is asphalt paved. Figures 2 and 3 show the runway and the surrounding infrastructure. The east-west taxiway originally was constructed as a runway, but that usage ceased more than 35 years ago.

Buildings and other facilities associates with BAAF airfield operations are on or immediately adjacent to the airfield. The Alaska National Guard headquarters building also is adjacent to the airfield. Other essential JBER roads, buildings, major utilities, and other infrastructure surround, but are more distant from, BAAF.

The nearby Glenn Highway, the only road connecting Anchorage with Canada and the contiguous 48 states, is about 1,000 feet southeast of the approach end of BAAF Runway 35. A bicycle and pedestrian trail parallels the highway. The bicycle trail and the highway are visible in the lower right corner of Figure 2.

All other infrastructure in the immediate vicinity of BAAF is military. JBER land southwest of the Glenn Highway extends beyond Eagle River, more than 2 miles west of BAAF. The only non-military infrastructure in that area is the Anchorage Regional Landfill, which is 1.7 miles northeast of the departure end of BAAF Runway 35. The landfill serves the entire Anchorage municipality. Annual acceptance at the landfill is 350,000 tons. The landfill is designed with capacity for 20 million tons and was projected to be operational through 2043 (USEPA 2007).

Light aircraft flying into and out of Anchorage from and to the northeast are constrained by high terrain of the Chugach Mountains to the east and southeast, operations at Birchwood Airport to the north, restricted airspace over firing ranges on both sides of the Glenn Highway, and by controlled airspace associated with BAAF (when the control tower is in operation), EAFB, and Merrill Air Field. Anchorage aircraft to and from the northeast typically transitions past BAAF and the Anchorage Regional Landfill by flying over the Glenn Highway. Pilots are required to contact the BAAF control tower for clearance when the tower is in operation and may receive traffic advisories and instructions.

3.12 Hazardous and Toxic Materials/Wastes (HTMW)

A former fire training area where petroleum, oil, and lubricants; brake fluid; and solvents were burned, identified as ATO29 Ruff Road Fire Training Area, is in the CLZ (Figure 3) off the departure end of BAAF Runway 35. The site is a 50-foot-diameter, unlined, earthen pit. A 2013 Site Characterization confirmed gasoline-range and diesel-range hydrocarbons, and elevated volatile organic compounds. USEPA (2015) noted that cumulative carcinogenic risks are above the State of Alaska risk standard for indoor air pathways. The primary risk drivers were identified as tricholorethylene, ethylbenzene, xylenes, and 1, 2, 4-trimethylbenezene (USEPA 2015). The cumulative risk analysis does not relate to the open air conditions at ATO29 Ruff Road Fire Training Area, but does indicate an unquantified risk to potential receptors. The site also may contain perfluorinated compounds (aqueous firefighting foams). As of 1 February 2018, the site is listed as “Cleanup Complete- Institutional Controls” in the ADEC Contaminated Sites Database (Hazard ID 2777). Under “IC/Closure Details”, the control type is listed as “Land Use Plan/Maps/Base Master Plan” with restrictions on excavation and soil movement. If additional contamination is discovered, or if the soil is excavated or disturbed for any reason, further investigation

and/or remedial actions will be requested of the Army by the ADEC. The ADEC reserves, under 18 AAC 75 (Oil and Hazardous Substances Pollution Control) and AS 46.03 (Environmental Conservation), to require the Army to conduct additional assessment and/or corrective actions in the future if information indicates the site conditions pose a risk to public health or the environment. To ensure the effectiveness of ICs, all units and tenants are informed annually of ICs on contaminated soils and groundwater in effect at the Post. Compliance with ICs is reported in the Annual Monitoring Report.

As an internal control measure, JBER requires all projects that result in soil disturbance to follow 673rd Wing Instruction 32-1007, Safeguarding Utilities from Damage, and 673rd Wing Instruction 32-7003, Land Use Control Management. Both instructions require the proponent to obtain an approved Base Civil Engineer Work Clearance Request (673rd Wing Form 3, AKA a "dig permit"). This form is required for any project in which mechanized equipment penetrates or disturbs the ground (including vacuum excavation) or hand digging activities that penetrate deeper than four inches into the ground. During review of the dig permit, the proponent is presented with a certificate of compliance, which provides site-specific information on land use controls and other applicable environmental requirements. The proponent is required to return the signed certificate within 30 days of completing the project, signifying that they have complied with the requirements.

4.0 ENVIRONMENTAL CONSEQUENCES

This section describes the potential direct, indirect, and cumulative effects of implementing the Proposed Action or alternatives, as well as BMPs and/or mitigation measures that would reduce the level of identified impacts. The AKARNG considers BMPs integral to implementation, and they are not considered separate from the Proposed Action. Mitigation measures are defined as project-specific requirements (not routinely implemented by the AKARNG) necessary to reduce identified potentially significant adverse environmental impacts to less-than-significant levels. Thus, no mitigation measures are identified in this EA. For more information on BMPs, refer to Section 4.12.

Significance of effects to individual resource categories is evaluated in terms of context and intensity and is addressed under each heading in this section. Significance thresholds are identified in Section 2.3.4. Context is a measure of how far temporally and spatially an effect might be felt. Intensity refers to the degree of an effect within the context involved. The terms "impact" and "effect" are used interchangeably, following the precedence in CEQ regulations and guidelines.

4.1 Location Description

This section describes the potential environmental effects of the Proposed Action on the geographic setting, ongoing mission(s) and primary activities, general landscape, and general climatic conditions of BAAF.

BAAF is in the northeastern area of JBER in a glacial and riverine depositional area at the base of the Chugach Mountain foothills. Climate at JBER is transitional between the maritime climate zone to the south and the continental climate zone to the north. Precipitation averages about 16 inches per year.

BAAF is entirely within JBER, which is bounded by the Municipality of Anchorage and Bureau of Land Management (BLM) lands to the south and west, by the estuarine waters of the Knik Arm of Cook Inlet to the north and west, and by the community of Eagle River and Chugach State Park to the east (Figure 1). The 73,000-acre installation is bisected by the Glenn Highway.

4.1.1 Effects of the Proposed Action

There will be no impact attributable to the Proposed Action on geographic setting or climatic conditions at BAAF. The landscape in the BASH Zones will be modified as necessary to reduce its appeal to birds and wildlife. The Proposed Action would support and potentially beneficially affect ongoing BAAF missions. There is potential for significant beneficial short- and long-term effects to mission capability and efficiency by reducing probability of aircraft accidents and delays that might be caused by birds and wildlife in the runway environment.

4.1.2 Effects of the No Action Alternative

There will be no impact attributable to the No Action Alternative on the geographic setting or location of BAAF, JBER, or any other facility or installation. There is potential for the No Action Alternative to significantly and adversely affect short- and long-term mission capability and efficiency by failing to manage birds and wildlife that pose a hazard to the safety of aircraft pilots and passengers.

4.1.3 Mitigation Measures

No mitigation measures will be necessary to reduce adverse environmental impacts to below significant levels.

4.2 Land Use

The Proposed Action and No Action alternatives were evaluated against the following screening criteria to determine if they would result in a significant impact on land use or cover:

- Aesthetics and visual resources
- Building function and general architecture
- Relevant location of local communities
- Land use management plans
- Property ownership, leasing, and other agreements

4.2.1 Effects of the Proposed Action

The Proposed Action would constrain or restrict landscaping and ornamental plantings and exterior building architectural features in the BASH program areas to minimize attraction of the area to birds. The landscape would be modified through tree clearing to discourage birds and wildlife. This may adversely affect the visual resources; however, the impact is long-term, localized, and less-than-significant.

The nearest housing is located approximately one quarter mile from the BAAF perimeter. Therefore, the Proposed Action would have no effect on the location of local communities.

The JBER Integrated Natural Resources Management Plan (INRMP) (2016) guides the management of installation land, water, air, and natural resources to support the JBER mission and guarantee continued access to its resources for realistic military training and to sustain the long-term ecological integrity of the resources base and the ecosystem services it provides. The Proposed Action would have no effect on the objectives set forth in the INRMP.

The Proposed Action would have no effect on property ownership or other real estate agreements.

Recent perimeter clearing and fence construction (19,221 feet in length) for ATFP, which also meets BASH program objectives, limits access points into BAAF. The fences and gates cause minor increases in travel times and inconvenience to personnel and visitors using the airfield and other facilities in the vicinity. This fencing will cause long-term, localized, less-than-significant adverse impacts to access and land use.

4.2.2 Effects of the No Action Alternative

The ATFP perimeter fencing and clearing would remain in place. ATFP features would continue to cause long-term, localized and less-than-significant adverse impacts to access and land use.

The No Action Alternative would have no effect on visual resources, building function and architecture, the relevant location of local communities, land use management plans, or property ownership.

Not implementing the BASH Plan would restrict vegetation and tree clearing as well as other bird/wildlife exclusion and dispersal measures. This would limit visibility and increase the chances of bird-wildlife strikes, preventing the AKARNG from meeting mission requirements. The impact would be long-term, significant and adverse.

4.2.3 Mitigation Measures

No mitigation measures will be necessary to reduce adverse environmental impacts to below significant levels.

4.3 Air Quality

The Proposed Action and No Action Alternative were evaluated against the following significance criteria to determine if they would result in a significant impact to air quality:

- Ambient air quality conditions/need for a conformity analysis
- Existing air emission sources
- Increased health risk for sensitive receptors

The AKARNG will ensure dust control associated with ground-disturbing activities is conducted. Available methods include application of water, replacing woodland vegetation with grass and/or low-lying shrubs to increase net photosynthesis in cleared areas, and not burning cleared woody material on-site. To minimize dust generated by vehicles and equipment on unpaved surfaces, the AKARNG will maintain an appropriate speed. Equipment will be shut down when it is not in use. Equipment will be repaired and serviced in accordance with the regular maintenance schedule recommended for each individual equipment type, and cleaned of excess soil before leaving work zones to prevent off-site transport. These dust-reducing measures will be briefed to the contractor or Soldiers responsible for implementing these activities. The AKARNG's on-site manager would be responsible for bringing air quality issues, if they arise, to the attention of the AKARNG for resolution.

4.3.1 Effects of the Proposed Action

Land clearing and maintenance activities associated with the Proposed Action would produce long-term, localized, low-intensity, less-than-significant adverse impacts to air quality. These impacts would not be expected to adversely affect measurable air quality standards or compliance with air quality attainment criteria and would be largely confined to the project area.

Dust generated from construction activities could potentially produce short-term, localized, less-than-significant adverse impacts to air quality. Sensitive receptors such as schools, hospitals, and endangered species would not be affected by the Proposed Action: per consultation with the USFWS, there are no endangered species expected to occur in the area of the Proposed Action. The nearest school is located one mile southwest of BAAF, and the nearest hospital is approximately 3 miles southwest.

Carbon dioxide sequestered in growing plants would be released by burning or decomposition. Other gases, including methane and nitrogen oxides, also are released as wood is burned or decomposes. The net direct result of clearing for the Proposed Action would be to increase carbon dioxide, nitrogen oxides, and methane in the atmosphere. Cleared vegetation will be made available as firewood. Burning of firewood would release particulates into the atmosphere The impacts associated with the potential for carbon dioxide release into the atmosphere by burning or decomposition would be adverse, short- and long-term, low-intensity, and less-than-significant.

The Proposed Action would not cause an exceedance of the NAAQS and would occur in an area currently in full attainment with NAAQS. A conformity analysis is not required; therefore, no significant adverse impacts to air quality would occur as a result implementing the Proposed Action.

4.3.2 Effects of the No Action Alternative

There would be no impact on air quality attributable to the No Action Alternative. Existing emissions would continue due to ongoing operations.

4.3.3 Mitigation Measures

No mitigation measures will be necessary to reduce adverse environmental impacts to below significant levels.

4.4 Noise

The Proposed Action and No Action Alternative were evaluated against the following significance criteria to determine if they would result in a significant impact on the noise environment:

- Substantial increase in noise
- Substantial disruptions to nearby sensitive receptors
- Exposure of more people to unacceptable noise levels

Land-clearing activities would be well separated from sensitive noise receptors and would not likely exceed noise generated by flight operations and other activities on JBER. The following BMPs could be employed as appropriate to limit noise impacts during land conversion activities:

- Locate stationary equipment as far away from sensitive receptors as possible
- Shut down noise-generating heavy equipment when it is not needed
- Maintain noisy equipment per manufacturers' recommendations
- Encourage personnel to operate equipment in the quietest manner practicable (i.e., speed restrictions, retarder brake restrictions, engine speed restrictions, etc.)
- These noise-reducing measures would be briefed to the contractor or Soldiers responsible for implementing these activities. The AKARNG's on-site manager would be responsible to bring noise issues, if they arise, to the AKARNG for resolution. This information will be incorporated into construction contracts.

4.4.1 Effects of the Proposed Action

Land clearing and leveling would produce short-term noise from machinery in the AZ and CLZ BASH Plan areas (Figure 3) that would add to ongoing traffic, aircraft, and maintenance noise. Hazing could entail occasional noise events to frighten birds in the AZ. Noise energy from both sources would be less than that from common military aircraft activity at BAAF, but would be longer in duration during clearing and earth-moving activities. Construction noise might be heard by people in the offices and open areas at Camp Carroll and in the CAZ. People using the bicycle trail along the Glenn Highway and visitors to the nearby cemetery would be the only non-military personnel likely to hear machinery operations associated with the BASH program.

Minor changes in aircraft operations for BASH would be unlikely to affect context or intensity of aviation noise heard by populations in the area or at schools, hospitals or locations of other sensitive receptors.

The additive noise produced by the Proposed Action, in comparison to the ambient noise environment, would have short-term, localized, less-than-significant adverse impacts.

4.4.2 Effects of the No Action Alternative

There would be no impact attributable to the No Action Alternative to noise levels in the project area. Operations at BAAF would continue under current conditions at current locations and levels.

4.4.3 Mitigation Measures

No mitigation measures will be necessary to reduce adverse environmental impacts to below significant levels.

4.5 Geology, Topography, and Soils

The Proposed Action and No Action Alternative were evaluated against the following significance criteria to determine if they would result in a significant impact on topography, geology, or soils:

- Substantial alteration to subsurface geological or mineral resources
- Increased human safety risks to potential geological activity, such as possible subsidence, seismic activity, or high shrink/swell potential
- Altered topography such that there would be a substantial risk of erosion

Cut and fill during terrain-leveling activities would affect soils and topography in the Proposed Action area. BMPs to reduce impacts include re-vegetation and stabilization practices, silt fences, fiber rolls, etc. These BMPs will be employed as identified in the project's SWPPP.

4.5.1 Effects of the Proposed Action

Implementation of the Proposed Action would alter micro-topographical relief features due to leveling in the CLZ (Figure 3) as well as reduction of melt-water ponds, and would cause minor alteration to surface soil characteristics.

No geologic hazards are apparent in the Proposed Action area or would be expected to impact human health as a result of project implementation. Based on currently available data, no active significant faults are known at this time to extend through the project site subsurface geology. As such, no impacts associated with seismic hazards are identified. No impacts to mineral resources are anticipated, as the Proposed Action does not involve the commercial extraction of mineral resources, and would not affect mineral resources considered important on a local, state, national, or global basis. Further, no effect to prime farmland, protected under the Farmland Protection Policy Act, would occur as no prime farmland is located within the Proposed Action area.

The topography in the area of BAAF is extremely level, trending slightly downhill from southwest to northeast. The Proposed Action will involve tree clearing, which increases the potential for erosion, but due to the relatively small area being impacted, the impact is not anticipated to be significant.

Impacts of the Proposed Action would be adverse, short- and long-term, low-intensity, local in context, and less-than-significant.

4.5.2 Effects of the No Action Alternative

The No Action Alternative would have no impact on area geology, topography, and soils.

4.5.3 Mitigation Measures

No mitigation measures will be necessary to reduce adverse environmental impacts to below significant levels.

4.6 Water Resources

The Proposed Action and No Action Alternative were evaluated against the following significance criteria to determine if they would result in a significant impact on water resources:

- Increase flooding in the Proposed Action area due to changes in drainage patterns or construction in the 100-year floodplain
- Substantially alter the quantity or quality of surface water
- Result in a net loss of wetland acreage or substantially degrade existing wetland quality
- Substantially alter the quantity or quality of groundwater

Project activities that result in soil disturbance (e.g., clearing, grading, or excavating) of one acre or more require a construction general permit, to be filed concurrently by the AKARNG Environmental Office, per the Alaska Pollution Discharge Elimination System (APDES). This permit may be obtained from the ADEC. The contractor, airfield personnel or maintenance workers conducting land disturbing activities would be responsible for obtaining this permit, as appropriate, in consultation with the AKARNG Environmental Office. Following receipt of this permit, land disturbance activities would be permissible. The AKARNG would comply with the terms of the permit. In addition, a site-specific SWPPP would be developed for land disturbing activities. The plan must include all phases of the land disturbing activities and identify the location and size of erosion and sediment (E&S) controls. The plan would be maintained onsite during these activities. Periodic visual inspections by the AKARNG would also be required to verify that the E&S Control Plan is being followed and is working.

In addition to obtaining a SWPPP, grass would be planted at exposed soil sites to reduce sediments in runoff.

4.6.1 Effects of the Proposed Action

Ground leveling activities associated with the Proposed Action would reduce the quantity and size of meltwater puddles that form each spring during breakup. No jurisdictional wetlands or other waters of the United States would be filled or altered. The wetland designated HRCHE2156 would not be filled or altered. Runoff and groundwater characteristics would not be substantially altered. There would be no impact to water resources attributable to the Proposed Action.

4.6.2 Effects of the No Action Alternative

The No Action Alternative would have no impact on area water resources.

4.6.3 Mitigation Measures

No mitigation measures will be necessary to reduce adverse environmental impacts to below significant levels.

4.7 Biological Resources

The Proposed Action and No Action Alternative were evaluated against the following significance criteria to determine if they would result in a significant impact on biological resources:

- Disrupt or remove any endangered or threatened species or designated critical habitat
- Loss of a substantial number of individuals of any plant or animal species that could affect the abundance or diversity of that species beyond normal viability
- Measurable degradation of sensitive habitats, particularly wetlands

The following BMPs would be utilized during implementation of the Proposed Action in order to minimize impacts to biological resources:

- While the Proposed Action could clear a maximum of 90 additional acres of mixed woodlands in the AZ, clearing would be limited to the minimum required to meet BASH Plan objectives.
- Methodology for all hazing, capture, and other actions required to disperse or remove wildlife and birds would be coordinated with the USFWS and the ADF&G.
- All bird and wildlife dispersal or removal activities would be reported to the USFWS and the ADF&G.
- All hazing, capture, and other actions required to disperse or remove wildlife and birds would be conducted by trained personnel and would be selected to meet mission requirements with the minimum impact on birds and wildlife.
- All vegetation clearing would be timed to avoid migratory bird nesting periods established by the USFWS.
- Vegetation clearing with timber greater than 2 inches in diameter at breast height would be stockpiled and made available as personal-use firewood.
- Egg and hatchling takes could be minimized if sweeps were done during the nesting season. Nests could be destroyed before eggs are laid. No permit would be needed unless the species is protected, threatened, or endangered.
- All take of migratory birds and eagles would be done in accordance with the MBTA and the Bald and Golden Eagle Protection Act (BGEPA).

Vegetation clearing and habitat conversion actions would follow guidelines established in the Integrated Natural Resources Management Plan for Elmendorf Air Force Base (US Air Force, 2016).

4.7.1 Effects of the Proposed Action

Vegetation

The Proposed Action identifies 212 acres of woodland and mixed vegetation to be cleared and converted to grassland (in the AZ) or low brush habitat (in the CLZ). Those areas are illustrated in Figure 3. Approximately 55 acres of that vegetation were cleared in 2014 and 2015 as part of an ATFP program. Clearing was required for perimeter fence installation and to improve observation at entry points and other critical locations in the AZ, but did not include stump removal, ground leveling, or revegetation to fully meet the objectives of the Proposed Action. The cleared areas are naturally revegetating with grasses, forbs, and early successional woody vegetation. The ATFP clearing resulted in a net reduction of plant biomass and shifts in plant diversity and function in the cleared areas.

The Proposed Action would remove stumps; level ground; and convert vegetation in the already cleared 55 acres in the AZ. Further clearing to meet BASH program objectives would entail clearing and conversion to grassy habitat of up to 90 additional acres of woodland and mixed habitat in the AZ. The program also would convert 67 acres of short, early successional woodlands and brush to lower-growing brushy habitat in the CLZ and would maintain that habitat. Net result of completed and proposed future habitat conversion would be to reduce biomass and plant diversity in a maximum of 212 acres of habitat cleared for ATFP and BASH objectives.

Effects on vegetation from implementing the Proposed Action would be adverse, short- and long-term, low-intensity, local in context, and less-than-significant.

Mammals

The Proposed Action lists several categories of actions that would be employed to reduce or exclude birds and wildlife from BASH zones (Section 2.2). The following actions would be expected to directly affect mammals at BAAF:

- Erect barriers to restrict wildlife access to the BAAF
- Control mammalian prey species
- Cut and control trees and other vegetation

The perimeter fence, which was completed in 2015 as an ATFP action, largely excludes furbearers and large mammals from the 589-acre AZ (Figure 3). Loss of available range affects habitat availability to the wide-ranging moose and bear populations on and near JBER, but those effects are highly localized and represent approximately 1% of the 73,000-acre total area of JBER. Fencing and other barriers can adversely affect populations of moose and bears by restricting seasonal movements between preferred habitats. Impacts from additional fencing for ATFP would be added to effects of pre-existing fencing surrounding the airfield and to the ecological barriers from nearby roads, fences, buildings, and other developments. Fencing at BAAF also adds an additional incremental barrier to the chain-link fence that bounds both sides of the Glenn Highway along almost its entire length through JBER. The net impact of the fence on JBER mammals is long-term, less-than-significant and adverse.

Dispersal of furbearers (mostly red fox) and large mammals that might enter the AZ is expected to rarely result in mortality, but generally would be expected to cause no more than short-term stress and energy expenditure. Similar short-term adverse impacts could be expected as large mammals were dispersed away from the CAZ and other habitats near the airfield. The additional clearing of 212 acres and cutting of 67 acres may adversely impact mammals on a localized, low-intensity, short-term basis during the vegetation control activities. Mammals in the AZ, WR, and CAZ areas may experience temporary stress and dispersal as vegetation is removed. These adverse impacts are expected to be less-than-significant.

As part of the Proposed Action, small mammals could be trapped or otherwise captured or destroyed to prevent them from attracting predatory or scavenging birds into the AZ. If employed, those actions would

adversely affect small mammal population numbers in and adjacent to the AZ. The proposed change in vegetation would alter the habitat type available to small mammals, which would have both adverse and beneficial impacts, depending on the habitat requirements of the small mammal species.

Mammals in the BAAF footprint may experience localized, low-intensity, short-term (forced relocation) and long-term (locating alternate sources of shelter and sustenance), less-than-significant adverse impacts from the Proposed Action. In addition to the adverse impacts noted above, the Proposed Action would also have the long-term, beneficial, and significant impact of decreasing the potential for large mammals to be struck by aircraft.

Birds

The Proposed Action lists several categories of actions that would be employed to reduce or exclude birds and wildlife from BASH zones (Section 2.2). The following actions would be expected to directly affect birds at BAAF:

- Conduct dispersal and capture operations
- Reduce or eliminate food sources that could attract wildlife
- Minimize open water
- Construct bird-proof structures to minimize nesting and roosting habitat
- Cut and control trees and other vegetation

Dispersal and capture operations from the Proposed Action would displace birds from feeding, nesting, and roosting habitats; would cause birds to expend additional energy, and would occasionally require destruction of nuisance birds. Activities reported in 2014 and 2015 (USDA Wildlife Services 2015a, 2015b) suggest that 3,000 to 4,000 birds might be hazed from the AZ and surrounding BASH Plan areas each year, and that the majority of birds hazed would be ravens and other corvids; waterfowl, including Canada geese and dabbling ducks; raptors, primarily bald eagles; sandpipers, plovers, and other shorebirds; and flocking birds, including redpolls, snow buntings, and waxwings. Birds displaced from the AZ would be less likely to be injured or killed by aircraft strikes.

Nest and egg destruction in 2014 and 2015 reported by USDA Wildlife Services, with a total take of 50 eggs, was almost entirely directed at ground-nesting semipalmated plovers near the BAAF runway and taxiway. Future egg and nest destruction would likely affect primarily ground-nesting shorebirds and possibly birds with nests on buildings (e.g., cliff swallows).

A total of 13 birds were destroyed for the BASH program at BAAF in the 15-month period reported by USDA Wildlife Services. Data from BAAF, and the nearby Anchorage Regional Landfill (about three miles away), suggest that future destruction of nuisance birds is likely to be composed largely of ravens and other corvids, with occasional gulls and shorebirds.

Reducing or eliminating bird feeding opportunities in and adjacent to the 1,673-acre Proposed Action area would deprive resident and migrating bird populations of potential food resources.

Reducing meltwater ponds in the spring would reduce feeding and resting opportunities for migrating waterfowl. The Proposed Action would improve drainage in BAAF and surrounding areas by filling areas with materials from construction activities as described in ES2.1.

Bird-proofing modifications such as screens would reduce nesting and roosting opportunities for species (e.g., raptors and corvids) that preferentially nest on buildings, towers, and other structures.

In contrast to the adverse effects listed above, displacing birds by hazing and habitat modification would have the long-term beneficial effect of reducing bird mortality from aircraft strikes. Effects of the Proposed Action would be both adverse and beneficial to birds; in the short-term, birds would be displaced, however in the long-term, they would relocate and be less likely to be injured or killed from

striking aircraft. The effects of the displacement would be localized, low-intensity, and less-than-significant.

Special Status Species

Bald and Golden Eagle Protection Act. No eagle nests would be destroyed and nesting eagles would not be disturbed by the Proposed Action. Bald eagles in the BASH Plan area occasionally would be displaced, and potential prey in the BAAF footprint would be reduced.

Endangered Species Act. The USFWS Information for Planning and Consultation (IPaC) system was accessed on 05 October 2018. An official species list from the USFWS states that there are 0 threatened, endangered, or candidate species expected to occur in the vicinity of BAAF (Appendix E). There is no nexus between listed marine mammals and the Proposed Action.

Migratory Bird Treaty Act. Migratory birds are present at BAAF and in the airspace used by flight operations. Most of the birds listed in Appendix B are protected by this Act. Migratory birds in the BASH Plan area occasionally would be displaced and individual birds, their eggs, nest, and habitat would be destroyed or adversely impacted by the Proposed Action, but would be beneficially affected by reduced potential for aircraft strikes.

Effects of the Proposed Action on special status species (bald eagles and migratory birds) would be both adverse and beneficial, short- and long-term, local in context, low-intensity, and less-than-significant.

4.7.2 Effects of the No Action Alternative

Vegetation

Approximately 55 acres of woodland and mixed habitat cleared along the fence alignment for ATFP would continue to be maintained as low vegetation to meet ATFP objectives. Trees and brush in 67 acres of the CLZ would not be trimmed to meet BASH objectives, but probably would be trimmed as a maintenance action to protect the runway safety zone. These actions would be less-than-significant.

Mammals

The No Action Alternative would avoid habitat reduction and additional fencing and clearing to meet BASH Plan objectives. Fencing and clearing for ATFP would remain in place. Wildlife would not be dispersed from the runway environment. This would beneficially impact habitat availability to wildlife, but would pose greater risks of injury or mortality from aircraft strikes. Effects of the No Action Alternative would be both adverse (higher likelihood of being struck by aircraft compared to the Proposed Action) and beneficial (continued use of current habitat) to mammals. These effects would be long-term, localized, low-intensity, and less-than-significant.

Birds

Under the No Action Alternative, no hazing, capturing, or destroying of birds or further reduction of their habitat or use of habitat for feeding, nesting, or other essential life functions to meet BASH Plan objectives would occur. Fencing and clearing for ATFP would remain in place. The No Action Alternative would fail to reduce bird-aircraft collisions, which could result in bird injury and mortality. Effects of the No Action Alternative on birds would be both adverse (injury and mortality from aircraft strikes) in the long-term and beneficial (broader habitat availability) in the short- and long-term. These effects would be local in context, low-intensity, and less-than-significant.

Special Status Species

Under the No Action Alternative, adverse impacts to habitat, nests, and eggs would be avoided, but there would be increased potential for collisions with aircraft and resulting injury or mortality to bald eagles and migratory birds.

4.7.3 Mitigation Measures

No mitigation measures will be necessary to reduce adverse environmental impacts to below significant levels.

4.8 Cultural Resources

The Proposed Action and No Action Alternative were evaluated against the following significance criteria to determine if they would result in a significant impact on cultural resources:

- Actions resulting in damage, destruction, or demolition to an archaeological site or building that is eligible or listed on the NRHP
- Actions promoting neglect of cultural resources or decreased access to resources of value to Federally recognized Native American Tribes

Should archaeological materials or human remains be inadvertently discovered during ground-disturbing activities, all work would cease immediately and the ADMVA Cultural Resources Manager would be notified.

4.8.1 Effects of the Proposed Action

The Proposed Action would not affect the Fort Richardson National Cemetery (site ANC-013), also known as the Kermit Roosevelt Memorial Cemetery. While there are many known historical sites within the BASH EA area, none of those have been determined to be eligible for listing on the NRHP (a.k.a. "historic properties").

The determinations presented below are based on consultation with the AKSHPO and the Native Village of Eklutna pursuant to the NHPA and Executive Order 13084, Executive Order 13175, and the Responsibilities in Section 5, all of which are specified in DODI 4710.02. The Native Village of Eklutna is the Federally recognized tribe associated with JBER lands. In compliance with the NHPA, it was determined that No Historic Properties would be affected by the Proposed Action. The AKSHPO concurred with the finding on November 13, 2015 (see Appendix D for concurrence letter).

The Village of Eklutna was consulted and they responded that:

- They are always against cutting trees, especially when that resource is wasted.
- Trees are not merely natural resources. They are integrated into the cultural fabric of native peoples, and considered a cultural resource, too, as is wildlife.
- They prefer if AKARNG could collect felled trees and distribute that resource to those that could use it.
- Other than pointing out the cultural element of the flora and fauna, there was no mention of cultural resources that might be present within the BASH EA impact area.

Historic properties and Native American sites of religious or traditional significance would not be affected by the Proposed Action and would have no adverse or beneficial effect on cultural resources or Native American sites of religious or traditional significance.

4.8.2 Effects of the No Action Alternative

The No Action Alternative would have no impact on cultural resources or Native American sites of religious or traditional significance.

4.8.3 Mitigation Measures

No mitigation measures will be necessary to reduce adverse environmental impacts to below significant levels.

4.9 Socioeconomics and Environmental Justice

The Proposed Action and No Action Alternative were evaluated against the following significance criteria to determine if they would result in a significant impact on socioeconomics or environmental justice:

- Substantially alter the location and distribution of the population within the geographic region of influence, cause the population to exceed historical growth rates, or substantially affect the local housing market and vacancy rates
- Cause disproportionate environmental health or safety risks to children
- Create a need for new or increased fire or police protection, or medical services, beyond the current capability

4.9.1 Effects of the Proposed Action

The Proposed Action would not cause any apparent direct adverse impact on area employment; personal income; population increments below poverty level; racial, gender, or age distribution or employment in the population; or other effects on population of income, nor is it anticipated to have an effect on low-income, racial, or other minority populations. The closest schools, housing, and parks are approximately one mile away from BAAF. The Proposed Action would not be expected to cause more than minor, local, short-term, and less-than-significant adverse effects on schools, daycare centers, playgrounds, or other sites or facilities intended for use by children. It is not expected to change the location or size of the surrounding population or housing market or affect public service capacities. The Proposed Action is not expected to affect the area beyond BAAF and its immediate surroundings.

The Proposed Action is not expected to affect aviation use, recreational use, or accessibility to BAAF. Access is already restricted to authorized personnel as described in section 3.2. Therefore, the Proposed Action is not anticipated to adversely impact public health and safety.

The Proposed Action would lessen the potential for bird-aircraft collisions at and near BAAF. The risk that could be avoided by implementing the Proposed Action cannot be quantified, but the action could beneficially and significantly affect safety, protection of children, and the continued social and economic benefits contributed by BAAF to JBER, the surrounding communities, ADMVA, and national programs. Beneficial effects could be significant, long-term, and regional in scope.

4.9.2 Effects of the No Action Alternative

Failure to implement measures to avoid bird and wildlife aircraft collisions could affect the viability of BAAF as an Army and ADMVA asset. This represents potential long-term significant adverse socioeconomic and safety impacts to the public, military personal, and children from increased possibility that a bird strike could cause an aircraft crash and human injury or loss of life, as well as the potential for long-term, regional, significant adverse impacts on BAAF mission performance and long-term viability if the BASH program is not implemented.

4.9.3 Mitigation Measures

No mitigation measures will be necessary to reduce adverse environmental impacts to below significant levels.

4.10 Infrastructure

The Proposed Action and No Action Alternative were evaluated against the following significance criteria to determine if they would result in a significant impact on infrastructure:

- Increase demand over capacity
- Require a substantial system expansion or upgrade

- Result in a substantial system deterioration over the current condition

4.10.1 Effects of the Proposed Action

Elements of the BASH Plan that affect planning, training, and flight operations at BAAF are being implemented as authorized by NEPA Categorical Exclusions to reduce potential for bird-aircraft strikes. Those procedures include air traffic control and advisories to military and light civilian aircraft pilots, which may require adjustments in flight vectors, active runways, altitude, and delays in flight operations in the interest of aviation safety. Those practices would continue with the Proposed Action.

Civilian infrastructure in the vicinity of BAAF include the Glenn Highway and an adjacent pedestrian/bicycle trail, both of which are separated from the greater JBER area by a perimeter fence. The Proposed Action is not expected to impact civilian infrastructure.

Bird-proofing for the Proposed Action would have minor influence on exterior design of existing and new structures in the BASH Plan area (Figure 3). The Proposed Action would have no impact on roads or utilities in the BAAF area, and would not affect infrastructure outside the BASH Plan area illustrated in Figure 3.

The Proposed Action would have minor, local, long-term, less-than-significant adverse impacts on existing and future buildings by minimizing open vents, covered ledges, and graveled flat roofs, as well as covering all vents or other openings in buildings hardware mesh.

Impacts to aviation operations would be minor, local, and both adverse (minor delays in day to day operations to implement operational BASH procedures) and beneficial (implementing air traffic control procedures to prevent potential bird strikes).

4.10.2 Effects of the No Action Alternative

The roads surrounding the BASH Plan area are all military roads within JBER. Ruff Road borders BAAF to the east and south, Sixth Street to the west, and Davis Highway forms the northwest border. Physical training trails (Four Mile and Two Mile trails) also surround BAAF on all sides, adjacent to the roadways.

When the BAAF control tower is operational, the airspace associated with BAAF is restricted, and pilots are required to contact the BAAF control tower for clearance. The No Action Alternative is not expected to impact civilian aircraft flying in the BAAF vicinity.

Elements of the BASH Plan that affect planning, training, and flight operations at BAAF are being implemented as authorized by NEPA Categorical Exclusions to reduce potential for bird-aircraft strikes. Those actions would continue with the No Action Alternative, but there would be no additional impacts from the No Action Alternative.

4.10.3 Mitigation Measures

No mitigation measures will be necessary to reduce adverse environmental impacts to below significant levels.

4.11 Hazardous and Toxic Materials/Wastes (HTMW)

The Proposed Action and No Action Alternative were evaluated against the following significance criteria to determine if they would result in a significant impact on HTMW:

- Substantially increase generation of hazardous substances
- Increase people's exposure to hazardous or toxic substances
- Increase the presence of hazardous or toxic materials in the environment

- Place substantial restrictions on property use due to hazardous waste, materials, or site remediation

An area in the CRZ is listed as a formerly contaminated site, but with a "Cleanup Complete- Institutional Controls" status according to the ADEC, as described in Section 3.12. The HTMW site would be delineated and marked prior to vegetation trimming. A safety plan including site entry, activity, safety equipment, training, and emergency actions would be completed and reviewed by the project safety officer before any action in the site. The plan would include provisions to ensure contaminants would not be released or carried offsite. Those provisions would include training and briefings and cleanup of equipment and clothing after site entry. Per the ICs in place for the site, all units and tenants are informed annually of ICs on contaminated soils and groundwater in effect at the Post. Compliance with ICs is reported in the Annual Monitoring Report. Additionally, JBER requires all projects that involve soil disturbance to obtain a "dig permit" as described in section 3.12. The dig permit provides site-specific information on land use controls and other applicable environmental requirements.

During land clearing activities, all HTMW that would be used or generated would be handled and disposed of in compliance with the AKARNG Hazardous Material & Waste Management Plan (2017).

4.11.1 Effects of the Proposed Action

The Proposed Action would reduce vegetation height in ATO29 Ruff Road Fire Training Area, which is in the CLZ north of the departure end of BAAF Runway 35. Vegetation clearing activities have the potential to expose personnel in the site to HTMW and to release HTMW into the surrounding environment from equipment such as chainsaws, brush hogs, bulldozers, and front-end loaders. Properly conducted, the Proposed Action would be expected to avoid or minimize release of HTMW. Potential maximum-risk adverse impacts associated with the Proposed Action would be local, low-intensity, temporary, and less-than-significant. Measures to avoid or minimize risk are addressed in Section 4.11.3.

4.11.2 Effects of the No Action Alternative

An area in the CRZ is listed as a formerly contaminated site, but with a "Cleanup Complete- Institutional Controls" status according to the ADEC, as described in Section 3.12. HTMW is currently produced at BAAF from routine aircraft maintenance and office work. That HTMW is handled according to the AKARNG Hazardous Material & Waste Management Plan (2017), and the No Action Alternative will have no impact on HTMW production or handling.

4.11.3 Mitigation Measures

No mitigation measures will be necessary to reduce adverse environmental impacts to below significant levels.

4.12 BMPs and Mitigation Measures

Per established protocols, procedures, and requirements, the AKARNG will implement BMPs and will satisfy all applicable regulatory requirements in association with the Proposed Action. BMPs are included as components of the Proposed Action and are described below. BMPs are regulatory compliance measures that the AKARNG regularly implements as part of their activities, as appropriate, across the State of Alaska. These are different from "mitigation measures," which are defined as project-specific requirements (not routinely implemented by the AKARNG) necessary to reduce identified potentially significant adverse environmental impacts to less-than-significant levels. No project-specific mitigation measures are needed to reduce impacts to less-than-significant levels. With implementation of the following routine BMPs, the Proposed Action would not result in significant adverse impacts to the current environmental setting.

Air Quality

The AKARNG will ensure dust control associated with ground-disturbing activities is conducted. Available methods include application of water, replacing woodland vegetation with grass and/or low-lying shrubs to increase net photosynthesis in cleared areas, and not burning cleared woody material on-site. To minimize dust generated by vehicles and equipment on unpaved surfaces, the AKARNG will maintain an appropriate speed. Equipment will be shut down when it is not in use. Equipment will be repaired and serviced in accordance with the regular maintenance schedule recommended for each individual equipment type, and cleaned of excess soil before leaving work zones to prevent off-site transport. These dust-reducing measures will be briefed to the contractor or Soldiers responsible for implementing these activities. The AKARNG's on-site manager would be responsible for bringing air quality issues, if they arise, to the attention of the AKARNG for resolution.

Noise

Land-clearing activities would be well separated from sensitive noise receptors and would not likely exceed noise generated by flight operations and other activities on JBER. The following BMPs could be employed as appropriate to limit noise impacts during land conversion activities:

- Locate stationary equipment as far away from sensitive receptors as possible
- Shut down noise-generating heavy equipment when it is not needed
- Maintain noisy equipment per manufacturers' recommendations
- Encourage personnel to operate equipment in the quietest manner practicable (i.e., speed restrictions, retarder brake restrictions, engine speed restrictions, etc.)

These noise-reducing measures would be briefed to the contractor or Soldiers responsible for implementing these activities. The AKARNG's on-site manager would be responsible to bring noise issues, if they arise, to the AKARNG for resolution. This information will be incorporated into construction contracts.

Geology, Topography, and Soils

Cut and fill during terrain-leveling activities would affect soils and topography in the Proposed Action area. BMPs to reduce impacts include re-vegetation and stabilization practices, silt fences, fiber rolls, etc. These BMPs will be employed as identified in the project's SWPPP.

Water Resources

Project activities that result in soil disturbance (e.g., clearing, grading, or excavating) of one acre or more require a construction general permit, to be filed concurrently by the AKARNG Environmental Office, per the Alaska Pollution Discharge Elimination System (APDES). This permit may be obtained from the ADEC. The contractor, airfield personnel or maintenance workers conducting land disturbing activities would be responsible for obtaining this permit, as appropriate, in consultation with the AKARNG Environmental Office. Following receipt of this permit, land disturbance activities would be permissible. The AKARNG would comply with the terms of the permit. In addition, a site-specific SWPPP would be developed for land disturbing activities. The plan must include all phases of the land disturbing activities and identify the location and size of erosion and sediment (E&S) controls. The plan would be maintained onsite during these activities. Periodic visual inspections by the AKARNG would also be required to verify that the E&S Control Plan is being followed and is working.

In addition to obtaining a SWPPP, in order to reduce sediments in runoff, grass would be planted at exposed soil sites.

Biological Resources

The following BMPs would be utilized during implementation of the Proposed Action in order to minimize impacts to biological resources:

- While the Proposed Action could clear a maximum of 90 additional acres of mixed woodlands in the AZ, clearing would be limited to the minimum required to meet BASH Plan objectives.
- Methodology for all hazing, capture, and other actions required to disperse or remove wildlife and birds would be coordinated with the USFWS and the ADF&G.
- All bird and wildlife dispersal or removal activities would be reported to the USFWS and the ADF&G.
- All hazing, capture, and other actions required to disperse or remove wildlife and birds would be conducted by trained personnel and would be selected to meet mission requirements with the minimum impact on birds and wildlife.
- All vegetation clearing would be timed to avoid migratory bird nesting periods established by the USFWS.
- Vegetation clearing with timber greater than 2 inches in diameter at breast height would be stockpiled and made available as personal-use firewood.
- Egg and hatchling takes could be minimized if sweeps were done during the nesting season. Nests could be destroyed before eggs are laid. No permit would be needed unless the species is protected, threatened, or endangered.
- All take of migratory birds and eagles would be done in accordance with the MBTA and the Bald and Golden Eagle Protection Act (BGEPA).
- Vegetation clearing and habitat conversion actions would follow guidelines established in the Integrated Natural Resources Management Plan for Elmendorf Air Force Base (US Air Force, 2016).

Cultural Resources

Should archaeological materials or human remains be inadvertently discovered during ground-disturbing activities, all work would cease immediately and the ADMVA Cultural Resources Manager would be notified.

HTMW

An area in the CRZ is listed as a formerly contaminated site, but with a "Cleanup Complete- Institutional Controls" status according to the ADEC, as described in Section 3.12. The HTMW site would be delineated and marked prior to vegetation trimming. A safety plan including site entry, activity, safety equipment, training, and emergency actions would be completed and reviewed by the project safety officer before any action in the site. The plan would include provisions to ensure contaminants would not be released or carried offsite. Those provisions would include training and briefings and cleanup of equipment and clothing after site entry. Per the ICs in place for the site, all units and tenants are informed annually of ICs on contaminated soils and groundwater in effect at the Post. Compliance with ICs is reported in the Annual Monitoring Report. Additionally, JBER requires all projects that involve soil disturbance to obtain a "dig permit" as described in section 3.12. The dig permit provides site-specific information on land use controls and other applicable environmental requirements.

During land clearing activities, all HTMW that would be used or generated would be handled and disposed of in compliance with the AKARNG Hazardous Material & Waste Management Plan (2017).

4.13 Cumulative Effects

Introduction

As defined by CEQ Regulations at 40 CFR Part 1508.7, cumulative impacts are those that "result from the incremental impact of the Proposed Action when added to other past, present, and reasonably foreseeable future actions, without regard to the agency (Federal or non- Federal) or individual who

undertakes such other actions." Cumulative impact analysis captures the effects that result from the Proposed Action in combination with the effects of other actions in the Proposed Action's region of influence.

Because of the number of past, present, and reasonably foreseeable future actions in Anchorage and the surrounding area of Southcentral Alaska, cumulative effects are the most difficult to analyze. NEPA requires the analysis of cumulative environmental effects of a Proposed Action on resources that may often be manifested only at the cumulative level, such as traffic congestion, air quality, noise, biological resources, cultural resources, socioeconomic conditions, utility system capacities, and others.

Past, present, and reasonably foreseeable actions in the vicinity of the Proposed Action area analyzed in this EA include the following:

- Construction, operation and proposed expansion of the Anchorage landfill, and the bird exclusion measures at the landfill
- Integration of Ft. Richardson and EAFB into JBER
- Enhanced security measures that include fencing, barriers, clearing and other physical measures at BAAF and the surrounding host installation (JBER)
- Potential future recreational development for ballfields and other open fields
- Past, present and future changes in airspace use introduced by changes in mission and civil aviation rules and procedures

Cumulative Effects within the Area

The Municipality of Anchorage has grown rapidly in population and development in the last 50 years, as has the neighboring Matanuska-Susitna Borough. Together, they represent more than half of the state's population and are expected to continue to grow. Growth has increased regional traffic congestion, air quality impacts, and other environmental effects, placing increased demands on services, utilities, and infrastructure, and consuming former open space areas with new development. Development of former open space has resulted in associated natural and cultural resources impacts.

Anchorage and Matanuska –Susitna Valley populations are projected to continue growing at an annual rate of 1 percent through 2042 to a population of approximately 530,000.

Cumulative Effects of the Proposed Action

The Proposed Action would result in the impacts identified throughout Section 4. These include potential less-than-significant adverse impacts to air quality, the noise environment, soils, surface water resources, utilities, transportation, traffic, land use, biological resources, cultural resources and Native American concerns, and HTMW. These impacts would be further reduced through implementation of standard AKARNG BMPs as identified in Section 4.12.

The Proposed Action, and in some cases the No Action Alternative, would contribute to some cumulative impacts associated with each of the aforementioned categories. The significance of direct project impacts to the cumulative effects associated with each of these categories is related to the intensity of the impacts and the vulnerability of the affected resources. The potential contribution of these categories to cumulative effects would be so localized and low in intensity that the impact would likely be negligible.

The potential for cumulative impacts in the remaining categories of resources and issues are addressed individually below:

- Military Mission
- Air Quality
- Biological Resources

- Socioeconomics
- Environmental Justice and Protection of Children

Military Mission

Resource extraction and tourism have been identified as the two primary drivers of Alaska economy, but military presence is a major contributor to the economy and in the global mission of the US military. The Alaska National Guard is an important component of the military in Alaska. Failure to implement and execute an effective BASH Plan could degrade mission performance and would act cumulatively with other factors to affect viability of the military at BAAF, at JBER, and in Alaska. The Proposed Action would support and potentially affect ongoing BAAF missions. There is potential for significant beneficial short- and long-term effects to mission capability and efficiency by reducing probability of aircraft accidents and delays that might be caused by birds and wildlife in the runway environment.

Air Quality (and Climate Change)

Direct effects to air quality are addressed in Section 4.3 and summarized in Table 3 in Section 2.3.1. Combustion engines in chain saws, earthmoving equipment, mowers, and other machinery would be used to clear and maintain additional areas for the Proposed Action. The Proposed Action would produce additional nitrogen oxide compounds, carbon monoxide, carbon dioxide, and other chemical compounds that are linked to acid rain and global climate change. There would be less biomass and less sequestered carbon dioxide in areas cleared for the BASH Plan and less carbon dioxide sequestered than the existing woodlands, and therefore more net contribution of greenhouse gases to the atmosphere.

The Proposed Action would clear up to 90 acres in the AZ, in addition to the 55 acres that were cleared for ATFP, and reduce woody vegetation height in 67 acres of the CLZ. This action would contribute to local, regional, and global cumulative adverse impacts to air quality. While the direct impacts to air quality would be local and low in intensity, there are insufficient data to determine thresholds for significance of cumulative impacts. Emissions from the Proposed Action, however, would be less than those from aircraft, power generation, and autos in the BAAF area and far less than emissions from other sources in the Anchorage area. This suggests that, while global climate change is understood to represent significant ecological and social threats, the emissions from the Proposed Action would make a less-than-significant adverse contribution to climate change.

Biological Resources

Direct effects are addressed in Section 4.7 and summarized in Table 3 in Section 2.3.1.

Habitat modification, fencing, and hazing, along with other human activities globally, nationally, regionally, and locally have cumulatively affected wild bird and mammal distribution and population numbers. Compared to the No Action Alternative, the Proposed Action would reduce habitat availability and potential food sources in the immediate BAAF area. Effects on birds and wildlife would be additive to and cumulative to effects of the existing and future military and civil infrastructure in the Municipality of Anchorage, the surrounding area of Southcentral Alaska, and globally. Hazing and intentional destruction of birds and mammals at BAAF for the Proposed Action would be additive to those activities at the Anchorage Regional Landfill, Anchorage International Airport, City of Anchorage parks and other public areas, Merrill Field, and Lake Hood Seaplane Base, and cumulative to other human activities in the range of each species found at BAAF.

Habitat loss from the Proposed Action through habitat modification and exclusion would add to other stressors affecting moose, bears, and other mammals in the Anchorage area. Populations of large mammals are managed through hunting regulations, habitat management actions, and other techniques. Game management could be expected to compensate for reasonably foreseeable adverse and beneficial cumulative effects on game populations in the JBER-Anchorage area by adjusting sport harvest and trapping regulations. Small mammal and furbearer populations in Southcentral Alaska tend to fluctuate in

response to biotic and abiotic factors. The resilience of the affected mammal populations, availability of management tools, and the relatively small area impacted indicate that the Proposed Action contribution to cumulative impacts on mammals would be adverse, but less-than-significant.

None of the bird or mammal species that would be affected by the Proposed Action are listed under the Endangered Species Act. Migratory birds and bald eagles are special status species that would be additively affected by hazing at BAAF and the Anchorage Regional Landfill and cumulatively affected by hazing and other human activities throughout their range. Waterfowl and other migratory birds may range over very large areas and may be impacted in various ways throughout their range. Hazing and habitat loss at BAAF has contributed and would continue to contribute incrementally to those stressors and to cumulative impacts to birds that range into the BASH Plan area. Adverse effects are at least partially balanced by beneficial effects of lessened mortality from aircraft strikes. The availability of alternative habitats, the relatively small area impacted by the Proposed Action, and the absence of endangered or threatened birds among the species identified in the Anchorage area indicate that the Proposed Action contribution to adverse cumulative impacts on migratory birds would be less-than-significant.

The birds and wildlife directly affected by the Proposed Action represent a relatively small part of their regional and global populations, are able to use other available habitats, and are not threatened or endangered in Alaska or other parts of their ranges. Direct effects of the Proposed Action are localized and low in intensity. The Proposed Action appears to represent less-than-significant contributions to past, present, and potential future cumulative effects to birds and wildlife.

Socioeconomics

Direct effects are addressed in Section 4.9 and summarized in Table 3 in Section 2.3.1. No adverse direct or indirect environmental justice effects related to the Proposed Action were identified. The Proposed Action, as compared to the No Action Alternative would add to other aircraft safety measures and reduce potential for accidents and threats to human safety. Those beneficial effects would be cumulative with other safety measures at BAAF and in broader regional and global contexts. The Proposed Action, cumulatively along with other measures, could beneficially affect BAAF mission and potential for longevity as DOD installations are adjusted to meet changing national and global conditions.

The cumulative socioeconomics effects of implementing a BASH Plan under the Proposed Action cannot be determined with available information. There is an unquantifiable possibility that implementing the Proposed Action could significantly benefit aircraft safety and could help prevent human injury or loss of life. There is no apparent potential for the Proposed Action to contribute more than less-than-significant adverse impacts to cumulative socioeconomic effects. The No Action Alternative could fail to prevent aircraft loss and human injury and could contribute significantly and adversely to cumulative socioeconomic effects.

Environmental Justice (Including Protection of Children)

EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations (1994), requires Federal agencies to identify and address disproportionate adverse effects of their programs, policies, and activities on minority and low-income populations. Potential environmental justice considerations are determined by comparing demographic and economic characteristics within the study area to the same characteristics in the surrounding region.

The U.S. Census Bureau defines a “poverty area” as a census tract where 20 percent or more of the residents have incomes below the poverty threshold, and an “extreme poverty area” as one with 40 percent or more below the poverty level. The poverty rates for the State of Alaska, City of Anchorage was found to be below 20 percent (Anchorage Daily News, 2011).

The term “minority population” includes persons who identify as African American, Asian or Pacific Islander, Native American or Alaska Native, or Hispanic. A minority population exists where the

percentage of minorities in an affected area either exceeds 50 percent or is meaningfully greater than in the general population of the large surrounding area. The Proposed Action area does not fit the definition of a minority population area.

Populations near airfields may be disproportionately more likely to be impacted by aircraft crashes. While not statistically a large threat to children, the potential for injury or mortality is one component of the many threats to safety and well-being of children.

Inter-relationship of Cumulative Effects

The environment on Fort Richardson is slowly changing due to relatively slow, ongoing development. The AKARNG's Proposed Action to alter habitat and activities at BAAF and in the surrounding lands and airspace would produce environmental effects. Within the surrounding area and region, development to accommodate the area's increasing population and economic development, including additional industrial uses, businesses, homes, and related services and infrastructure would produce environmental effects. These two factors are interrelated in two ways:

1. One of the missions of the AKARNG is to service the emergency needs of the people of the State of Alaska. Changes in land use and activities are necessary to support safe aircraft operation so that the AKARNG can service the community effectively (as well as the entire country, in terms of national defense). As such, the growth of the region, Alaska, and the nation as a whole drives the need for the BASH program.
2. Both factors produce pressures on the environment of the Proposed Action area.

Interrelated cumulative impacts place demands on the local region, planning organizations, and the military's natural resource management, cultural resource management, and public works infrastructure. Sound, integrated, long-range planning on the part of civilian and military agencies minimizes these impacts. No significant adverse cumulative impacts to the environment, induced by changes under the Proposed Action, are anticipated within the region. The Proposed Action would not compete for additional land or airspace, and would not contribute to cumulative impacts in that regard. Close coordination between the AKARNG and environmental resources and regulatory agencies would minimize impacts of habitat modification and dispersion of birds and wildlife. Cumulative impacts for social well-being and economic development would be minor, and largely beneficial. Implementation of effective environmental management plans and programs should minimize or eliminate any potential cumulative degradation of the natural ecosystem.

5.0 COMPARISON OF ALTERNATIVES AND CONCLUSIONS

5.1 Comparison of the Environmental Consequences of the Alternatives

Table 4 in Section 2.3.4 compares the effects of alternatives considered in detail. For convenience, it is presented again here as Table 5.

Table 5 Alternatives' Impacts Comparison Matrix (2)

Technical Resource Area	No Action Alternative	Proposed Action
Geographic Setting and Location	No impact attributable to AKARNG action.	No impact attributable to AKARNG action.
Land Use	No impact attributable to AKARNG action. ATFP fencing and clearing would remain. ATFP features would cause long-term, localized and less-than-significant adverse impacts to access and land use.	Fencing would cause long-term, localized, less-than-significant adverse impacts to access and land use. Air traffic control actions would cause long-term, localized, and less-than-significant impacts to civil and military aviation.
Air Quality	No impact attributable to AKARNG action. Ongoing operations' emissions would continue.	Long-term, localized, low-intensity, less-than-significant adverse impacts from land clearing and maintenance activities; largely confined to the project area. Short-term, localized less-than-significant adverse impacts associated with the potential for dust generation from construction activities. Short- and long-term, low-intensity, less-than significant adverse impacts associated with the potential for carbon dioxide to be released by burning or decomposition of growing plants.
Noise	No impact attributable to AKARNG action. Ongoing operations noise would continue.	Potential short-term localized less-than-significant adverse impact due to the potential for noise generation from construction activities and occasional hazing in the AZ.
Geology, Topography, and Soils	No impact attributable to AKARNG action.	Short- and long-term, low-intensity, localized, less-than-significant adverse impact to soils during terrain leveling and reduction of melt-water ponds.
Water Resources	No impact attributable to AKARNG action.	No impact attributed to AKARNG action.
Biological Resources	Potential localized, low-intensity, short- and long-term, less-than-significant adverse impact to birds	Potential localized, low-intensity, short- and long-term, less-than-significant adverse impact to birds, mammals, and their habitat due to

Table 5 Alternatives' Impacts Comparison Matrix (2)		
Technical Resource Area	**No Action Alternative**	**Proposed Action**
	and wildlife due to injury and mortality from aircraft strikes. Beneficial impact to birds and wildlife from broader habitat availability.	vegetation clearing, habitat modification, destruction of nests and eggs, removal and dispersion from BAAF and adjacent areas, and from destruction of nuisance individuals. Potential beneficial impacts to furbearers and large mammals as a result of fencing and dispersal lessening the potential to be struck by aircraft. Potential beneficial impacts to birds as a result of hazing and habitat modification, reducing bird mortality from aircraft strikes.
Cultural Resources and Native American Concerns	No impact attributable to AKARNG action.	No impact attributable to AKARNG action.
Socioeconomics (including Environmental Justice and Protection of Children)	Potential long-term **significant adverse** socioeconomic and safety impacts to the public, military personal, and children from increased possibility that a bird strike could cause an aircraft crash and human injury or loss of life. Potential for long-term, regional, **significant adverse** impacts on BAAF mission performance and long-term viability if BASH program is not implemented.	Local and regional, short- and long-term, potentially **significant beneficial** impacts to the public, military personal, and children from reduced potential that a bird strike could cause an aircraft crash and human injury or loss of life.
Utilities	No impact attributable to AKARNG action.	No impact attributable to AKARNG action.
Transportation and Traffic	No impact attributable to AKARNG action.	No impact attributable to AKARNG action.
Infrastructure	No impact attributable to AKARNG action. Elements of the BASH Plan as authorized by NEPA Categorical Exclusions to reduce potential for bird-aircraft strikes would continue.	Minor, local, long-term, less-than-significant adverse impacts to existing and future buildings. Minor, local, adverse and beneficial impacts to aviation operations. Potentially beneficial impacts resulting from implementation of air traffic control procedures to prevent bird strikes.
Hazardous and Toxic Materials/Wastes	No impact attributable to AKARNG action.	Local, temporary, and less-than-significant adverse impacts.

5.2 Conclusions

The No Action Alternative would lessen potential for less-than-significant adverse direct, indirect and cumulative effects to land use, noise, local topography, soils, water resources, air quality, biological resources, and for potential release or exposure to HTMW. The No Action Alternative presents the potential for significant adverse impact to children and other members of the surrounding military and civilian populace from a bird-aircraft strike that could lead to a crash and loss of human life. Ability of BAAF to meet mission requirements also could be significantly affected if a BASH Plan were not in place.

The Proposed Action would produce direct localized, low-intensity adverse effects to land use, noise, local topography, soils, water resources, air quality biological resources, and for potential release or exposure to HTMW. Those adverse effects would be less-than-significant. No indirect adverse or beneficial effects were identified. Potential contribution to cumulative effects would be so localized and low in intensity that more than negligible cumulative impact is unlikely. There is potential for significant beneficial impact to children and other members of the surrounding military and civilian populace from lessening potential for a bird-aircraft strike that could lead to a crash and loss of human life. Ability of BAAF to meet mission requirements also could be significantly and beneficially affected with implementation of an effective and compliant BASH Plan.

Evaluation of the Proposed Action and its environmental effects indicates that a FNSI should be prepared to meet NEPA decision making requirements. Mitigation measures are not required or relied upon in the EA analysis to prevent significant adverse impact; therefore, a mitigated FNSI is not required.

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7.0 LIST OF PREPARERS

Mr. Tim Shaw, Interim Environmental Program Manager, NEPA, Pest, and Noise Management, ADMVA. Mr. Shaw drafted sections of the description of the Proposed Action and provided essential information regarding past actions and existing conditions.

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8.0 AGENCIES AND INDIVIDUALS CONSULTED

Appendix D lists agencies and individuals contacted for scoping and other consultation. Pertinent correspondence also is in Appendix D.

APPENDIX A. BAAF BASH PLAN

APPENDIX B. BIRDS OF CONCERN IN THE BAAF BASH PROGRAM

Birds of Concern in the BAAF BASH Program

This appendix lists birds identified in the vicinity of JBER has appeared in earlier BASH documents. Species of particular concern as potential bird-aircraft strike hazards are identified in red. The list was compiled from observations made during a visit by JBER personnel on September 9-10, 2003, July 12-14, 2011, and February 19-22, 2013; from birds listed in the Joint Base Elmendorf-Richardson Integrated Natural Resources Management Plan; and from the United States Geological Survey, Northern Prairie Wildlife Research Center report titled "*Bird Checklists of the United States, Birds of Anchorage, Alaska Knik River to Turnagain Pass*" which is available at: http://www.npwrc.usgs.gov/old_web/resource/birds/chekbird/r7/anchor.htm Rare and erratic bird species are not included in the list.

Order and Species of Most Hazardous Birds Identified in the Vicinity of Joint Base Elmendorf-Richardson:

Anseriformes – Waterfowl

Tundra Swan	*Cygnus columbianus*
Trumpeter Swan	*Cygnus buccinator*
Canada Goose	*Branta canadensis*
Cackling Goose	*Branta hutchinsii*
Greater White-fronted Goose	*Anser albifrons*
Snow Goose	*Chen caerulescens*
Mallard	*Anas platyrhynchos*
Northern Pintail	*Anas acuta*
American Wigeon	*Anas americana*
Northern Shoveler	*Anas clypeata*
Green-winged Teal	*Anas crecca*

Falconiformes – Vultures, Hawks, and Falcons

Northern Harrier	*Circus cyaneus*
Rough-legged Hawk	*Buteo lagopus*
Red-tailed Hawk	*Buteo jamaicensis*
Golden Eagle	*Aquila chrysaetos*
Bald Eagle	*Haliaeetus leucocephalus*

Gruiformes – Cranes and Allies

Sandhill Crane	*Grus canadensis*

Charadriiformes – Shorebirds and Gulls

Glaucous Gull	*Larus hyperboreus*
Glaucous-winged Gull	*Larus glaucescens*
Herring Gull	*Larus argentatus*
Thayer's Gull	*Larus thayeri*

Mew Gull	*Larus canus*
Bonaparte's Gull	*Larus philadelphia*
Columbiformes – Pigeons and Doves	
Rock Pigeon	*Columba livia*
Strigiformes – Owls	
Great Horned Owl	*Bubo virginianus*
Passeriformes – Perching Birds	
Horned Lark	*Eremophila alpestris*
Cliff Swallow	*Hirundo pyrrhonota*
Bohemian Waxwing	*Bombycilla garrulus*
European Starling	*Sturnus vulgaris*
Common Raven	*Corvus corax*
American Robin	*Turdus migratorius*
Red-winged Blackbird	*Agelaius phoeniceus*
Snow Bunting	*Plectrophenax nivalis*

Order and Species of Other Birds Identified in the Vicinity of Joint Base Elmendorf- Richardson:

Gaviiformes – Loons	
Common Loon	*Gavia immer*
Pacific Loon	*Gavia pacifica*
Red-throated Loon	*Gavia stellata*
Podicipediformes – Grebes	
Red-necked Grebe	*Podiceps grisegena*
Horned Grebe	*Podiceps auritis*
Anseriformes – Waterfowl	
Redhead	*Aythya americana*
Canvasback	*Aythya valisineria*
Greater Scaup	*Aythya marila*
Lesser Scaup	*Aythya affinis*
Common Goldeneye	*Bucephala clangula*
Barrow's Goldeneye	*Bucephala islandica*
Bufflehead	*Bucephala albeola*
Long-tailed Duck	*Clangula hyemalis*
White-winged Scoter	*Melanitta fusca*
Red-breasted Merganser	*Mergus serrator*

Common Merganser	*Mergus merganser*
Falconiformes – Vultures, Hawks, and Falcons	
Osprey	*Pandion haliaetus*
Northern Goshawk	*Accipiter gentilis*
Sharp-shinned Hawk	*Accipiter striatus*
Peregrine Falcon	*Falco peregrinus*
Merlin	*Falco columbarius*
Galliformes – Gallinaceous Birds	
Spruce Grouse	*Dendragapus canadensis*
Willow Ptarmigan	*Lagopus lagopus*
White-tailed Ptarmigan	*Lagopus leucurus*
Charadriiformes – Shorebirds and Gulls	
American Golden Plover	*Pluvialis dominica*
Semipalmated Plover	*Charadrius semipalmatus*
Hudsonian Godwit	*Limosa haemastica*
Whimbrel	*Numenius phaeopus*
Greater Yellowlegs	*Tringa melanoleuca*
Lesser Yellowlegs	*Tringa flavipes*
Solitary Sandpiper	*Tringa solitaria*
Spotted Sandpiper	*Actitis macularia*
Wandering Tattler	*Heteroscelus incanus*
Short-billed Dowitcher	*Limnodromus griseus*
Long-billed Dowitcher	*Limnodromus scolopaceus*
Red-necked Phalarope	*Phalaropus lobatus*
Wilson's Snipe	*Gallinago delicata*
Surfbird	*Aphriza virgata*
Ruddy Turnstone	*Arenaria interpres*
Black Turnstone	*Arenaria melanocephala*
Pectoral Sandpiper	*Calidris melanotos*
Least Sandpiper	*Calidris minutilla*
Semipalmated Sandpiper	*Calidris pusilla*
Western Sandpiper	*Calidris mauri*
Arctic Tern	*Sterna paradisaea*
Strigiformes – Owls	

Short-eared Owl	*Asio flammeus*
Boreal Owl	*Aegolius funereus*
Northern Saw-whet Owl	*Aegolius acadicus*
Great Gray Owl	*Strix nebulosa*
Coraciiformes – Kingfishers	
Belted Kingfisher	*Ceryle alcyon*
Piciformes – Woodpeckers	
Common Flicker	*Colaptes auratus*
Hairy Woodpecker	*Picoides villosus*
Downy Woodpecker	*Picoides pubescens*
Three-toed Woodpecker	*Picoides tridactylus*
Black-backed Woodpecker	*Picoides arcticus*
Passeriformes – Perching Birds	
Say's Phoebe	*Sayornis saya*
Alder Flycatcher	*Empidonax alnorum*
Western Wood Pewee	*Contopus sordidulus*
Olive-sided Flycatcher	*Cantopus borealis*
Violet-green Swallow	*Tachycineta thalassina*
Tree Swallow	*Tachycineta bicolor*
Bank Swallow	*Riparia riparia*
Cliff Swallow	*Hirundo pyhrronota*
Steller's Jay	*Cyanocitta stelleri*
Gray Jay	*Perisoreus canadensis*
Black-billed Magpie	*Pica hudsonia*
Black-capped Chickadee	*Parus atricapillus*
Boreal Chickadee	*Parus hudsonica*
American Dipper	*Cinclus mexicanus*
Brown Creeper	*Certhia americana*
Hermit Thrush	*Catharus guttatus*
Swainson's Thrush	*Catharus ustulatus*
Gray-cheeked Thrush	*Catharus minimus*
Golden-crowned Kinglet	*Regulus satrapa*
Ruby-crowned Kinglet	*Regulus calendula*
American Pipit	*Anthus spinoletta*

Northern Shrike	*Lanius excubitor*
Orange-crowned Warbler	*Vermivora celata*
Blackpoll Warbler	*Dendrioca striata*
Yellow Warbler	*Dendroica petechia*
Yellow-rumped Warbler	*Dendroica coronata*
Townsend's Warbler	*Dendroica townsendi*
Blackpoll Warbler	*Dendroica striata*
Northern Waterthrush	*Seiurus noveboracensis*
Wilson's Warbler	*Wilsonia pusilla*
Rusty Blackbird	*Euphagus carolinus*
Pine Grosbeak	*Pinicola enucleator*
Rosy Finch	*Leucosticte arctoa*
Common Redpoll	*Carduelis flammea*
Pine Siskin	*Carduelis pinus*
White-winged Crossbill	*Loxia leucoptera*
Savannah Sparrow	*Passerculus sandwichensis*
Dark-eyed Junco	*Junco hyemalis*
American Tree Sparrow	*Spizella arborea*
White-crowned Sparrow	*Zonotrichia leucophrys*
Golden-crowned Sparrow	*Zonotrichia atricapilla*
Fox Sparrow	*Passerella iliaca*
Lincoln's Sparrow	*Melospiza lincolnii*
Song Sparrow	*Melospiza melodia*
Lapland Longspur	*Calcarius lapponicus*

APPENDIX C. PERMITS OBTAINED

APPENDIX D. LIST OF AGENCIES AND INDIVIDUALS CONSULTED

APPENDIX E. ENDANGERED SPECIES ACT SECTION 7 CONSULTATION DOCUMENTATION

APPENDIX F. WETLANDS DELINEATION AND USACE CONCURRENCE DOCUMENTATION

APPENDIX G. ATFP FENCE INSTALLATION ENVIRONMENTAL IMPACT ANALYSIS

APPENDIX H. AKARNG OPERATIONAL NOISE MANAGEMENT PLAN