U.S. ARMY GARRISON ALASKA

TANANA FLATS TRAINING AREA WINTER TRAIL

FINDING OF NO SIGNIFICANT IMPACT AND

ENVIRONMENTAL ASSESSMENT

September 2018

FINDING OF NO SIGNIFICANT IMPACT

The National Environmental Policy Act of 1969 (NEPA) (42 United States Code §4321 et seq.) requires Federal agencies to consider the potential environmental impacts prior to undertaking a course of action. Within the United States (U.S.) Department of the Army (Army), NEPA is implemented through regulations promulgated by the Council on Environmental Quality (CEQ; 40 Code of Federal Regulations (CFR) §§1500–1508) with supplemental requirements provided under 32 CFR §651, Environmental Analysis of Army Actions, and Army regulations. In adherence with NEPA, 40 CFR §§1500–1508, and 32 CFR §651, the U.S. Army Garrison Alaska (USAG Alaska) prepared an environmental assessment (EA) to assess the potential environmental impacts from the construction and operation of a winter trail in the Tanana Flats Training Area at Fort Wainwright, Alaska.

Description of Proposed Action

The USAG Alaska proposes to construct a winter trail approximately 29.3 miles in length and 40 feet wide in the Tanana Flats Training Area from the Tanana River Bridge to the Blair Lakes Range Complex and surrounding training areas. The trail would be constructed by hydro-ax when the ground is sufficiently frozen in order to minimize ground disturbance, and military usage of the trail would occur during the winter months, generally from October to March depending on weather and ground conditions.

Alternatives Considered

- Alternative 1: Construct a winter trail in the Tanana Flats Training Area
- No Action Alternative: No winter construction in the Tanana Flats Training Area

Preferred Alternative

The Army's preferred alternative is implementing Alternative 1 – Construct a winter trail in the Tanana Flats Training Area.

Discussion of Anticipated Environmental Impacts

The EA, which is attached and incorporated by reference into this Finding of No Significant Impact (FNSI), fully analyzed the potential effects from implementing the

Proposed Action under Preferred Alternative and the No Action Alternative for the following eight resources: cultural resources, biological resources, geology and soils, water resources, land use, traffic and transportation systems, hazardous materials and hazardous waste. Table FNSI-1 summarizes the environmental impacts associated with each alternative for each resource evaluated in the EA. A summary of proposed mitigations and best management practices (BMPs) is provided after the table.

Table FNSI-1. Summary of Environmental Impacts

Resource/Issue	Preferred Alternative	No Action Alternative
Cultural Resources	No historic properties affected	No Effect
Biological Resources	Minor impacts from the loss of 142 acres of vegetation, disruption to habitat, and elevated game animal harvest from access improvement	Minor impact from sustained use of Bonnifield Trail and associated wildlife disturbance and vegetation degradation. No new impacts from winter trail.
Geology and Soils	Minor impacts from potential permafrost degradation	Moderate impacts from the sustainment of Bonnifield Trail usage and resultant soil degradation
Water Resources	Minor impacts from potential subsidence and resultant hydrologic alteration	Moderate impacts from the sustainment of Bonnifield Trail usage and resultant hydrologic alteration
Land Use	Moderate beneficial impacts to military training land use, potential moderate beneficial impacts to recreation land use (contingent upon recreational users compliance with protective restrictions)	No Effect
Traffic and Transportation Systems	Minor impact from increases military traffic in vicinity of Salcha, minor beneficial impact from decrease in military traffic in vicinity of Fairbanks as access point shifts	No Effect
Hazardous Materials and Hazardous Waste	Moderate beneficial impact as fuel tankage and air transport of hazardous materials would decrease, access route would become safer and more reliable	Moderate impact from sustained high level of tankage over the Bonnifield Trail and continued use of aircraft resupply
Cumulative impacts	Minor impact from increased military and recreational usage	No Effect

Mitigation Measures

The Proposed Action incorporates a number of standard measures, including best management practices (BMPs) where appropriate, to reduce and/or eliminate potential impacts. In recent years, both the USAG Alaska and U.S. Army Alaska (USARAK) have produced a variety of NEPA analyses including Army force transformation efforts, the addition of Soldiers and new equipment, a general increased use of training lands, and range development projects throughout USARAK ranges. These documents have also identified many regulations, policies, and management programs, BMPs, and specific mitigation measures used to avoid, minimize, and mitigate various adverse impacts to the affected environment at Fort Wainwright. The following example documents provide examples of BMPs and mitigation measures that are ongoing and incorporated as baseline management techniques employed by the USAG Alaska for land management, including this action. No new mitigation measures are proposed for the construction of the winter trail in the Tanana Flats Training Area.

- *Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska Final Environmental Impact Statement (EIS), August 2013.*

- *Range Complex and Training Land Upgrades Finding of No Significant Impact and Programmatic Environmental Assessment, March 2010*

- *U.S. Army Alaska Regulation 350-2 Training Range Safety, July 2011*

- *U.S. Army Garrison Fort Wainwright Regulation 190-13 Outdoor Recreation Policies and Enforcement on Fort Wainwright Installation Lands and Waters, October 2013*

- *Integrated Natural Resources Management Plan (INRMP), 2013; 2007 INRMP EA; and 2013 INRMP Update Record of Environmental Consideration*

- *Integrated Cultural Resources Management Plan (ICRMP), 2013; 2000 ICRMP EA; and 2012 ICRMP Update Record of Environmental Consideration*

- *Integrated Training Area Management (ITAM) Plan and ITAM EA, October 2005 and June 2005, respectively*

Cumulative Effects Analysis

The Army conducted a cumulative impact assessment to determine whether the combined effects of each alternative along with other projects in the region might be significant. After review of past, present, and reasonably foreseeable future actions occurring in the same region of influence as the Proposed Action, the Army determined that none of the alternatives would result in cumulative impacts that were significant for any resource areas.

Public/Agency Involvement

The EA and draft FNSI were made available for review and comment for 30 days from 25 July – August 25, 2018. The documents were made available for review at: https://www.wainwright.army.mil/index.php/about/environmental; the Noel Wien Public Library located at 1215 Cowles Street, Fairbanks, Alaska; and distributed to appropriate agencies, Tribal organizations, and other interested parties. The Army received comments from the Alaska Department of Fish and Game, U.S. Fish and Wildlife Service, Fairbanks North Star Borough Historic Preservation Commission and the Nenana Native Association. The comments and Army responses are presented in Appendix B.

Conclusion

Based on the review of the information contained in the EA, the USAG Alaska has determined through this FNSI that implementing the preferred alternative would not significantly affect the quality of the environment within the meaning of NEPA Section 102(2)(C). The preparation of an environmental impact statement for the Proposed Action is not required.

Point of Contact

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Commanding

26 SEP 2018

Date

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U.S. ARMY GARRISON ALASKA

TANANA FLATS TRAINING AREA WINTER TRAIL ENVIRONMENTAL ASSESSMENT

1. INTRODUCTION

1.1. Project Background

The U.S. Army Garrison Alaska (USAG Alaska) proposes to construct a winter trail within the Tanana Flats Training Area (TFTA), to be hereafter referred to as the winter trail. The winter trail would provide more consistent and safer access to the Blair Lakes Range Complex (BLRC) and surrounding training areas.

The TFTA is located south of the Richardson Highway from Fort Wainwright. This area contains approximately 644,701 acres of training area of which 56,835 acres are impact area. The TFTA is bordered on the north and east by the Tanana River, on the west by the Wood River, and on the south by the 34 grid line (Figure 1). The terrain is generally muskeg bog with limited high ground around Blair Lakes, Wood River Buttes, Clear Creek Butte, and Salmon Loaf. Access during the summer is limited to aircraft or boat due to the lack of a connected road system. In the winter an ice bridge can be constructed across the Tanana River making the TFTA more accessible. An airstrip is located in the southern area (Clear Creek Assault Strip) as well as an airstrip adjacent to Blair Lakes. Training facilities in the TFTA include four Landing Zones on Clear Creek Butte and Salmon Loaf, three Firing Points, three Drop Zones, the Blair Lakes Range Complex, and eight unimproved Landing Zones around Wood River Buttes, Dry Creek, and McDonald Hills (INRMP 2013).

The most prominent Department of Defense (DoD) facility in the TFTA is the U.S. Air Force's Blair Lakes Range Complex (BLRC), a 63,100-acre tract within the Army's TFTA. Access and use of Army lands is authorized by the Air Force's Land Use Permit. The BLRC and surrounding training areas (Clear Creek Assault Strip, the Blair Lakes upland areas, Clear Creek Butte and Salmon Loaf) provide Soldiers an effective training environment that simulates realistic training scenarios. The Air Force started development of the BLRC in the early 1970s and has since used the range as an important training facility for strafing and bombing practice. In early 1993, the Air Force implemented a 25-year plan to improve the infrastructure at the range, eventually constructing a new Range Maintenance Complex, heliport, and gravel pit access road.

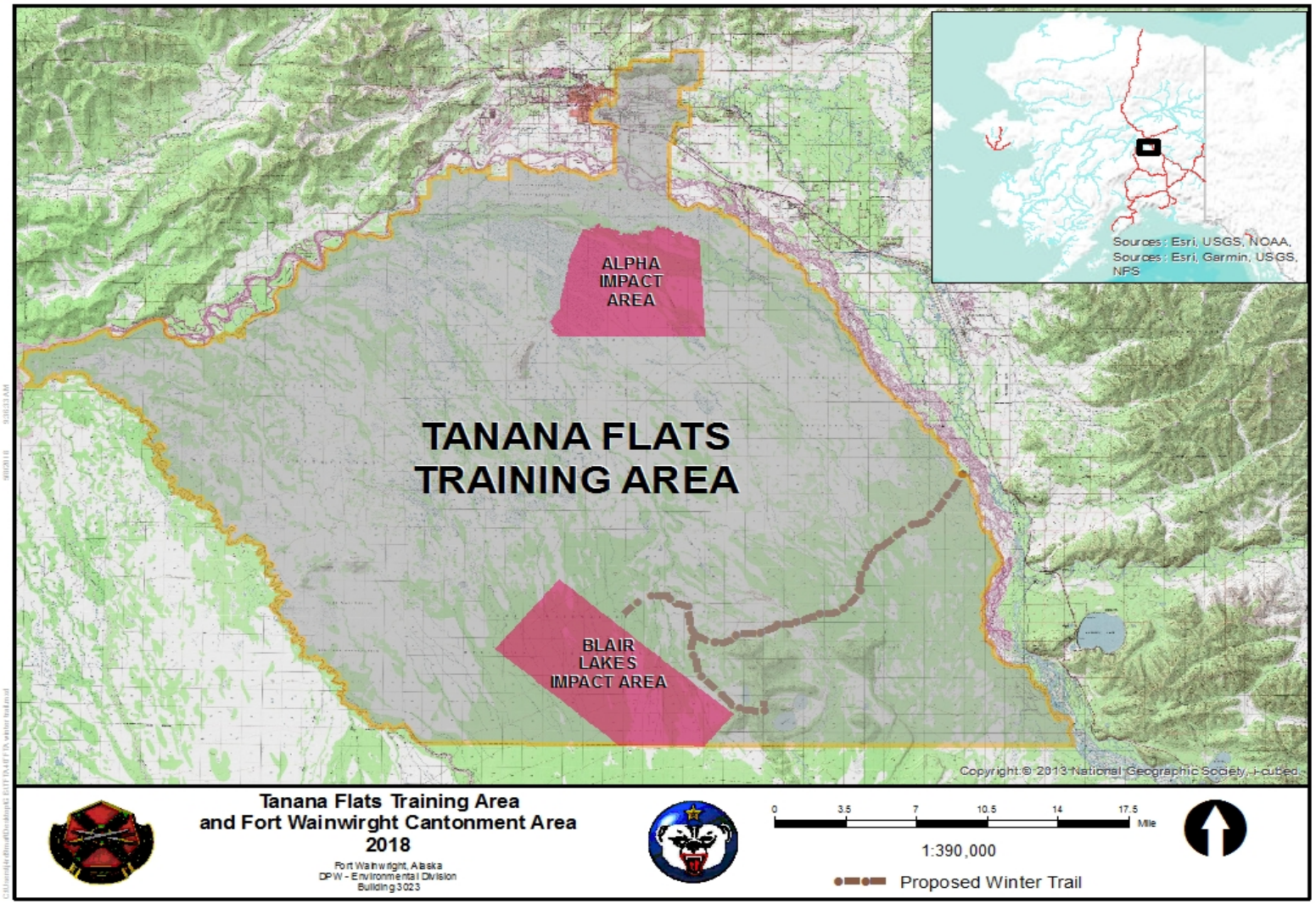

Figure 1. Tanana Flats Training Area (TFTA).

The BLRC is continuously staffed by Air Force civilians belonging to the 354th Civil Engineer Squadron tasked with grounds maintenance and construction projects. Air Force personnel assigned to the BLRC generally work six days on, then six days off, and crew changes are usually facilitated by fixed or rotary wing aircraft. The BLRC is currently resupplied by aircraft and the 30-mile-long Bonnifield Trail in winter. Use of the Bonnifield Trail is limited by construction of an ice bridge over the Tanana River every other year. The Bonnifield Trail provides access for fuel delivery trucks, which must transport two years of fuel due to the alternating nature of the trail's operation. The ice bridge over the Tanana River can only be constructed under appropriate weather and water conditions, which puts limitations on the Air Force's ability to resupply the BLRC.

The Bonnifield Trail was constructed in 1908-09 to provide access from Fairbanks to the mines on the north flanks of the Alaska Range. It is a 50-mile-long route extending from the south end of Cushman Street in Fairbanks, across the Tanana River, due south through the TFTA into the headwaters of the Bonnifield Creek and the center of the Bonnifield mining district. It was built as a winter sled route by cutting trees and shrubs and removing the stumps. The trail was originally constructed to an average width of 10 feet. The trail is used today by the military to access training lands as far south as Clear Creek Buttes and the BLRC. The trail also sees recreation traffic, primarily snow-machines in the winter and some all-terrain vehicle (ATV) use in the summer. A century of use has widened the trail, caused some deviations from the original trail alignment, as well as rutting, subsidence, and hydrologic disturbances. These disturbances require that the military conduct vegetation maintenance and grading snow into rutted areas in order to safely utilize the trail.

The Army has been investigating alternative, more consistent means of access to the BLRC and surrounding training lands in the TFTA for over 10 years, but the lack of a bridge over the Tanana River has been a previously insurmountable obstacle to that effort. The situation was altered in 2014 with the completion of the Alaska Railroad Corporation's Tanana River Bridge near Salcha, Alaska.

After construction of the bridge, the Army began researching the development of a winter trail alignment and construction methodology that would present minimal environmental impacts while still achieving the project purpose of providing safe and consistent access to DoD facilities and training areas in the TFTA. The route and construction method presented in this document were developed to avoid and minimize impacts to wetlands, permafrost, cultural resources, vegetation, and biological

resources such as fish and wildlife. The proposed construction by hydro-axe during frozen winter months is an attempt to improve on past trail construction methods, which generally involved vegetation and soil removal by bulldozer.

1.2. Purpose and Need for Proposed Action

U.S. Army Garrison Alaska (USAG Alaska) proposes to construct a winter trail to improve access to the Blair Lakes Range Complex (BLRC) and surrounding training areas in the TFTA near Salcha, Alaska (Figure 2). The trail would be used to gain more consistent and safer access to the facilities in TFTA by linking the winter trail to the Tanana River Bridge near Salcha, Alaska. Access to the DoD facilities in TFTA is currently provided by constructing an ice bridge over the Tanana River every other year and traversing the Bonnifield Trail during the winter. The winter trail would support an Eielson Air Force Base crew rotation at BLRC facility as well as facilitate access by the Army to facilities within the TFTA.

The current use of the Bonnifield Trail to access DoD facilities in TFTA is inadequate because (1) the current method of access is inconsistent and dependent on favorable weather conditions and, (2) unsafe conditions are present in the existing operational condition.

Current access to the TFTA requires that the Tanana River freeze to adequate depth to support the weight of vehicular traffic, including fuel tankers. Freeze-up of the river can vary significantly from year to year, restricting the operational season and impairing planning. The ice bridge is ungrounded and susceptible to collapse from shifting channels. The nature of the ice bridge also requires constant maintenance and monitoring in order to determine its condition and capacity. The current operational time-frame for accessing the TFTA via an ice bridge is February through March. Construction of a winter trail from the Tanana River Bridge could allow access as early as October under appropriate weather conditions; which would include the development of adequate seasonal and/or snow cover to prevent unacceptable damage to the natural and land use resources present in the proposed trail alignment. This inconsistency in access requires that the Air Force maintain two years of fuel at the BLRC onsite and be resupplied biennially. In addition, utilization of the Tanana River Bridge cuts down on travel time to the Blair Lakes area since the overall route is reduced as well as creates efficient access by means of the Richardson Highway, and removes military traffic from the South Cushman Street area in Fairbanks. The proposed route also cuts down on the number of stream crossings, which reduces the time and costs involved in constructing ice bridges within the TFTA.

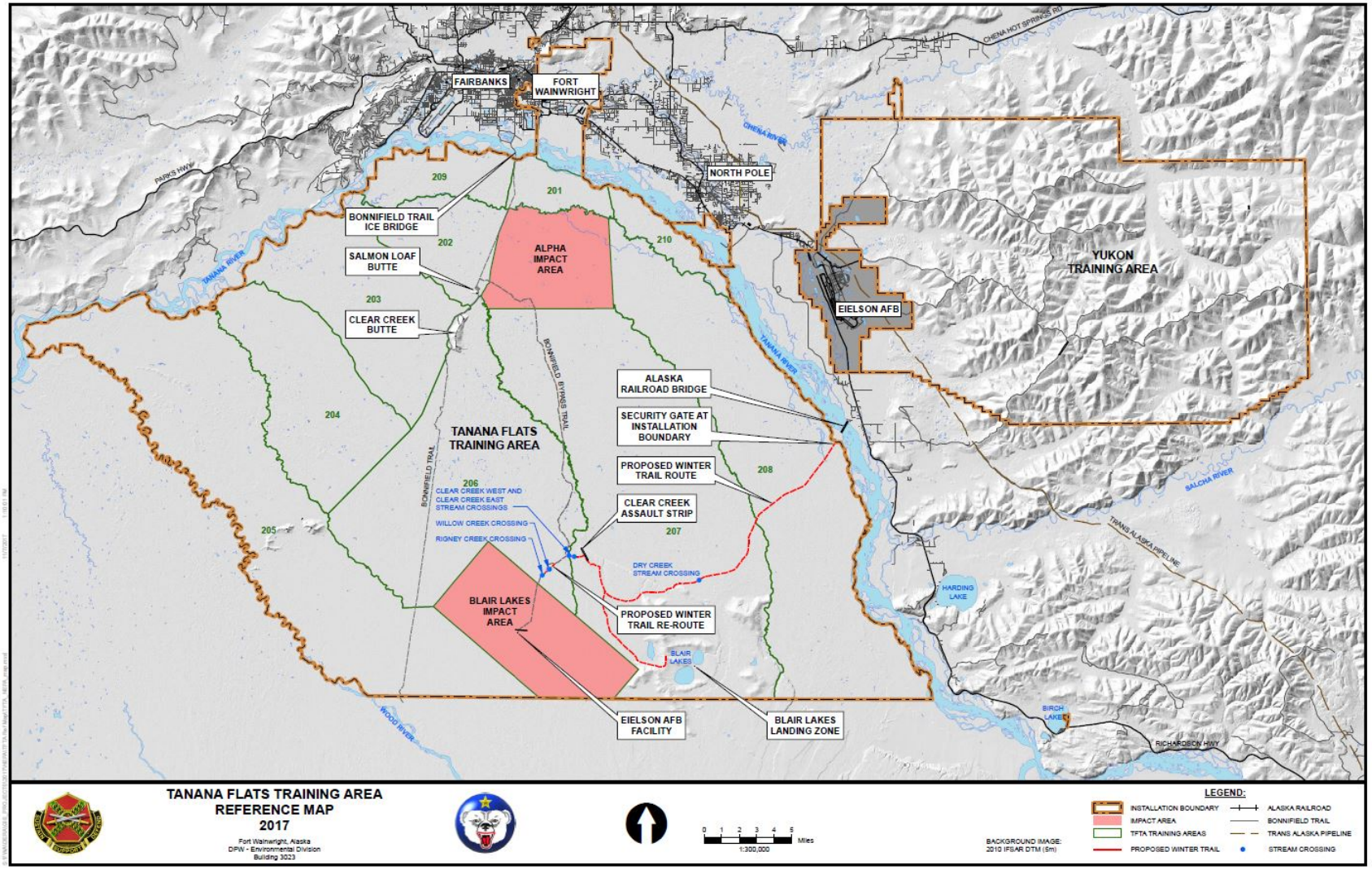

Figure 2. Proposed winter trail alignment (Preferred Alternative)

A portion of the current Bonnifield Trail alignment passes through Alpha Impact Area, which requires an unexploded ordnance (UXO) survey for winter trail construction and maintenance. Constructing a new winter trail would reduce safety concerns by allowing the military to abandon that section of the Bonnifield Trail and gain access to the TFTA via a safer route.

1.3. Scope of Environmental Analysis

The USAG Alaska has prepared this EA to assess the potential direct, indirect, and cumulative impacts associated with implementation of the Proposed Action and the No Action alternatives. To understand the environmental consequences of the decision to be made, the EA evaluates the environmental impacts of the alternatives. This EA was prepared in accordance with the National Environmental Policy Act (NEPA) of 1969 (42 USC 4321 *et seq*.), Council on Environmental Quality (CEQ) Regulations 40 Code of Federal Regulations (CFR) Parts 1500-1508, and AR 32 CFR Part 651 (*Environmental Analysis of Army Actions*). A specific requirement for this EA is an appraisal of impacts of the proposed project, including a determination of a Finding of No Significant Impact (FNSI) or a Notice of Intent (NOI) to prepare an Environmental Impact Statement (EIS).

The proposed winter trail represents a concerted effort to balance the military mission with conservation of the environment through its avoidance of sensitive resources, winter operational and construction window, and the selection of a construction methodology intended to minimize disturbance and provide a protective ground cover through the discharge of chipped vegetation. The TFTA has been used to meet the needs of the DoD mission in Alaska since it was withdrawn from public lands on 8 August 1941 by President F.D. Roosevelt under Executive Order 8847, for the use of the DoD (then the War Department). Proposed means of improved access into the TFTA have been discussed and evaluated since this time, with the most recent being the *Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska Final Environmental Impact Statement (EIS), August 2013* (JPARC EIS), which included proposed trail alignments for an all-season road. The current proposal presents a means for improving access by utilizing the recently constructed Tanana River Bridge. The decision to move forward with a winter trail proposal and not an all-season road stems from the extraordinary costs associated with constructing a graveled road and bridges in this difficult terrain coupled with the current fiscal environment and lack of an all-season road project sponsor. The need for an all-season road remains; however, this current proposal is viewed as a way to improve access, meet current mission requirements, conserve environmental resources, and remain fiscally responsible. Additional proposed work to improve access into the TFTA beyond the current winter trail proposal will receive additional NEPA analysis prior to implementation.

1.4. Public and Agency Involvement

In accordance with 32 CFR §651, the Army provides opportunities for the public to participate in the NEPA process to promote open communication and to improve the decision-making process. Persons and organizations having potential interest in the Proposed Action are encouraged to participate in the environmental analysis process.

The USAG Alaska invited Federal, state, and local agencies, along with tribal governments and non-governmental organizations to participate in a 30-day scoping period. These agencies were sent a letter summarizing the Proposed Action and a map of the project area on 13 November 2017. The scoping period ended on 15 December 2017. The agency responses are provided in Appendix A.

The following agencies were contacted:

Federal Agencies

- Bureau of Land Management
- U.S. Army Corps of Engineers, Regulatory Division
- National Park Service, Cultural Resources Team
- National Park Service, NHL Program Coordinator
- U.S. Fish and Wildlife Service, Planning Assistance Branch
- Natural Resources Conservation Service

State Agencies

- Alaska State Historic Preservation Office
- Alaska Department of Fish and Game, Wildlife Division
- Alaska Department of Fish and Game, Habitat Division
- Alaska Department of Transportation and Public Facilities
- Alaska Department of Natural Resources
- Alaska Railroad Corporation
- Alaska Department of Environmental Conservation, Water Quality Division

Tribal Governments

- Native Village of Tetlin
- Nenana Native Association
- Native Village of Tanacross
- Village of Dot Lake
- Northway Village
- Healy Lake Village

Non-Governmental Agencies

- Tanana Chiefs Conference, Realty Branch

- Tanana Yukon Historical Society

Local Agencies

- Fairbanks North Star Borough, Historic Preservation Commission

This EA reviewed and incorporated applicable comments. The main themes identified from the comments received were for the Army to evaluate long-term use (e.g. all-season road), discuss the plan for two temporary bridges currently across Boundary and BeeBee Sloughs, and discuss general impacts to wildlife, vegetation, and the potential for wildfire. The Army has considered these comments and incorporated these concerns into the EA where appropriate.

1.5. Public Comment Period

The Notice of Availability (NOA) for the EA and draft FNSI has been published in the Fairbanks Daily News-Miner. The publication of the NOA initiated a 30-day comment period, during which the Army invited the general public, local governments, state agencies, and other Federal agencies to submit comments or suggestions concerning the analyses and alternatives addressed in the EA and draft FNSI. Copies of the EA and draft FNSI were made available for public review at libraries in the region and on the Fort Wainwright website at: https://www.wainwright.army.mil/index.php/about/environmental.

The Army consulted with Alaska Native tribes in accordance with the requirements of DoD Instruction 4710.02, DoD Interactions with federally recognized Tribes; Executive Order (EO) 13175, Consultation and Coordination with Indian Tribal Governments; the DoD American Indian and Alaska Native Policy, and Alaska Implementation Guidance; and the Department of the Army American Indian and Alaska Native Policy.

The Army reviewed and considered comments received during the public comment period. No comments received during the public comment period required revision of the environmental assessment, so the Army may execute the FNSI and proceed with the Proposed Action.

Comments received during the public notice period and the comment matrix containing the Army's responses are attached to the environmental assessment as Appendix B.

1.6. Cooperating Agencies

NEPA mandates that Federal agencies responsible for preparing NEPA analyses and documentation do so "in cooperation with state and local governments" and other agencies with jurisdiction by law or special expertise (42 U.S.C. §§4331(a), 4332(2)).

The CEQ regulations addressing cooperating agency status (40 CFR §§1501.6 and 1508.5) allow Federal agencies (as lead agencies) to invite tribal, state, and local governments, as well as other Federal agencies, to serve as cooperating agencies in the preparation of EAs. Because the EA addresses potential impacts of implementing the Proposed Action on the TFTA, the USAG Alaska exercises sole discretion regarding the management of training lands under its purview. The Proposed Action does not represent significant impacts to resources under the jurisdiction of any Federal or state agencies; therefore, no agencies were invited to be cooperating agencies and no agencies requested that status during the scoping period. There are no cooperating agencies for the proposed winter trail project.

1.7. Decision to be Made

The intent of this EA is to provide an understanding of the potential environmental impacts resulting from the implementation of the preferred alternative; the construction and operation of a winter trail in the TFTA. This document is intended to serve as the NEPA analysis for the proposed project and inform the public and the decision maker regarding the affected environment and potential environmental impacts incurred by the implementation of the preferred alternative.

The USAG Alaska Garrison Commander will decide whether to implement the Proposed Action as discussed in Chapter 2. If appropriate, the final decision will be documented in the FNSI. The Garrison Commander will consider all relevant information and stakeholder issues of concern as part of the EA process.

2. ALTERNATIVES TO THE PROPOSED ACTION

2.1. Proposed Action

The United States Army Garrison Alaska (USAG Alaska) proposes to construct a winter trail approximately 29.3 miles in length and 40 feet wide in the TFTA from the Tanana River Bridge to the Clear Creek Assault Strip and Blair Lakes Hills Area. The trail would be constructed by hydro-ax when the ground is sufficiently frozen in order to minimize ground disturbance, and military usage of the trail would occur during the winter months, generally October to March depending on weather and ground conditions.

2.2. Screening Criteria

In compliance with the Army and CEQ regulations implementing NEPA, the Army must consider reasonable alternatives to the Proposed Action. Only those alternatives determined to be reasonable relative to their ability to fulfill the purpose and need for the Proposed Action warrant detailed analysis. To be considered reasonable, an alternative

must fulfill the purpose and need for the action, as well as be technically and fiscally feasible.

The Army established seven screening criteria that balance mission readiness and landscape management and include:

1. Safe and reliable access to the Blair Lakes and surrounding training areas
2. Minimize steep slopes along route
3. Minimize wetland acres impacted
4. Minimize permafrost soils impacted
5. Minimize stream crossings
6. Minimize change to current hydrology systems
7. Minimize impacts to cultural resources

2.3. Alternatives Considered

2.3.1. Preferred Alternative: Construct a Winter Trail within the TFTA

The preferred alternative is to construct a winter trail within the TFTA. The winter trail would begin at the terminus of the Tanana River Bridge and would fork just before the Clear Creek Assault Strip; the 21.5-mile-long main trail would connect to the existing Blair Lakes Range Complex winter trail, and the 7-mile-long southern fork would connect to the existing Blair Lakes Landing Zone Winter Trail (Figure 2). A short (0.8 mile long) section of new trail would also be constructed to reroute the existing winter trail on the west side of the Clear Creek Assault Strip in order to avoid a problematic area impounded by beaver activity. The winter trail would be constructed after the ground has frozen and layered with sufficient snowpack and be approximately 29.3 miles in length and 40 feet wide. Construction methodology would include using a hydro-ax to only remove the vegetation while leaving the ground surface intact in order to reduce permafrost subsidence and erosion.

Hydro-ax, as it is used in this document, is a generic term for a class of heavy equipment designed to clear vegetation above ground level. Most hydro-ax variants are articulating wheeled vehicles, but tracked versions are also available. A hydro-ax can be equipped with a masticating drum head that mulches shrubs and smaller trees in-place. Timber feller type hydro-axes have a large circular blade oriented parallel to the ground to cut trees off near the base of the trunk and hydraulic jaws to manipulate the tree after it is cut. Either type, or both types, of hydro-ax could be used for the preferred alternative, dictated by the site conditions. Larger trees that cannot be felled by the hydro-ax will be cut by chain saw. The disposition of salvageable timber would be coordinated with the Bureau of Land Management (BLM) and in accordance with the Army and BLM's timber policies.

Hydro-ax vegetation would be left in place to provide protective insulation to the permafrost underneath the trail. Once adequate snowfall accumulates on the trail, small unit support vehicles (SUSV) or similar low ground pressure tracked vehicle would be used to compact the snow. This would be completed after every substantial snowfall event during road maintenance. Road graders would be used as needed to provide a smooth grade to the trail surface, and low sections such as ruts or depressions would be filled with snow and graded smooth.

Most of the smaller stream crossings will likely be dry or with ground-fast ice as the winter season progresses, so no ice-bridge construction is anticipated to be required in the small drainages. However, new ice-bridge crossings at Dry Creek, Boundary Slough, Beebee Slough, and Beaver Pond Creek would be constructed, with the exact construction method to be determined by the condition of the stream crossing upon freeze up. Existing winter trail crossings on Clear Creek East and West, Rigney Creek, and Beaver Pond Creek would remain in use to facilitate access to the BLRC and surrounding training areas. It is anticipated that if water is needed during construction and maintenance of the winter trail, it would be drawn from multiple sources within the TFTA. Fish Habitat and Temporary Water Use Permits have been secured by the Army from the State of Alaska's Department of Fish and Game (ADFG) and Department of Natural Resources (DNR).

Two temporary bridges currently exist over Boundary and BeeBee Sloughs on the western end of the Tanana River Bridge (Figure 2). These bridges were constructed by the Alaska Railroad as part of the Northern Rail Extension effort in 2014 to facilitate construction of the larger Tanana River Bridge. They are currently permitted by the State of Alaska authorizing the installation and use of the bridges. The permit requires that the Alaska Railroad remove these bridges by March 31, 2020. The Army understands that the temporary bridges are owned by the Alaska Railroad and that they hold the permit for use, and is therefore responsible for removal of the bridges by the permit stipulations. The Army has considered this in relation to its impacts on the Proposed Action and has determined that even if the bridges are removed, these sloughs could be crossed using the ice bridge construction techniques similar to other permitted ice bridge crossings in the TFTA; e.g., the ice bridges at Clear Creek East and West, Rigney Creek, and Beaver Pond Creek. At such time, the Army would pursue requisite permits from appropriate State and Federal agencies to facilitate crossing Beebee and Boundary Sloughs.

The use of the winter trail is anticipated to decrease the use of the Bonnifield Trail, which is currently used and the primary means of accessing the TFTA. However, the

Bonnifield Trail is expected to remain in use, at least up to Clear Creek Butte and Salmon Loaf in the northern portion areas of the TFTA. The ice bridge across the Tanana River at the end of South Cushman Street will no longer be regularly constructed since the Tanana River Bridge would be the new primary means of access. The DOD would retain the option of constructing an ice bridge over the Tanana River rear South Cushman Street, as needed for training.

This alternative meets all of the screening criteria because it provides a means for accessing the Blair Lakes and surrounding training areas in a safe and consistent manner. It also avoids or minimizes effects on features such as wetlands, hydrology, cultural resources and permafrost, and avoids steep hill slopes to the extent practical.

2.3.2. No Action Alternative: No Winter Trail Construction within the TFTA

Under this alternative the Army would not construct a winter trail within the TFTA. Existing routes of access to the BLRC and surrounding training areas would be used, which consist of the Bonnifield Winter Trail and aviation access. Although the No Action Alternative does not meet the purpose and need of the Proposed Action, it is carried forward for analysis through the EA as required by the Army's and CEQ's NEPA implementing regulations. The No Action Alternative serves as a baseline against which the impacts of the action alternative can be measured.

2.3.3. Alternatives Considered but Eliminated from this Study

Construct an All Season Road: Consideration of an all-season road is not appropriate at this time due to the speculative nature of securing funding for design and execution. Proposed means of improved access into the TFTA have been discussed and evaluated since the land was withdrawn for military use, with the most recent being the *Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska Final Environmental Impact Statement (EIS), August 2013* (JPARC EIS), which included proposed alignments for an all-season road. The current proposal presents a means for improving access by utilizing the recently constructed Tanana River Bridge. The decision to move forward with a winter trail proposal and not an all-season road stems from the extraordinary costs associated with constructing a graveled road and bridges in this difficult terrain coupled with the current fiscal environment and lack of an all-season road project sponsor. The need for an all-season road remains; however, this current proposal is viewed as a way to improve access, meet current mission requirements, conserve environmental resources, and remain fiscally responsible. Additional proposed work to improve access into the TFTA beyond the current winter trail proposal will receive additional NEPA analysis prior to

implementation. For these reasons the all-season road alternative has been eliminated from further consideration in this EA.

3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

3.1. Introduction

This chapter describes the affected environment and environmental consequences of the Proposed Action within the TFTA. It provides information to serve as a baseline from which to identify and evaluate environmental changes associated with implementation of the Proposed Action. Immediately following the affected environment discussion for each resource is the presentation of environmental consequences or affects for each alternative. Any mitigation measures identified to reduce or eliminate the impact of an alternative on a resource are identified within the analysis for that resource area. This organization is intended to allow the reader to focus their review on the existing condition and impacts to a particular resource area of concern.

The qualitative terms used to assess the anticipated impacts associated with each of the alternatives are generally defined as:

- **None** – No measurable impacts are expected.

- **Minor** (less than significant) - Short-term but measureable adverse impacts are expected. Impacts may have slight effects on the resource.

- **Moderate** (less than significant) – Adverse impacts are expected to occur, impacts would be noticeable and would have a measurable effect on the resource.

- **Significant** – Adverse impacts would be expected; impacts would be obvious and would have a serious consequence on the resource.

- **Beneficial** – Only beneficial impacts are expected to occur.

3.1.1. Resource Areas Carried Forward for Analysis

After consideration of the anticipated impacts associated with the Proposed Action, the following resources were identified as having potential impacts in association with implementation of the Proposed Action and carried for detailed analysis in this EA. More detail pertaining to the resource area can be found in Chapter 3.

- Cultural Resources
- Soils and Geology
- Biological Resources
- Water Resources
- Land Use
- Traffic and Transportation Systems
- Hazardous Materials and Hazardous Waste

3.1.2. Resource Areas Dismissed From Further Analysis

After consideration of the anticipated impacts with the Proposed Action, the following resources were identified as not having potential impacts and are dismissed from further consideration:

- ***Air Quality -*** The TFTA is not located within a National Ambient Air Quality Non-Attainment or Maintenance area, and is in attainment for all pollutants. In addition, the Proposed Action will not result in the installation of any permanent stationary sources of air pollutant emissions, and use of combustive engines are anticipated to have a low level of effect. General Conformity does not apply to the Proposed Action, and no air quality permitting will be required. Therefore, air quality is dismissed from further consideration.

- ***Airspace -*** Implementation of the Proposed Action will not change airspace designation within or adjacent to the TFTA. Therefore, airspace is dismissed from further consideration.

- ***Fire Management -*** Implementation of the Proposed Action is not expected to result in increased wildland fire starts or change the management approach or classification within the TFTA. The TFTA is classified as limited for firefighting management, which means it receives a relatively low response level for fighting active wildland fires. As part of the construction approach for the winter trail, the Army will be utilizing a hydro-ax to chip vegetation and leave it where it falls as well as individually cutting commercial grade timber for public firewood use. The Army is not proposing to pile and burn slash material generated from the construction. The use of the trail by the military is also proposed to be in the winter months, which eliminates the likelihood of its use creating wildfires. The Bureau of Land Management in partnership with the Army conduct oversight and response control for any fires occurring on Army training lands, and any wildland fire in the TFTA will receive the same level of response effort. Therefore, fire management is dismissed from further consideration.

- ***Noise -*** Implementation of the Proposed Action is not expected to result in increased noise levels that would negatively impact the TFTA or surrounding lands. The TFTA is a remote training area, and the temporary noise levels generated from construction equipment would be indiscernible to the public. Implementation of the Proposed Action would result in a small increase to vehicular traffic along Tom Bear Road, which accesses the Tanana River Bridge from the Richardson Highway in Salcha, AK. This stretch of road is approximately 1,500 feet in length and passes by several residences; however, the noise from vehicular traffic would be indiscernible from regular traffic on the road and result in no impacts. Therefore, noise is dismissed from further consideration.

- ***Subsistence -*** Implementation of the Proposed Action would not change access to the military installation for subsistence use. The Army will continue to provide access to its training lands in accordance with USARAK Regulation 350-2 *Training Range Safety*, USAG Alaska Regulation 190-13 *Outdoor Recreation Policies and Enforcement on Fort Wainwright Installation Lands and Waters,* and mission requirements. The construction of the winter trail could increase usage of the TFTA by recreational users via the AKRR controlled bridge. Despite the possible increased access, the Army will continue provide access in accordance with regulation and will monitor the trail for impacts from non-military activities and make recommendations on its management if impacts are determined to be negatively affecting the military mission. Therefore, subsistence is dismissed from further consideration.

- ***Energy and Facilities -*** Implementation of the Proposed Action is not expected to result in impacts to energy and facilities because no new use or expansion of facilities is proposed. Therefore, energy and facilities is dismissed from further consideration.

- ***Socioeconomics and Environmental Justice -*** Implementation of the Proposed Action is not expected to result in any impacts to socioeconomics or environmental justice since the action does not include increase/decrease of personnel stationed at Fort Wainwright nor will it disproportionately or adversely impact a minority or low income community. Therefore, socioeconomics and environmental justice is dismissed from further consideration.

- ***Human Health and Safety –*** Implementation of the Proposed Action is not expected to result in safety and health risks per DoD Instruction 6055.1 or violate applicable safety and health regulations. There is no known unexploded

ordnance or contaminated sites along the proposed winter trail alignment. Workers constructing the trail via hydro-ax will work with the Army to eliminate risk associated with working in an active training area. Therefore, human health and safety is dismissed form further consideration.

- ***Climate Change and Greenhouse Gas –*** Implementation of the Proposed Action is not expected to result in a measurable impact to climate change or greenhouse gas emissions due to the numerous management practices and design considerations to minimize the impact of the proposed activity on climate change and greenhouse gas production, including constructing the trail to the extent practicable using a masticating drum head hydro-ax to generate maximum thermal insulation value, minimizing geologic greenhouse gas release by protecting permafrost soil through adaptive trail management, and avoiding the wanton combustion of organic material by extensive use of masticator to reduce firewood quantities. Therefore, climate change and greenhouse gas is dismissed from further consideration.

3.2. Cultural Resources

3.2.1. Affected Environment

Interior Alaska has been continuously inhabited for at least the last 14,000 years (Esdale et al. 2017). Systematic surveys have been conducted to inventory cultural resources on Fort Wainwright's training and cantonment lands since 2002 (Esdale et al. 2012, 2013, 2014, 2015, 2017), but given the size of the area, training lands remain relatively unsurveyed. Furthermore, the close proximity of many significant archaeological sites (e.g., Healy Lake, Walker Road, Swan Point, Mead, McDonald Creek, Broken Mammoth, and Gerstle River) to Fort Wainwright indicate the possibility that significant archaeological resources may occur within unsurveyed areas (Esdale et al. 2015).

The Northern Archaic Tradition coincided with the beginning of the Holocene and a general trend toward warming in the region around 6,000 years ago. Northern Archaic Tradition sites are characterized by the presence of side-notched projectile points, bifacial knives, microblades, and endscrapers, among a variety of other tools. There are twelve sites characterized by the presence of side-notched projectile points on Fort Wainwright (Esdale et al. 2017).

At the end of the Holocene, around 2,500 years ago, a significant shift occurred in lifestyle patterns from a more nomadic existence dependent on big game hunting to a more sedentary occupation focused on seasonally overabundant food sources, storage caches, and more permanent settlements. This change identifies the beginning of the

Athabaskan Tradition. The Athabaskan Tradition is characterized by a diversification in resource use strategies, a de-emphasis on the use of stone tools,, and an increase in the importance of copper (for knives, projectile points, awls, ornaments, and axes) and bone and antler (for projectile points, fishhooks, beads, buttons, and gaming pieces) (Esdale et al. 2017).

There are three archaeological districts on the TFTA. Two contain multi-component, prehistoric sites: Wood River Buttes (30 sites) and Clear Creek Buttes (11 sites). The third, at Blair Lakes, contains 86 prehistoric and historic sites including the homestead of Walter 'Ted' Blair and the second oldest site in the state of Alaska at McDonald Creek. Additionally, there are another 42 sites on the training areas outside the boundaries of the districts. The Preferred Alternative was developed to avoid any impacts to any cultural resources within the project area.

3.2.2. Environmental Consequences

3.2.2.1. No Action Alternative

Under the No-Action Alternative, cultural resources would be preserved in their present state, and there would be no impacts to the cultural resources in the project area.

3.2.2.2. Preferred Alternative: Construct a Winter Trail within the TFTA.

Portions of the proposed winter trail will be located within the boundaries of Blair Lakes Archaeological District (FAI-00335). The Blair Lakes Archaeological District consists of 86 precontact, historic, and multi-component sites (Carlson et al. 2017). Cultural affiliations of precontact sites have been attributed to the Denali Complex, Northern Archaic Tradition, and Late-Precontact Athabaskan Tradition. The McDonald Creek site, the second oldest site in Alaska, at approximately 14,000 years old, is located in the Blair Lakes Archaeological District. Historic resources in the district include residential debris and remnant log structures associated with homesteading. The Blair Lakes Archaeological District is considered to be eligible for the National Registry of Historic Places (NRHP) based on Criterion B for its association with the life of Walter Ted Blair, a prominent individual in Alaskan history, and Criterion D for its yielding of and potential to yield information valuable to the precontact history of the region.

There are 168 archaeological sites in three archaeological districts in the TFTA. Of the 168 sites, 17 have been determined to be eligible for inclusion on the NRHP, one has been determined to not be eligible (FAI-00053), and the eligibility of 150 remain to be evaluated. This area hosts the second oldest archaeological site in Alaska: the McDonald Creek site (FAI-02043). Additionally, there are 42 sites on training lands outside of the boundaries of the three archaeological districts in the TFTA.

The USAG Alaska coordinated this project with the Alaska State Historic Preservation Officer (SHPO) on November 2, 2017 (USAG Alaska 2017; SHPO 2017). The USAG Alaska identified cultural resources within 500 m of the proposed trail (Table 1). The USAG Alaska proposed a finding of no historic properties affected (36 CFR § 800.11(d)(3)). In a response letter dated November 14, 2017, the SHPO concurred with the finding of no historic properties affected (SHPO 2017). Any changes from the current proposed plan or inadvertent discoveries of historic or prehistoric cultural resources, faunal remains, or human remains will be coordinated with installation Cultural Resources Manager and coordinated with the Alaska SHPO.

Table 1. Cultural resources within 500 m of the Affected Environment (USAG Alaska 2017).

AHRS No.	NRHP Status	Distance to Trail (meters)	Depth (cmbs)
FAI-00052	Eligible	149	0-45
FAI-00053	Not Eligible	149	n/a
FAI-02045	Unevaluated	417	5-30
FAI-02048	Unevaluated	225	30-35
FAI-02053	Unevaluated	121	25-35
FAI-02062	Unevaluated	399	0-10
FAI-02235	Unevaluated	286	10-20
FAI-02237	Unevaluated	257	20-30
FAI-02239	Unevaluated	262	10-17
FAI-02323	Unevaluated	388	5
FAI-02391	Unevaluated	111	13
FAI-02392	Unevaluated	223	10-25
FAI-02393	Unevaluated	485	0-30
FAI-02394	Unevaluated	54	10-30

*cmbs (centimeters below surface)
*NRHP (National Register of Historic Places)
*AHRS No. (Alaska Heritage Resources Survey number)

3.3. Biological Resources

3.3.1. Vegetation

3.3.1.1. Affected Environment

A description of the ecotypes found throughout Fort Wainwright Cantonment and training areas is provided in the Fort Wainwright Integrated Natural Resource Management Plan, 2013. The TFTA lies within the circumboreal phytogeographic region, the largest floristic region in the world by area. The vegetation in the project area is characteristic of Interior Alaska lowlands; over two thirds of the approximately 650,000 acres in the TFTA is forest or scrub. Vegetation in the Interior Alaska is

adapted for short growing seasons, long winters, and often shallow soils. Some of the most common tree species in the region are black spruce (*Picea mariana*), white spruce (*Picea glauca*), paper birch (*Betula papyrifera*), and quaking aspen (*Populus tremuloides*). Tamarack (*Larix laricina*) and balsam poplar (*Populus balsamifera*) are also well represented in the tree strata. Forested canopies generate shaded habitat for mosses and often form dense layers beneath the canopies of closed forests. The most common mosses found in boreal forests are bog groove-moss (*Aulacomnium palustre*), sphagnum (*Sphagnum* spp.), and reindeer lichen (*Cladonia spp.*). The most common shrubs are willows (*Salix* spp.), green alder (*Alnus viridis*), dwarf birch (*Betula nana*), resin birch (*Betula glandulosa*), and various Ericaceous shrubs such as Labrador tea (*Rhododendron groenlandicum*), lingonberry (*Vaccinium vitis-idaea*) and alpine blueberry (*Vaccinium uliginosum*). Herbaceous (vascular plants without a persistent woody stem above ground) species are represented by bluejoint (*Calamagrostis canadensis*), various sedges (*Carex* spp.), cottongrass (*Eriophorum* spp.), scattered coltsfoot (*Petastites frigidus*), and intermittently abundant horsetail (*Equisetum* spp.).

The Tanana Flats Ecological Management Unit has six vascular plant species of concern that are known to occur within the area. These plants are being tracked by the Alaska Natural Heritage Program because they are thought to be uncommon or rare in Alaska and/or uncommon or rare globally (Alaska Natural Heritage Program 2013). These species are listed below in Table 2 and are documented in the survey results of Tande et al. (1996). Due to access and sheer vastness, the Tanana Flats is difficult to survey for species of concern and would be hard to know whether any other species listed under the Alaska Natural Heritage Program is present in this particular region (INRMP 2013).

The TFTA has been mapped using the Alaska Vegetation Classification (AVC) developed by Leslie Viereck, et al. The classification system is based as much as possible on the characteristics of the vegetation itself and designed to categorize existing vegetation using a hierarchal system with five levels of resolution. The AVC includes 888 known Alaskan plant communities at the highest level of resolution (fifth level). Three communities are described at the coarsest resolution level (first level): forest, scrub, and herbaceous. Figure 3 is a depiction of the TFTA mapped at first level resolution. The eastern portion of the training area is generally lower in elevation and predominantly scrub and forest, while the western portion has large barren areas in early fire regeneration successional status. Detailed descriptions of the vegetation communities discussed here can be found in the Alaska Vegetation Classification (Viereck et al, 1992).

Table 2. Tanana Flats Training Area rare plant species.

Species	Common Name	Global Ranking	Alaska Ranking
Artemisia laciniata	siberian wormwood	G4?	S3
Cicuta bulbifera	bulblet.-bearing water hemlock	GS	S3
Glyceria pulchella	MacKenzie valley mannagrass	GS	S3S4
Lycopus uniflorus	northern bugleweed	GS	S3S4
Rorippa curvisiliqua	curvepod yellowcress	GS	SIS2
Rosa woodsii var. woodsii	wood's rose	GSTS	S2S3

Alaska Natural Heritage Program Rare Species - Global Rankings

- G3 Either very rare and local throughout its range or found locally in a restricted range (typically 21-100 occurrences)
- G4 Apparently secure globally
- G5 Demonstrably secure globally
- G#G# Global rank of species uncertain; best described as a range between the two ranks
- G#T# Global rank of species and global rank of the described variety or subspecies of the species Q Taxonomically questionable
- ? Inexact

** Alaska Natural Heritage Program Rare Species - State Rankings

- SI Critically imperiled in slate because of extreme rarity or because of some factor(s) making it especially vulnerable to extirpation from the state (typically 5 or fewer occurrences, or very few remaining individuals or acres)
- S2 imperiled in state because of rarity or because of some factor(s) making it very vulnerable to extirpation from the state (typically 6 to 20 occurrences, or few remaining individuals or acres)
- 53 Rare or uncommon in the state (typically 21 -100 occurrences)
- S4 Apparently secure-in state, with many occurrences
- S#S# State rank of species uncertain, best described as a range between the two ranks
- SE Possibly introduced

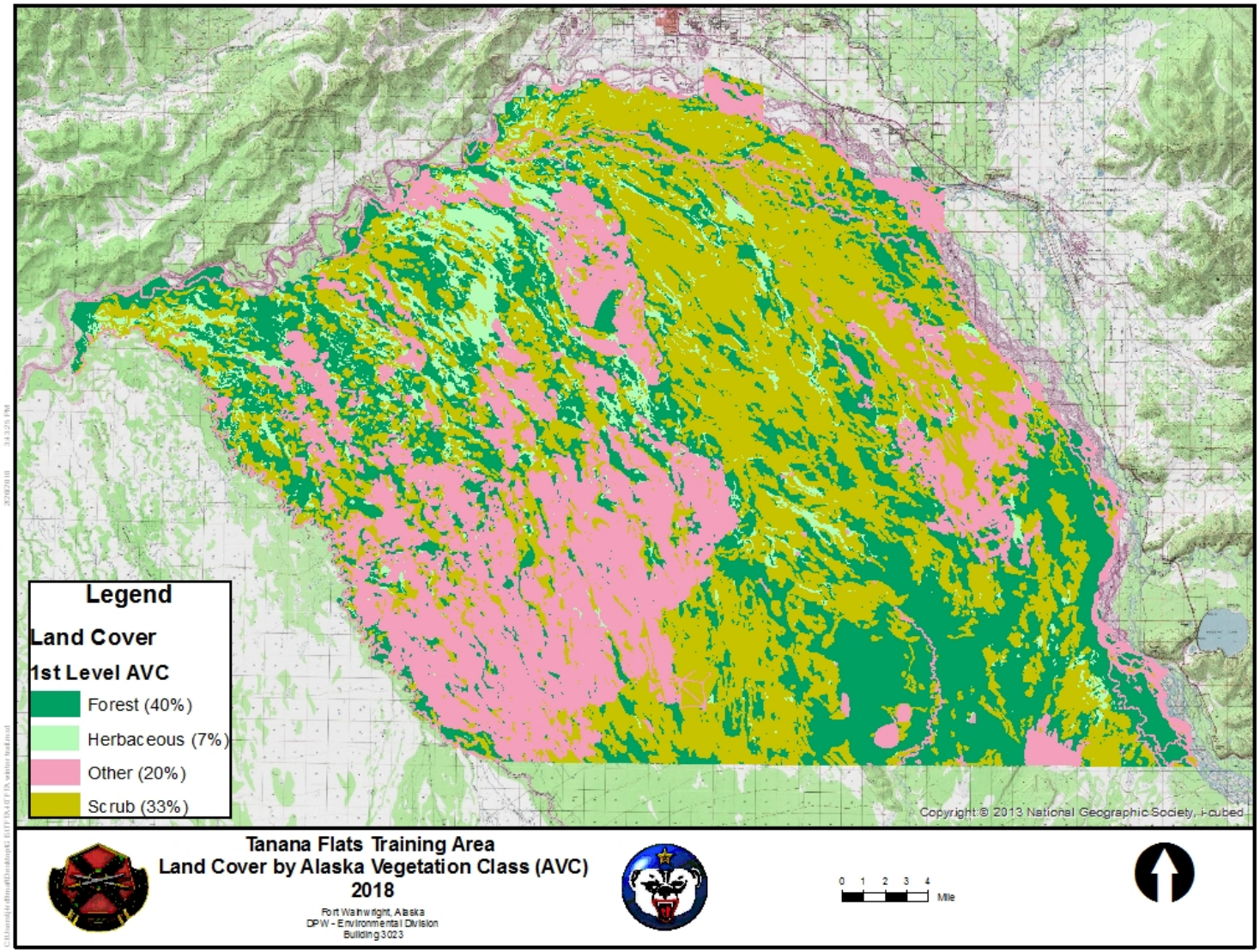

Figure 3. First level AVC in the TFTA. Legend contains percent cover by strata in parentheses

3.3.1.2. Environmental Consequences

3.3.1.2.1. No Action Alternative

The implementation of the No Action Alternative would not incur any additional impacts to vegetation. Existing access routes would continue to be used and existing operational activities, including trail maintenance, would continue to impact vegetation in the current manner.

3.3.1.2.2. Preferred Alternative: Construction of a Winter Trail within the Tanana Flats Training Area

Construction of the winter trail would require the removal of vegetation along the entire alignment. Vegetation clearing would be conducted using a hydro-ax or similar equipment in order to reduce ground disturbance, which can cause erosion and compromise the natural insulation value provided by in-situ organic material. A masticating drum type hydro-ax would be used to the extent practicable to generate mulched vegetation to protect and insulate the trail. This type of equipment can be used for most shrub and black spruce forests due to the relatively small trunk diameters found in those communities. A masticating drum hydro-ax operating in a closed black spruce forest (60%-100% canopy) can generate about 40% to 60% dead organic material cover within the trail alignment (Figure 4).

Some forested areas in the vicinity of Dry Creek may require timber felling equipment due to the diameter of the trees. The disposition of this timber would be coordinated with the BLM. Trails totaling 29.3 miles in length and 40 feet wide would cover 142.2 acres, including 3.7 acres of recent burns and anthropogenically modified areas, as well as 0.4 acres of waterbodies. Forests would be impacted most heavily, with 121.75 acres of clearing proposed. Mixed forest would see 45.2 acres of loss, 43.2 acres of needleleaf forest would be removed, and broadleaf forests would lose 33.5 acres. Scrub impacts would be 15.94 acres: 7.8 acres of low scrub, 7.7 acres of tall scrub, and 0.4 acres of dwarf tree scrub. Herbaceous communities would only lose 0.4 acres.

Figure 5 shows the proposed winter trail in relationship to first level AVC communities. Table 3 shows the impacts to Alaska vegetation level I and II communities.

Figure 4. Dead organic material cover present in 1 m^2 quadrat two growing seasons after masticating drum head hydro-ax clearing in closed black spruce forest.

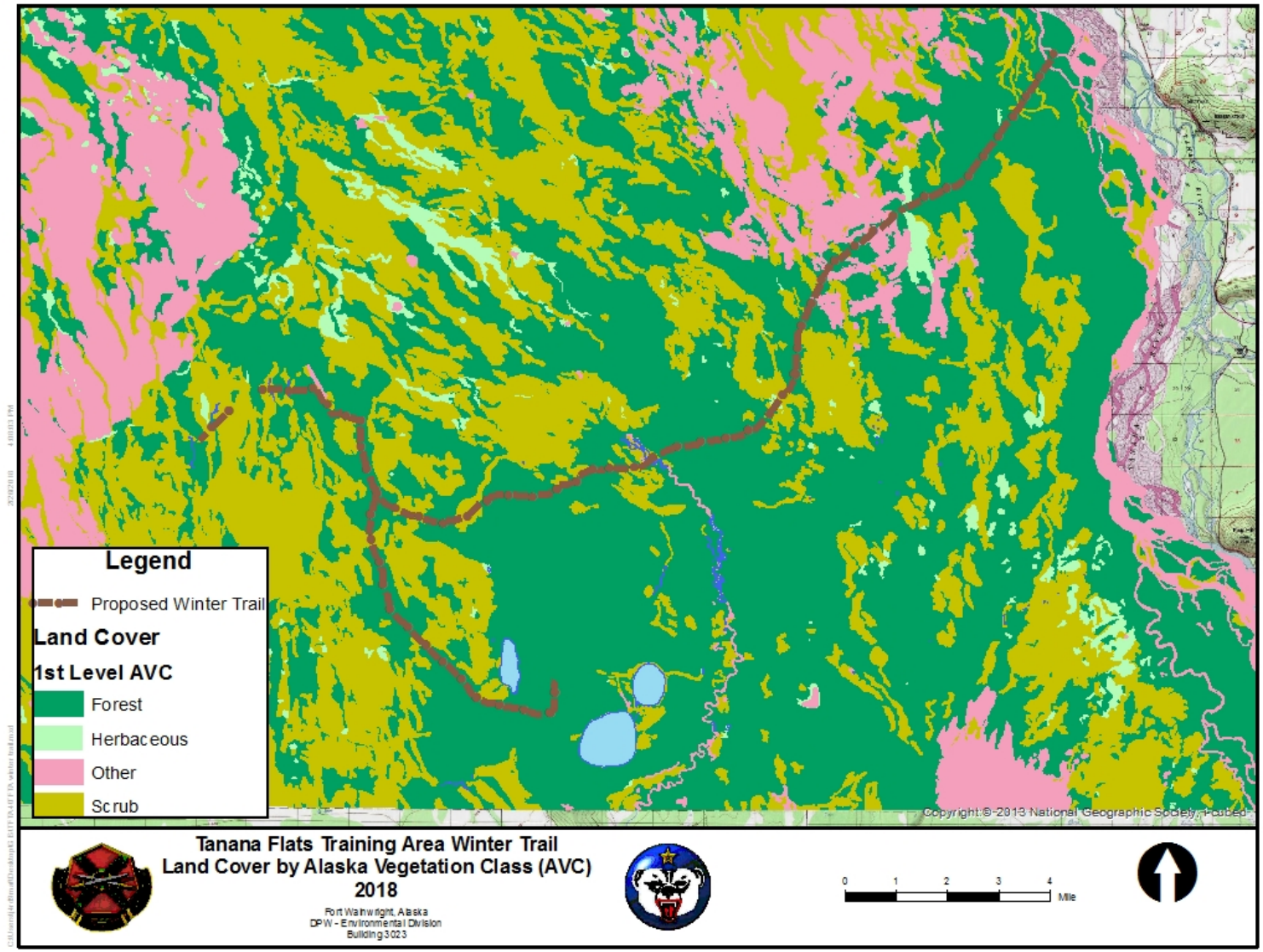

Figure 5. Proposed Winter Trail in relationship to first level AVC communities.

Table 3. Impacts to Alaska Vegetation Classification level I and II communities.

Level I Description	Level II Acreage	Level I Description	Level II Acreage
Needleleaf Forest	43.16	Forest	121.75
Broadleaf Forest	33.48		
Mixed Forest	45.11		
Dwarf Tree Scrub	0.37	Scrub	15.94
Tall Scrub	7.73		
Low Scrub	7.84		
Gramminoid Herbaceous	0.36	Herbaceous	0.36
Recent Burns	3.38	Other	3.74
Anthropogenic Modification	0.36		
Large Streams	0.2	Waters	0.38
Small Streams	0.18		

The vegetation communities that would be cleared under the preferred alternative are abundant in the project area. This clearing will contribute to a myriad of effects through various mechanisms.

Woody vegetation would be removed with a hydro-ax, leaving the moss and grass communities largely intact. Ericaceous shrubs would also be relatively un-impacted due to their height and growth rates. The removal of the tree stratum and associated canopy would alter the light regime within the trail prizm. Additional forest edge would be created, allowing individual plants on the margins of the trail, particularly noticeable in the tree stratum, to grow larger than plants of the same species in the interior reaches of the forest (Figure 6). Forest edges tend to support greater biodiversity in general and alter the vegetation regime. The additional light would reduce the abundance of mosses, but increase the ability of deciduous shrubs and herbs to become established where they had previously been excluded by dense canopies. The additional light would also increase primary productivity and reduce soil moisture through evapotranspiration and radiation. Animals requiring two habitats benefit from the creation of edge; birds would likely be the greatest beneficiary due to the creation of prominent nesting positions overlooking the newly opened trail prism and its increased plant and insect productivity.

Figure 6. A hydro-axed trail through a closed black spruce forest in the Tanana Flats lowlands created in 2016.

It would also allow snow to accumulate in areas that had been previously sheltered, particularly in evergreen forests like those abundant in the project path's black spruce forests. The accumulation of snow would impact seasonal frost development and permafrost in areas it is present. Snow is a thermal insulator and soil temperatures would change more gradually during times it is present. This would have the effect of slowing the progress of soil frost in the the fall. Spring thaw would likely progress more slowly as well; the snow would insulate the ground from the sun's warming rays. The evergreen canopy prevents the accumulation of snow beneath trees, which allows the frost to penetrate deeper and earlier than exposed areas. In the spring, the thick organic layer generally present in black spruce forests acts as insulation to prevent early thawing.

Additional light reaching the surface would warm the ground and increase microbial activity, leading to subsidence caused by the accelerated decomposition of organic material. The additional light would also stymie moss growth, as these organisms thrive

in shady environments. Herbaceous graminoids could become established through the transport of seeds by construction equipment or vehicular traffic and thrive due to the increased light reaching the ground surface by the removal of tree canopy. Fast growing and prolific species such as balsam poplar, paper birch, and green alder may also become established, but these trees would not be allowed to grow beyond sapling size because their presence in the trail is detrimental to the operation of the trail, and maintenance crews would remove them as needed to sustain operations. Gramminoids would become the dominant plant in most areas within the trail.

Impacts to vegetation are unavoidable, however the loss of 142.2 acres of vegetation from a training area consisting of 644,701 acres constitutes only 0.02% of the total area of a largely intact vegetation community. The TFTA does not retain special land status in terms of vegetation conservations and no major shift in vegetation growth that would impact the larger TFTA is anticipated. Impacts to vegetation would be minimized by the employment of numerous management practices and careful consideration during the design of the winter trail alignment. These management practices and design considerations include limiting the trail width to 40 feet; washing construction equipment, military vehicles, and fuel tankers prior to entering the training area to prevent the spread of invasive species; and clearing vegetation after the ground has frozen. The proposed project's impacts to vegetation would be less than significant due to the Army's management practices.

3.3.2. Fish and Wildlife

3.3.2.1. Affected Environment

A list of wildlife species known to exist throughout the Fort Wainwright Cantonment and training areas is provided in the *Fort Wainwright Integrated Natural Resource Management Plan,* 2013. Projects are required to comply with all applicable laws and regulations including the Migratory Bird Treaty Act (MBTA) and Bald and Golden Eagle Protection Act (BGEPA).

3.3.2.1.1. Mammals

Most vertebrate species indigenous to central Alaska can be found on the TFTA. Game species found on the TFTA are managed by the ADFG. The ADFG monitors these species to determine population status, reproductive success, harvest, and home ranges. ADFG also sets bag limits and seasons for these species.

Large mammals on Fort Wainwright include black bear, grizzly bear, moose, and caribou. The TFTA is within Game Management Subunit 20A, which produces more moose than any equivalent size area in the state and provides about 15% of all moose harvested in Alaska (ADFG 2011). Caribou have historically used the TFTA, but

populations have declined over the years, possibly due to predation and severe winters (Young 2015).

Fifteen species of furbearers inhabit the TFTA. These include wolverines (*Gulo gulo*), coyotes, lynx (*Lynx canadensis*), red fox (*Vulpes vulpes*), pine marten (*Martes Americana*), wolves, snowshoe hare (*Lepus americanus*), and red squirrel (*Sciurus vulgaris*). Other species include muskrat (*Ondatra zibethicus*), beaver (*Castor canadensis*), and four species of weasel. River otter (*Lontra canadensis*) exist, but they are not common (U.S. Army Alaska 2004).

Known small mammals include five vole species, two lemming species, two species of mice, and four species of shrew. The little brown bat (*Myotis lucifugus*) is found in wooded areas and in abandoned buildings.

Moose. The most visible wildlife species in the TFTA is moose, *Alces alces.* Moose are herbivores, and their diet varies by season, consuming willow, birch, and aspen leaves and twigs most of the year, while supplementing with aquatic vegetation during the summer, and grazing on grasses and sedges during the spring. TFTA encompasses nearly 20% of Game Management Unit (GMU) 20A, which supports Alaska's largest moose population and harvest. Recent population estimates place the GMU 20A moose population between 14,000 and 15,000 moose (ADFG 2011).

Despite the high densities of moose in the Tanana Flats and an associated high harvest rate, this population has very low productivity, indicating suboptimal moose habitat (Boertje et al. 2007). The twinning rates for Game Management Unit 20A are the lowest in Alaska, particularly for the north central portion of the unit, which coincides with the TFTA (Young 2010, Boertje et al. 2007). This population of moose is economically important to the greater Fairbanks area. Consequently, to sustain high levels of harvest, Game Management Unit 20A has specific intensive management objectives, which include the use of antlerless hunts (Young et al. 2006, Boertje et al. 2009).

TFTA is an important calving area for moose from units 20A and 20B. Spring and summer moose densities increase two to four-fold on TFTA, with eastern migrants from the Chena and Salcha River drainages, and southern migrants from the northern foothills of the Alaska Range. During summer and winter, a large portion of the TFTA's moose population migrates to outlying areas. During winters with higher snow depth, moose often migrate closer to TFTA.

Grizzly bear. Brown and grizzly bears are classified as the same species, *Ursus arctos*, although there are noticeable differences between the two; "brown bears" are

generally found proximal to the coast where they have access to seasonally abundant salmon and a more diverse selection of edible plants, which allows them to grow larger than the “grizzly bears” found in the Interior. At TFTA, which has relatively poor habitat, populations densities are estimated to average about 2.5 bears per 1,000 square miles.

Grizzly bears are hunted during all but summer months. The bag limit is one bear every four regulatory years. Only a few grizzly bears (0-3 annually during the past five years) are harvested from TFTA. From 1997 to 2012, black bears harvested from spring baiting methods averaged 7.6 bears per year (INRMP 2013).

Black bear. Black bears (*Ursus americanus*) are the most abundant, widely distributed, and smallest of the three species of North American bears. Due to sub-optimal habitat conditions, black bear densities are lower in Interior Alaska than other regions of the state. In 1988 USAG Alaska and ADFG began a cooperative study of black bear demographics on TFTA (Hechtel 1991). Between 1988 and 1991, 45 individual bears were captured 111 times. From 1988 to 1990, 29 radio-collared bears were located 916 times. Of these twenty-nine adult bears; eight were adult females (mean age 12 years), nine were sub-adult females (mean age 3.2 years), four were adult males (mean age 7.8 years), and eight were sub-adult males (mean age 2 years). Sixteen bears were offspring of collared females and followed in successive seasons. The sightability of non-denning bears during tracking flights was approximately 49%. Mean home range sizes were used to estimate densities of 46 to 67 bears per 1,000 km^2. Forty-seven den sites were located. Fifteen den sites were in spruce habitat types, nine in birch/aspen stands, seventeen in alder/willow shrubs, six in heath meadows, and none in marshes. Availability of denning sites is not a limiting factor for this population (INRMP 2013). A subsequent 2010 combined ADFG and USAG Alaska study indicated the population was stable and black bears concentrated around Salchakat Slough, Bear Creek, Willow Creek, and MacDonald Creek (Gardner 2012).

Wolf. The most current wolf (*Canis lupus*) population estimate for Game Management Unit 20A, including TFTA, is from 2005 (Young 2009). Based on radio telemetry, aerial surveys, and harvest report, there are 216 to 226 wolves distributed across 29 packs. According to the ADFG, there are three wolf packs whose range may include army lands in the Tanana Flats. There are an additional three packs south of Tanana Flats on Donnelly Training Area and about four packs west of the Wood River. It is assumed that wolf populations are stable. Hunting is allowed during the normal state season for Game Management Unit 20 from August through April with a bag limit of five. Trappers may take an unlimited number of wolves during the trapping season. Wolves are currently monitored by ADFG to determine population size, home range, and effects on prey species (INRMP 2013).

Red fox. Red foxes (*Vulpes vulpes*) are abundant throughout most of Alaska and display a preference for broken country, extensive lowland marshes, and intercrossing hills and draws. Red foxes are easily habituated to anthropogenic activity and are of low conservation concern.

Coyote. *Canis latrans*, the coyote, is another member of the dog family. Coyotes are expanding their range, first showing up in Alaska in the early 1900s and gradually making their way north to the Brooks Range. Coyotes have a somewhat commensal symbiotic relationship with humans, taking advantage of our actions to reduce or eliminate wolves, which will kill coyotes when their ranges overlap, and land clearing to expand their range. Coyotes are opportunistic feeders and their population is closely related to that of their favored prey items, usually hares and small rodents. Coyotes are opportunistically expanding their range in Alaska, including the TFTA

3.3.2.1.2. Avian Species

Although no threatened, endangered, or species of special concern were observed, several Priority Species for Conservation (Boreal Partners in Flight Working Group 1999) may be found on the TFTA. The likely species and their habitats are shown in Table 4.

At least 25 species of waterfowl and 20 species of raptors use Fort Wainwright (BLM and U.S. Army 1994). Twenty-six species of shorebirds, three gull species, and the Arctic tern have also been observed (U.S. Army Alaska 1999). Four species of loon and two types of grebes have been observed to use waterways on the TFTA (U.S. Army Alaska 1999).

Table 4. Boreal Partners in Flight Priority Bird Species and Habitats.

Species	**Habitat**
Gyrfalcon (*Falco rusticolus*)	Arctic and subarctic tundra
Sharp-tailed grouse (*Tympanuchus phasianellus*)	Grassland and shrub
Great gray owl (*Strix nebulosa*)	Spruce and mixed forests, with openings
Boreal owl (*Aegolius funereus*)	Spruce or mixed forests
Black-backed woodpecker (*Picoides arcticus*)	Coniferous forest with dead or dying trees
Hammond's flycatcher (*Empidonax hammondii*)	Mature/old-growth aspen forest
American dipper (*Cinclus mexicanus*)	Riparian areas
Varied thrush (*Ixoreus naevius*)	Thick coniferous forest; old growth
Bohemian waxwing (*Bombycilla garrulous*)	Coniferous and mixed forest
Rusty blackbird (*Euphagus carolinus*)	Wet coniferous and mixed forest
White-winged crossbill (*Loxia leucoptera*)	Boreal forest (white/black spruce, tamarack)

Waterfowl and Cranes. The Tanana River floodplain, on the east portion of TFTA, is a waterfowl concentration area, which is used by breeding waterfowl. Waterfowl are numerous throughout much of TFTA, and an estimated 5,000 cranes, 10,000 geese, and 20,000 ducks inhabit this area during the breeding season. Waterfowl migration peaks in mid-September, with mallards (*Anas platyrhynchos*) and northern pintails (*Anas acuta*) observed most frequently. Trumpeter swans (*Cygnus buccinators*) routinely use the northern and western portions of TFTA for nesting and rearing. TFTA is not an important staging area for Sandhill cranes (*Grus Canadensis*), but the overlying airspace is within a major flight corridor utilized during mid-May and September.

Passerines. The variety of nongame birds on lands associated with Fort Wainwright includes at least 58 passerines. Benson (1999) observed 61 species of birds during a 1998 survey at TFTA. The dark-eyed junco (*Junco hyemalis*), yellow-rumped warbler (*Setophaga coronate*), and Swainson's thrush (*Catharus ustulatus*) were the most

abundant. The lowland forest-thermokarst complex, lowland needleleaf forest, and lowland scrub thermokarst complex supported the greatest number of birds.

Raptors. Twenty species of raptors have been observed in surveys, including two species of eagles, seven species of hawks, four species of falcons, six owl species, and the osprey. An estimated 12,000 raptors migrate through the area in the spring and 23,000 in the fall.

Bald eagle (*Haliaeetus leucocephalus*) nests are found along the Tanana River where over 70% of breeding pairs produce young; mean productivity was 1.6 young per successful pair between 1978 and 1990. Extensive open water, wintering waterfowl, and late salmon runs on the Tanana and its tributaries provide over-wintering opportunities for eagles. Nests are most commonly found in the tops of balsam poplars along the Tanana River, but can also be found in white spruce in off-river locations and higher elevations where balsam poplar are not available. Most nests along the Tanana River are within 300 feet of the shoreline, and summer population estimates range between 75 and 100 pairs. (Ritchie and Ambrose 1996)

A 2010 raptor nest inventory identified 33 nests on TFTA, seven of which were occupied. Three nests were occupied by raptors, one Bald Eagle (single adult), one Bald Eagle (pair of adults), and one Great Gray Owl (single adult); four nests were occupied by Common Ravens (*Corvus corax*). The tree species most selected for nesting was quaking aspen; balsam poplar was the second most utilized tree. Estimated nest tree height from the ground ranged from 30 feet to 80 feet, mean = 52 feet. Nest height from the top of the tree averaged 12.5 feet, and 84% of all nests were considered to be in good condition and 16% in marginal (DPW-FWA 2010).

Shorebirds, Gulls, Terns, and Loons. Twenty-six species of shorebirds, three gull species, and the Arctic tern (*Sterna paradisaea*) have been observed in the TFTA vicinity. Four species of loon and two types of grebes have been observed to use waterways on and near TFTA lands.

3.3.2.1.3. Reptiles and Amphibians

The wood frog (*Lithobates sylvaticus*) is the only amphibian species found at TFTA. No reptiles exist in the area.

3.3.2.1.4. Fisheries

A list of fish species known to exist throughout Fort Wainwright training areas is provided in the Fort Wainwright Integrated Natural Resource Management Plan, 2013. The Proposed Action would require the crossing of the following fish bearing river and

streams, which support the spawning, rearing, or migration of anadromous fishes pursuant to AS 16.05.871(a): Tanana River and associated sloughs, which support Chinook (*Oncorhynchus tshawytscha*), chum salmon (*Oncorhynchus keta*), coho salmon (*Oncorhynchus kisutch*), and whitefish; Clear Creek, which supports Chinook salmon, Arctic grayling (*Thymallus arcticus*), northern pike (*Esox lucius*), and slimy sculpin (*Cottus cognatus*) ; and Dry Creek, which supports Arctic grayling and slimy sculpin. The winter trail stream crossings fall under the Fish Habitat Permit (FH11-III-0007 Amendment No. 2), which has been secured from the ADFG by USAG Alaska.

Most ponds or lakes on TFTA do not support fish populations during winter. These lakes freeze completely or, when ice covered, they lack sufficient dissolved oxygen for fish to survive through the winter.

At TFTA, the Tanana River supports seasonal populations of Arctic grayling, Chinook salmon, chum salmon, sheefish (*Stenodus nelma*), humpback whitefish (*Coregonus pidschian*), round whitefish (*Prosopium cylindraceum*), Arctic lamprey (*Lethenteron camtschaticum*), least cisco (*Coregonus sardinella*), Alaska blackfish (*Dallia pectoralis*), burbot (*Lota lota*), longnose sucker (*Catostomus catostomus*), northern pike, slimy sculpin, and lake chub (*Couesius plumbeus*). Due to sediment loads and winter freezing, the habitat for these fish is considered to be fair. Better fish habitat is found in several clear-running streams in TFTA including Clear Creek, Bear Creek, McDonald Creek, Crooked Creek, and Willow Creek.

3.3.2.2. Environmental Consequences

3.3.2.2.1. No Action Alternative

Under the No Action Alternative, biological resources would continue to be impacted by the operation of the Tanana Flats Training Area in its current manner, and there would be no new impacts to the fish, birds, mammals, other wildlife, or vegetation and the proposed winter trail alignment.

3.3.2.2.2. Preferred Alternative: Construction of a Winter Trail within the Tanana Flats Training Area.

The loss of 142 acres of habitat out of the 655,000 acres in TFTA would not have a significant impact on mammals, birds, or fish by direct habitat loss, fragmentation, or the alteration of movement and migration patterns due to the relatively minor (0.02% of the habitat available) scale of impact and the availability of suitable alternate habitat in the TFTA.

Direct impacts to habitat would include the loss of about 142 acres of vegetated area. Forests would be impacted most heavily, with 121.8 acres of clearing proposed. Mixed

forest would see 45.11 acres of loss, 43.2 acres of needleleaf forest would be removed, and broadleaf forests would lose 33.5 acres. Scrub impacts would be 11.9 acres: 6.7 acres of open scrub and 5.2 acres of closed scrub. Herbaceous communities would only lose .4 acres, and barren areas would contain 3.9 acres of trails. The combined impacts to all three strata of vegetation would be less than 0.02 percent of the total area in the TFTA.

Terrestrial mammals such as moose, bears, and wolves would likely use the trail in their movements, as it would present an easier route for moving within the TFTA. This alteration to movement patterns could increase the visibility of these mammals, which could increase predation and harvest by hunters. Construction of the winter trail would also improve access to the more remote areas of TFTA, which have historically been very difficult to reach. These areas have previously provided refuge for game animals in the TFTA. If the winter trail is constructed, moose harvest in the TFTA could increase due to improved accessibility.

Moose are abundant in the TFTA and being managed aggressively by the ADFG to control their population and reduce the risk of large die-offs due to severe weather or disease. A slight increase in moose harvest or predation in the trail is not expected to appreciably impact the TFTA moose population.

Black bears are also abundant in the TFTA and GMU 20A, with an annual limit of three bears with no closed season. Wolf, bear, fox, and coyote harvest could also increase by additional trapping and predator hunting access. Hechtel (1991) found that bear harvest appeared to be sustainable and directly linked to access, with a mean harvest of 11.2 bears per year from the TFTA from 1980 to 1990. During fall, black bear harvest on the TFTA is primarily opportunistic by moose hunters (Hechtel 1991). The construction of a winter trail would improve access and the number of hunters using the area for moose hunting, which could have a corresponding impact on black bear harvest.

The following bird species of conservation concern listed in Table 4 utilize vegetation types that would be lost during the construction of the Preferred Alternative:

- Sharp-tailed grouse
- Great gray owl
- Boreal owl
- Black-backed woodpecker
- Hammond’s flycatcher
- American dipper
- Varied thrush

- Bohemian waxwing
- Rusty blackbird
- White-winged crossbill

Vegetation clearing would also remove forest and scrub bird nesting habitat in the TFTA and create additional forest edge. The loss of about 142 acres of bird nesting habitat in the TFTA would not have a significant impact on birds due the relatively minor scale of habitat loss when considered with the availability of suitable alternative habitat. Vegetation clearing would occur in the winter to avoid impacting nesting birds.

Resident bald eagles are known to occur in the project area throughout the year due to presence of waterfowl and the persistent open water created by groundwater upwelling in the Tanana River and connected sloughs. The vegetation community that would be cleared adjacent to the Tanana River is closed black spruce forest and not conducive to nesting eagles, and no eagles have been observed nesting in the proposed trail alignment; therefore, impacts to eagles are not expected from the proposed activity.

Impacts to wildlife would be minimized by the employment of numerous management practices and careful consideration during the design of the winter trail alignment. These management practices and design considerations include clearing vegetation during the winter to avoid impacting bird nesting habitat, consulting with the USFWS if eagle nests are encountered, and constructing/removing ice bridges in accordance with ADFG fish habitat permit conditions. The proposed project's impacts to wildlife would be less than significant due to the Army's management practices.

3.4. Geology, Soils, and Permafrost

3.4.1. Affected Environment

The following sections and figures related to soils and geology have been adapted from the 2009 Shannon & Wilson Geotechnical Feasibility Study for Tanana Flats Training Area and 2016 Soil Survey of Tanana Flats Training Area, Fort Wainwright, Alaska. Both documents are cited in the references section of this document.

Shannon and Wilson, Incorporated performed a planning Geotechnical Feasibility Study for Tanana Flats Training Area in 2009 to assist the military with development of planning and programming documents to support the development of the training areas. The study was in support of the military's goal of developing the TFTA into a Joint Live-Fire and Maneuver Complex for year-round training operations and identified several alternative road alignments for analysis. The Geotechnical Feasibility study contained the following geologic characterization of the study area depicted in Figure 7.

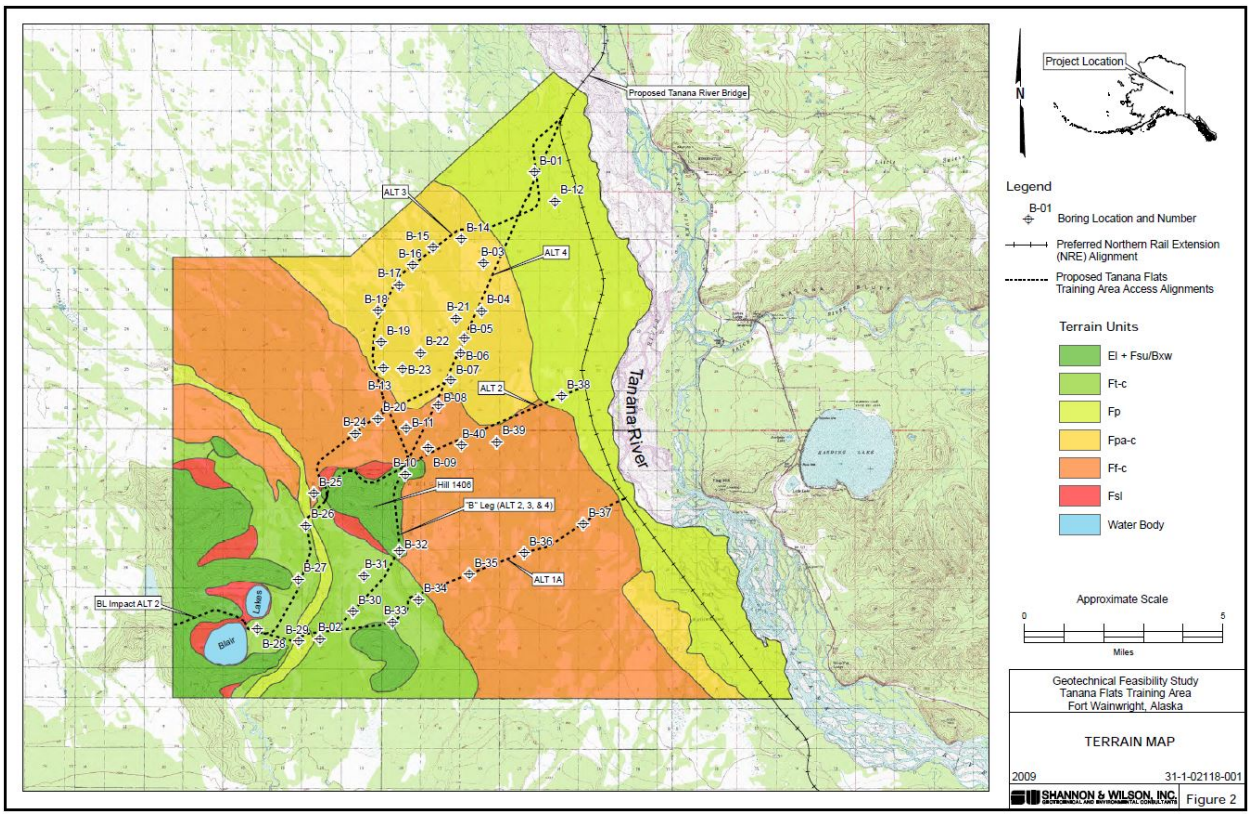

Figure 7. Area assessed in 2009 Shannon and Wilson, Inc. Geotechnical Feasibility Study.

The AKRR Tanana River Bridge and Blair Lakes area are at the northern edge of the Tanana Lowlands near the base of the Yukon-Tanana Uplands, approximately 30 miles southeast of Fairbanks in the relatively flat Tanana River basin. The basin is filled with alluvial deposits of gravel, sand, and silt of fluvial and glacio-fluvial origin. The Tanana River and its southern, glacier-fed tributaries from the Alaska Range have pushed the Tanana River against the lower foothills of the Yukon-Tanana Uplands. These alluvial deposits range in thickness from a few feet to in excess of 400 feet to 500 feet near the Tanana River. In the Eielson-Salcha area, soils in the Lowlands typically consist of interbedded alluvial sands and gravels covered by silty over-bank deposits and organic-rich slough deposits in former river channels.

Though most of the northern portion of the North American continent was covered with ice during the last ice age, only the Alaska Range to the south and localized areas of the Yukon- Tanana Uplands north of the site were glaciated. As a result, the deep alluvial deposits of the Tanana River floodplain and the fluvial and glacio-fluvial around Blair Lakes have not been glacially-overridden and are normally consolidated. Rivers flowing from glaciers deposited several hundred feet of silt, sand, and gravel in the Tanana and Yukon valleys. Most of the area is covered by a layer of loess ranging from several inches to more than 128 feet thick. Gravel deposits along the Tanana River are

up to 154 feet thick and are a significant source of groundwater (Nakata Planning Group 1987).

The hills around Blair Lakes are a part of the Yukon-Tanana Uplands north of the Tanana River, partially buried by the fluvial deposits of the Tanana Valley. The uplands are comprised of rounded, northeast-trending ridges and hills between the Yukon and Tanana Rivers that rise to elevations of 1,500 feet to 3,000 feet. Deformed sedimentary and volcanic rocks underlie the northern portion of the uplands; whereas, the southern portion is underlain primarily by Precambrian schist bedrock with localized intrusions of granitic rocks. The hills surrounding Blair Lakes appear to be underlain by schist bedrock.

USAG Alaska; Alaska Agricultural and Forestry Experiment Station, University of Alaska Fairbanks; Salcha-Delta Soil and Water Conservation District; Alaska Soil and Water Conservation District; U.S. Department of Agriculture; and the Natural Resources Conservation Service cooperatively produced the Soil Survey of Tanana Flats Training Area, Fort Wainwright, Alaska in 2016. The study enlarged the 1999 Natural Resources Conservation Service Blair Lakes soil survey (Swanson et al. 1999). The 2016 soil survey contained the following characterization of soils in the area mapped (Figure 8).

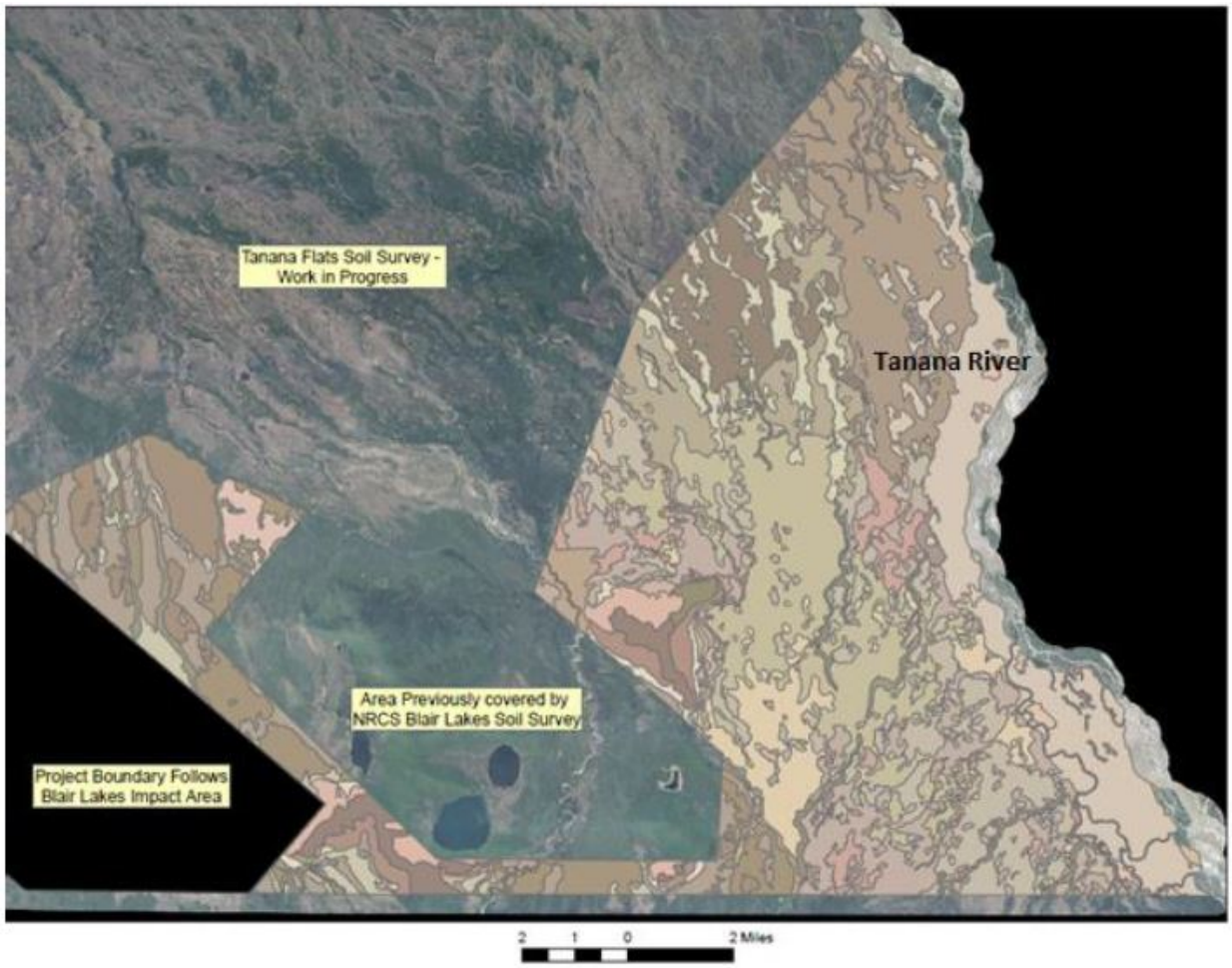

Figure 8. Area mapped in the 2016 Soil Survey of TFTA.

Windblown silt (loess) mantles the bedrock hills surrounding Blair Lakes. The loess is generally absent or thinnest on ridges and hill tops, thickening downslope. The lower slopes and valley bottoms are generally covered with retransported silt from the upper slope, containing varying amounts of organics and rock fragments. The silt on north-facing and lower slopes and in the valley bottoms is typically perennially frozen. In valley bottoms, the silt often contains moderate to very high amounts of ice, in addition to high amounts of organics. Localized peat deposits may occur in valley bottoms in historic lake basins.

The outwash from ice age Alaska Range glaciers almost completely buried the previous landscape features, but several hills protrude abruptly from the lowlands, such as those around Blair Lakes, in the study area. These hills are geologically part of the Yukon-Tanana Terrene, like the hills north and east of Fairbanks. The rocks of this terrene are primarily easily eroded metamorphic schists, with occasional granitic intrusions. Most of these uplands are covered deeply enough in loess that their geology does not directly

influence soil forming processes. However, in wind scoured areas where loess cover is shallow or non-existent, the heavily eroded bedrock forms the parent material for the thin, poorly developed soil. The hilly topography also has a strong effect on the pattern of loess deposition, soil drainage, and permafrost distribution.

The southeastern Tanana Flats, specifically, were not glaciated during the ice age, but the proximity of large scale glaciation in the Alaska Range has a profound effect on the landscape. In many areas, glacial streams losing momentum upon exiting the mountains deposited much of the water sorted sand, gravel, and silt that underlies the region in the form of large, nearly flat alluvial fans. In the study area these are associated primarily with the ice age counterparts of Dry Creek and Wood River. These older fans have been dissected by smaller, modern drainages, forming a relatively well drained terrace above more recent, lower lying alluvial fans.

Moving north, away from the mountains and toward the Tanana River, there is a transition from the alluvial fans to the abandoned flood plain of the Tanana. Many of the soils in this old flood plain are low lying, poorly drained, and have been accumulating fine grained loess for thousands of years. This leads to a mosaic of permafrost soils, wet bogs caused by melting permafrost, and very wet fens kept unfrozen by upwelling ground water, draining out of the more permeable soils closer to the mountains. In the study area, however, this band of abandoned flood plain soils is relatively narrow, relatively young, and lacks the large fens seen closer to Fairbanks. Close to the river, within the more recent flood plain, soils are generally well drained and often support dense vegetation.

Permafrost is defined as material that has been colder than 32 °F (0 °C) for at least two consecutive years. The project is in a discontinuous permafrost zone; beginning within 20 inches of the soil surface and extending to 128 feet in parts of the TFTA. The presence of permafrost is widespread in the area, although its nature and occurrence varies. Permafrost commonly is close to the surface in areas of the finer-textured sediments on plains, stream terraces, and the more gently sloping foot slopes and hills. Isolated masses of ground ice occur in thick deposits of loess on terraces and the lower side slopes of hills. Permafrost maybe absent under flood plains and major surface water bodies. While discontinuous permafrost may be found in vegetated areas on the river banks, river channels and deep lakes in the Interior are typically free of permafrost (Shannon & Wilson 2009).

Permafrost ground temperatures in the area are generally only a few tenths of a degree below freezing. Removal of trees and insulating ground cover generally leads to degradation of the near-surface permafrost. The Tanana Flats has experienced massive

permafrost degradation over the last 200 years; 42% of the permafrost area in and around the Tanana Flats demonstrates symptoms of thermokarst. Birch forests are particularly susceptible to the collapsing permafrost soil structure that occurs during permafrost thawing (USARAK 2010).

Permafrost presents challenges to ground-based maneuvering as well as construction activities. Special consideration must be given to the design and maintenance of man-made structures, usually involving the creation of a gravel bed (or other material) to create an insulating layer below the structure to prevent melting of the active permafrost layer (USGS 1969).

3.4.2. Environmental Consequences

3.4.2.1. No Action Alternative

Under the No Action Alternative, soils and geology would continue to degrade at the current rate along the Bonnifield Trail, and there would be no impacts to the existing geologic or soil conditions along the proposed new trail alignment.

3.4.2.2. Preferred Alternative: Construction of a Winter Trail within the TFTA.

Implementation of the Proposed Action is anticipated to have minor impacts to geology and soils as the winter trail construction and maintenance will occur after the ground has sufficiently frozen and/or when sufficiently covered by snowfall.

The Proposed Action has the potential to cause moderate impacts to permafrost. Much of the permafrost in Alaska is covered by some variety of vegetation. If vegetation is removed through wildfire or human activity, this insulating layer is lost and permafrost can begin to thaw. In finer-grained soils, this thawing can result in soil saturation and a subsequent loss of soil stability. If the soil contains large blocks, wedges, or lenses of ice, voids will appear in the soil as the permafrost around it thaws. Landscape that results from the thawing of permafrost, called thermokarst, presents serious challenges to all types of land use (USDA 2004). Surface expressions of thermokarst include such features as mounds (pingos), sinkholes, pits, polygons, subsidence, and circular lowlands. Hydro-axed vegetation would be left in place to insulate the discontinuous permafrost beneath the winter trail during summer seasons and reduce the potential impacts of the Proposed Action on permafrost.

Soil mapping was filtered to call out soil units containing Gelisols (soils that have permafrost within 100 cm of the soil surface and/or gelic materials within 100 cm of the soil surface and permafrost within 200 cm of the soil surface) or soil complexes containing Gelisols in order to predict the potential impact to permafrost. The winter trail

alignment was configured to avoid permafrost to the maximum extent practicable (Figure 9).

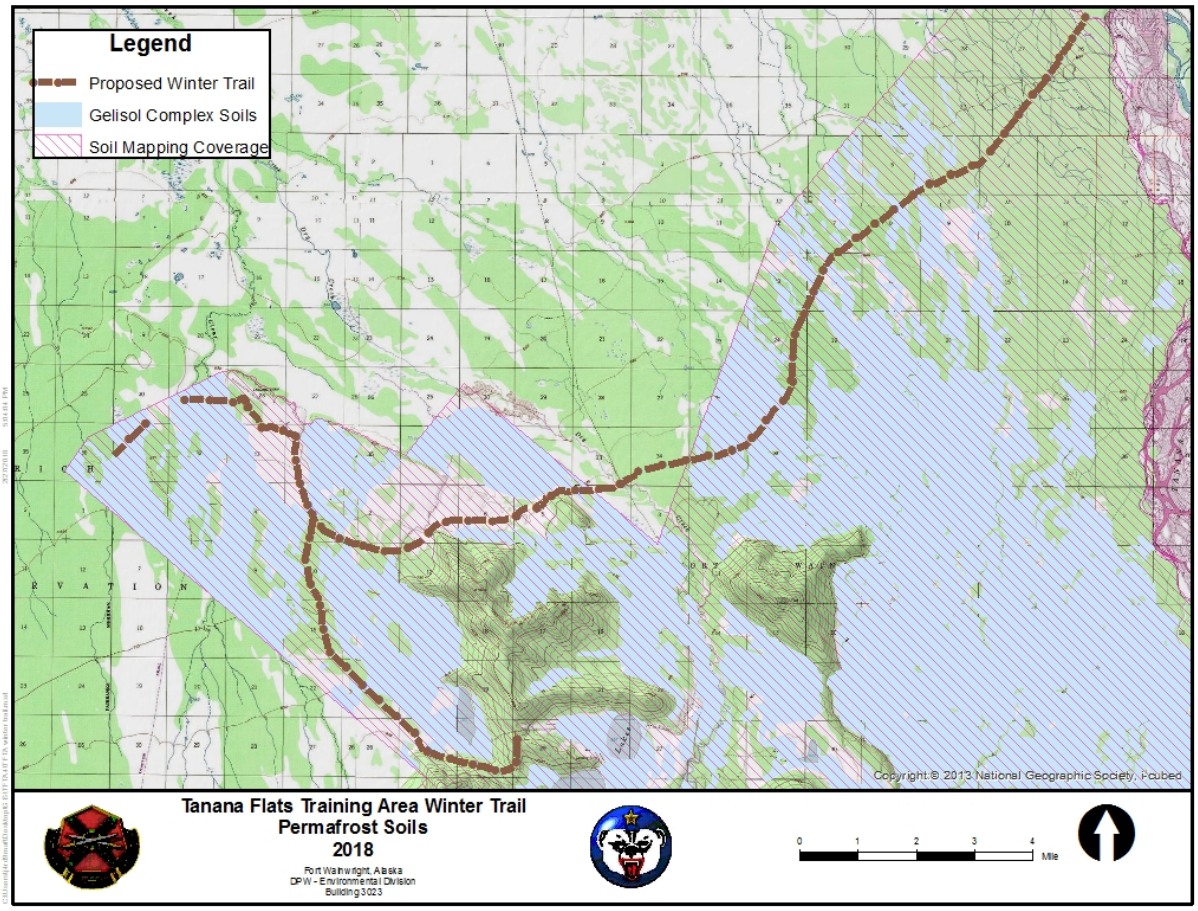

Figure 9. Proposed alignment of the winter trail in relation to Gelisols and soils complexes containing Gelisols.

A portion of the proposed alignment on either side of Dry Creek has not been the subject of soil mapping. This unmapped area is coincidental with a change in vegetation community composition indicating continuous permafrost is unlikely. The area east of Dry Creek contains some communities of large quaking aspen trees, which generally require deeper soils than paper birch and black spruce trees. Several studies of soil water depletion by aspen imply effective rooting depth to at least 9 feet on deep, well-drained soils (DeByle and Winokur 1985). The general hydrologic condition at Dry Creek is one of highly conductive, high gravel soils promoting subsurface flow and intermittent surface water. These type of conditions imply permafrost in the unmapped area is sporadic.

The proposed winter trail is 29.3 miles long and 40 feet wide and would cross 21.7 acres of mapped Gelisols. This is 15% of the 142.3 acres of the entire trail footprint. The largest contiguous trail section intersecting Gelisols would be in the lowlands between McDonald Creek and Dry Creek north of Blair Lakes Hills.

The removal of vegetation over permanently frozen soils would impact permafrost by altering the thermodynamic condition in a number of ways. The removal of tree and shrub canopy, particularly in evergreen communities like the extensive black spruce forests found in the TFTA, would allow snow to accumulate directly on the soil surface and delay the downward progression of seasonal frost in the trail prism. Compaction of the living and partially decomposed organic material would reduce the insulation value during the spring thaw and allow the soil to warm more quickly than the unaltered condition. Additionally, the removal of the tree and shrub canopy would allow more light to reach the soil surface and warm the ground, accelerating decomposition and subsidence, further reducing the insulation value of the overlying organic material.

As the permafrost thaws, the ice that was trapped in the soil would become free surface water as the soil subsides. This surface water would absorb thermal energy from the sun throughout the summer and transmit it into the soil, causing further warming and melting of permafrost. Through the appearance of additional surface water, this melting has the potential to spread outside the road prism into undisturbed areas and cause further permafrost degradation. The relatively low topographic variability within the project area creates a relatively unconfined hydraulic system.

Impacts to soils and geology would be minimized by the employment of numerous management practices and careful consideration during the design of the winter trail alignment. These management practices and design considerations include constructing and operating the trail after adequate snow or seasonal frost is present in the trail, managing the shoulder season to avoid soft soils, identifying problematic soil units and monitoring with appropriate tools, identifying and managing aufeis areas, and keeping snow cover on the road throughout the winter use season to avoid exposure of vegetation. The proposed project's impacts to geology and soils would be less than significant due to the Army's management practices.

3.5. Water Resources

3.5.1. Affected environment

Water resources include surface water, groundwater, floodplains, and features determined to be waters of the United States, including wetlands. Surface water resources—lakes, rivers, and streams—are important for a variety of reasons, including economic, ecological, recreational, and human health. Groundwater includes the

subsurface hydrologic resources of the physical environment, and its properties are often described in terms of depth to an aquifer or the water table, water quality, and surrounding geologic composition.

3.5.1.1. Wetlands

Wetlands are defined by the U.S. Environmental Protection Agency (USEPA) and U.S. Army Corps of Engineers (USACE) as “those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions. Wetlands generally include swamps, marshes, bogs, and similar areas” (40 CFR 230(t)). The USACE Alaska District and the USEPA regulate wetlands through the Clean Water Act Section 404 Permitting Program.

The TFTA contains numerous freshwater ponds, lakes, emergent wetlands, and scrub-shrub wetlands. Much of the area is underlain by shallow permafrost, though thermokarst (subsidence due to thaw of ground ice) depressions are abundant. A large portion of Tanana Flats is covered with sedge and grass-dominated floating mats that are highly dependent on mineral-rich groundwater discharge. The floating mats are composed of a dense network of roots and organic material deposited by sedges, grasses, horsetail species, and herbaceous broadleaf forbs, such as buckbean and marsh marigold. Aquatic plants, such as bladderwort and duckweed, are also frequently found in these areas. Scrub-shrub wetlands positioned on slightly higher relief surround the emergent wetlands and are also found in poorly-drained basins and depressions with cold, saturated soils. In most low-lying areas, the water table, if not exposed, is found only a few inches below the soil surface (INRMP 2013).

Black spruce muskeg is a very common wetland type in the Interior Alaska ecoregion. Black spruce muskeg often develops over aquitards such as permafrost. The tree stratum is dominated by black spruce (*Picea mariana*), often widely spaced and stunted due to the saturated and acidic soil conditions. Many of the black spruce are not large enough (<3 inches diameter breast height) to be considered trees, so the species is often represented in the shrub stratum as well. The remaining shrubs are generally Ericaceous species like Labrador tea (*Rhododendron groenlandicum*) and lingonberry (*Vaccinium vitis-idaea*). The herb stratum is often absent or weakly represented, but dense moss coverage (usually *Spahagnum* and *Aulacomnium*) is characteristic. This layer of living moss can regularly exceed six inches in thickness. The soil beneath the moss can be topped much as 20 inches of partially decomposed organic material known as peat.

A Wetlands Delineation and Waterbodies Report for proposed road alignments was prepared for USAG Alaska in December 2009 in support of the USACE Joint Pacific Alaska Range Complex (JPARC), Range and Training Lands Feasibility Study for Tanana Flats and Donnelly Training Areas. The delineation covers 10,836 acres, about half of the proposed winter trail alignment and can be used to make inferences about the areas that would be within the trail. The areas surveyed in the 2009 delineation are shown in Figure 10.

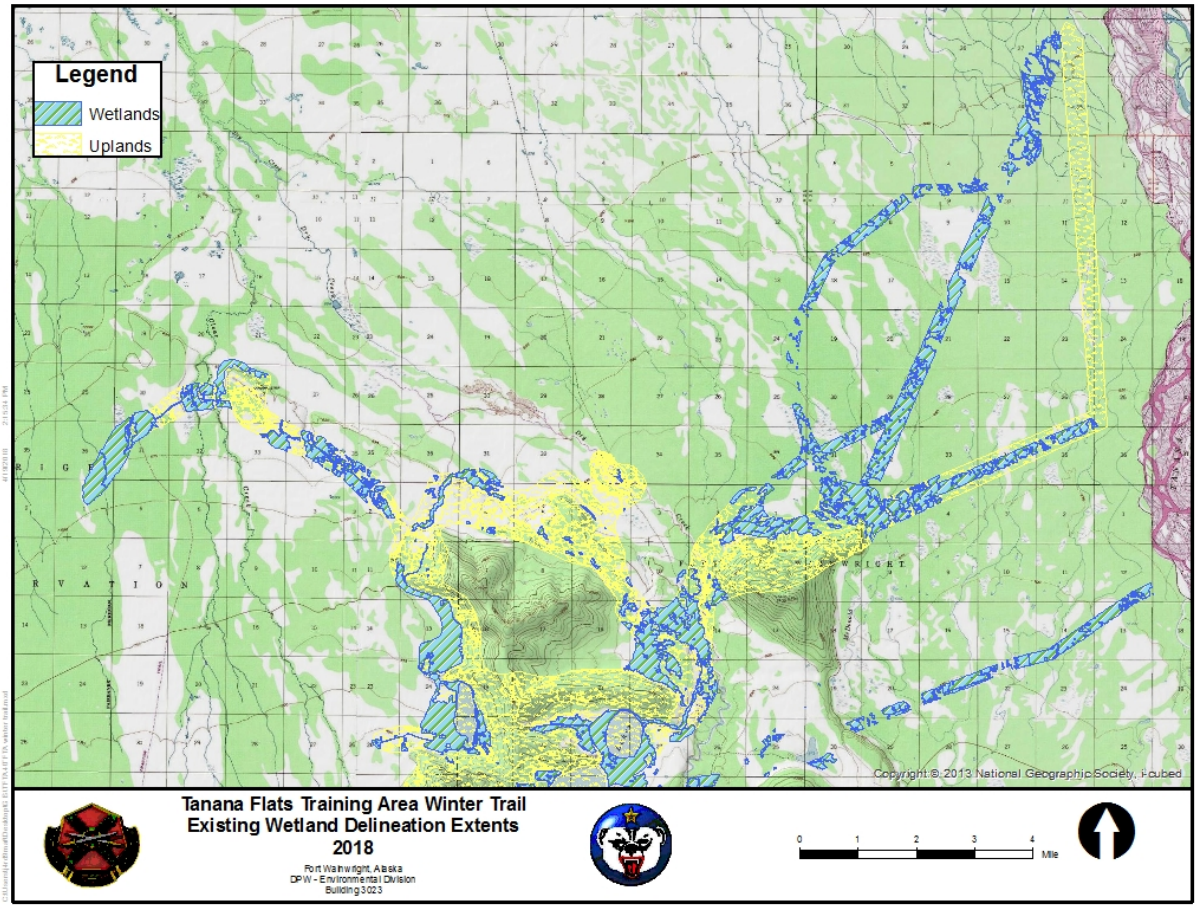

Figure 10. Areas surveyed in the 2009 delineation

The most common wetland type (1,948 acres) mapped in the survey area was palustrine forested needleleaf evergreen. These wetlands were found primarily in the lowlands of Tanana Flats, the highlands near Blair Lakes, and adjacent to Dry Creek. Palustrine forested needleleaf wetlands in the project area are generally dominated by black spruce (*Picea mariana*) in the tree and shrub strata and are commonly underlain by permafrost within the upper 24 inches of the soil surface.

Broadleaf scrub shrub wetlands covered 1,395 acres of the area surveyed. These wetlands typically occupy bogs and lacustrine fringe areas. Bogs are saturated soil wetlands with interspersed surface water present in microtopographic relief and are typically found in broad flat areas underlain by shallow permafrost. The fringe wetlands border Blair Lakes, ponds, and inundated emergent wetlands and are generally not underlain by permafrost. The dominant shrubs in broadleaf scrub-shrub wetlands are resin birch (*Betula glandulosa*), bog blueberry (*Vaccinium uliginosum*), and leatherleaf (*Chamaedaphne calyculata*).

Mixed scrub-shrub wetlands were found in large expanses constituting 1,269 acres of the survey area, primarily in the lowlands east of an imaginary line extending north from Blair Lakes. Shallow permafrost was nearly always present under this wetland type. The dominant shrub in mixed scrub-shrub wetlands was usually black spruce, with the understory comprised of bog blueberry or Labrador tea (*Rhododendron groenlandicum*).

Needleleaf scrub shrub wetlands account for 936 acres of the surveyed area and are widely distributed throughout the Tanana Flats. Most of these wetlands were located over permafrost. The dominant shrub in needleleaf scrub-shrub wetlands is usually black spruce, but some communities were dominated by tamarack (*Larix laricina*).

Individual emergent wetland communities covered 380 acres and tended to be smaller than the scrub-shrub and forested wetlands, with 1,284 polygons mapped in the study area. Wetlands of this type proximal to the Tanana River tended to occupy relict channels, while emergent wetlands further west were commonly found in depressions surrounded by needleleaf evergreen forested wetlands or as fringe wetlands on the margins of open water systems. All of the emergent wetlands documented in the 2009 delineation were flooded seasonally or semi-permanently. The dominant plants in emergent wetlands were bluejoint reedgrass (*Calamagrostis Canadensis*) and various sedges such as beaked sedge (*Carex rostrata*), water sedge (*Carex aquatalis*), and cotton-grass (*Eriophorum* spp.).

3.5.1.2. Surface Water

The TFTA is drained by several streams including Wood River, Crooked Creek, Willow Creek, Clear Creek, McDonald Creek, and Bear Creek, which all drain into the Tanana River directly or by way of Salchaket Slough. Lakes and ponds are numerous on the TFTA, many of which freeze solid during the winter. Blair Lakes are the largest lakes on the TFTA.

The volume of flow fluctuates dramatically by season. During the long period of freeze, usually from October to May, flow is limited to seepage of groundwater from aquifers

into streams. Many small streams freeze solid (zero discharge) during winter. Snowmelt typically begins in March or April and reaches its peak in June. Flow is greatest during June and July. By the end of July, most snow has melted, and a steady flow during August and September is sustained by rainfall (Nakata Planning Group 1987).

During the winter the surface water bodies, including wetland areas in the Tanana Flats area, freeze sufficiently, if not completely, allowing heavy vehicles to travel across stream and otherwise soft impassable ground. The winter trail alignment, starting from the Tanana River Bridge, traverses across lowlands that are generally characterized by abandoned river beds, and small perennial and intermittent streams. These streams may not flow in the summer, except during major rainfall events, but they may transmit water or even flood during the spring melt as the runoff flows over the residual frozen ground remaining from the winter or where permafrost impedes infiltration. When the ground is frozen sufficiently, heavy equipment can cross these drainages.

The Tanana River, its side channels Beebee and Boundary Sloughs are the notable exceptions in that they have surface water throughout the year. The Tanana River is crossed using the AKRR Bridge; however, the existing bridges over Beebee and Boundary Slough are permitted as temporary structures used during the construction of the Tanana River Bridge. They are to be removed by the year 2020 and alternative means of crossing the sloughs would need to be developed in order to access the proposed winter trail.

Dry Creek could require the construction of an ice bridge in some years when surface water remains late enough in the season to impact winter road construction. Dry Creek is an ephemeral system and is dry by the late fall in most years, which would not require the construction of an ice bridge. If surface water remains, the crossing would require sufficient ice covering thickness to support heavy vehicles. This could be achieved naturally as the cold weather progresses in the winter; however, the Army understands that measures may be taken to enhance safety and allow earlier access by constructing an ice road over Dry Creek.

3.5.1.3. Groundwater

Groundwater is a TFTA valuable natural resource; upwellings create fen wetlands (Racine and Walters 1994), which provides water for the spawning habitat for chum salmon in Beebee and Boundary Sloughs. With the exception of naturally occurring metals, groundwater quality is good in the TFTA. Much of the TFTA is underlain by an alluvial aquifer. Groundwater potential is best along the alluvium of the Tanana River, where wells are capable of yielding 3,000 gallons per minute at less than 200 feet in

depth. Groundwater in the TFTA tends to have relatively high, naturally occurring levels of metals, especially iron and arsenic (Harding Lawson Associates 1996).

Groundwater is present in aquifers consisting of unconsolidated sand and gravel deposits underlying the floodplains and terraces (JPARC 2013). These deposits can be thick and wide spread, or occur in narrow bands of alluvium under, and adjacent to, active and abandoned river channels. These aquifers are not currently utilized in the project area as a source of public or domestic water supply, or for commercial uses.

Shallow groundwater may be observed as springs or seeps, and/or when groundwater is forced to the surface by seasonal freezing, a condition referred as aufeis. Wet ecotypes have water depths within 20 inches of ground surface, and uplands generally have water depth greater than approximately 30 inches; however, depth to groundwater is highly variable (Jorgenson et al. 1999). Aufeising can form naturally or occur due to construction and result in thin sheeting and/or several feet of ice. Ice accumulations can be a maintenance problem during the winter and are more common in steeper terrain from natural seeps that are exposed in road cuts. The risk of icing problems developing in the relatively flat abandoned flood plain areas is low (Shannon & Wilson 2009). However, in shallow groundwater conditions, the seasonal frost depth driven deeper under the winter trail could interrupt and back up shallow groundwater forcing it to the surface causing icing.

3.5.2. Environmental Consequences

3.5.2.1. No Action Alternative

The implementation of the No Action Alternative would not alter the hydrodynamic environment in the TFTA and incur no new impacts to wetlands, surface water, groundwater, or other water resources. Use of the Bonnifield Trail would continue to degrade water resources along that alignment.

3.5.2.2. Preferred Alternative: Construction of a Winter Trail within the TFTA.

Implementation of the Proposed Action will have minor impacts to water resources as construction and operation of the winter trail will occur after the ground has been sufficiently frozen, thus reducing the concern of sedimentation occurring in water bodies. Water may be drawn from multiple sources within the TFTA (including but not limited to Clear Creek East and West, and Dry Creek) during the construction and maintenance of the winter trail. This water use is authorized under a DNR Temporary Water Use Authorization (TWUA) Permit A2014-12, which authorizes the withdrawal of up to a combined total of 300,000 gallons of water per day from the Tanana River and a combined total of 40,000 gallons of water per day from all other sources (subject to a

maximum withdrawal of 5 million gallons of water from the Tanana River and a combined total of 750,000 gallons of water from all other sources for each authorized year).

The proposed winter trail would cross eight sixth level hydrologic units on its path from the Tanana River Bridge to the Clear Creek Assault Strip. These hydrologic units are longer than they are wide and oriented on a north-south axis, indicating the general direction of hydraulic movement is from the south to the north towards the Tanana River. The hydrologic units the trail would cross are lightly developed, with a couple of small air strips, cleared bivouac areas, and some trails being the only disturbances. Ice bridge construction is only anticipated to be required across Beebee Slough, Boundary Slough, Dry Creek, Clear Creek East and West, Rigney Creek, and Beaver Pond Creek. The remaining flow lines mapped by the USGS National Hydrography Dataset (NHD) that the trail would cross are anticipated to be dry or in ground-fast ice by the time the trail is constructed and operated.

3.5.2.2.1. Wetlands

The construction of a hydro-ax winter trail is expected to have a minor impact on wetlands. Winter construction will ensure the ground is frozen to adequate depth to prevent rutting or other ground disturbance. The vegetation removed by the hydro-ax will be mulched and discharged into the trail, which will act as an insulating layer over the soils inside the alignment and reduce damage from vehicular traffic. This material has been determined not to meet the effects based criteria for fill under the Clean Water Act because it originates above the area it would be discharged, is organic, and doesn't have the effect of converting waters of the United States to dry land or raising the bottom elevation of waters of the United States. A permit issued by the USACE for the placement of fill into waters of the United States, including wetlands, is therefore not required for the construction of the proposed winter trail.

The proposed winter trail was aligned to avoid wetlands to the extent practicable and the construction methodology was developed specifically to minimize the impact of trail construction on TFTA wetlands. Lessons learned from existing trails were applied to the design of the proposed winter trail in order to improve DoD processes and reduce wetland impacts by leaving soils intact, carefully managing access to ensure the ground is frozen to the extent necessary to prevent rutting, and placing masticated woody vegetation in the trail to buffer soils and wetlands from the effects of vehicular traffic. Winter construction and operation, avoidance of ground disturbing activities by the use of a hydro-ax for vegetation clearing, and careful avoidance of wetlands during the route design is anticipated to present wetland impacts significantly lower than previous trails in the Interior such as the Bonnifield and Rex trails.

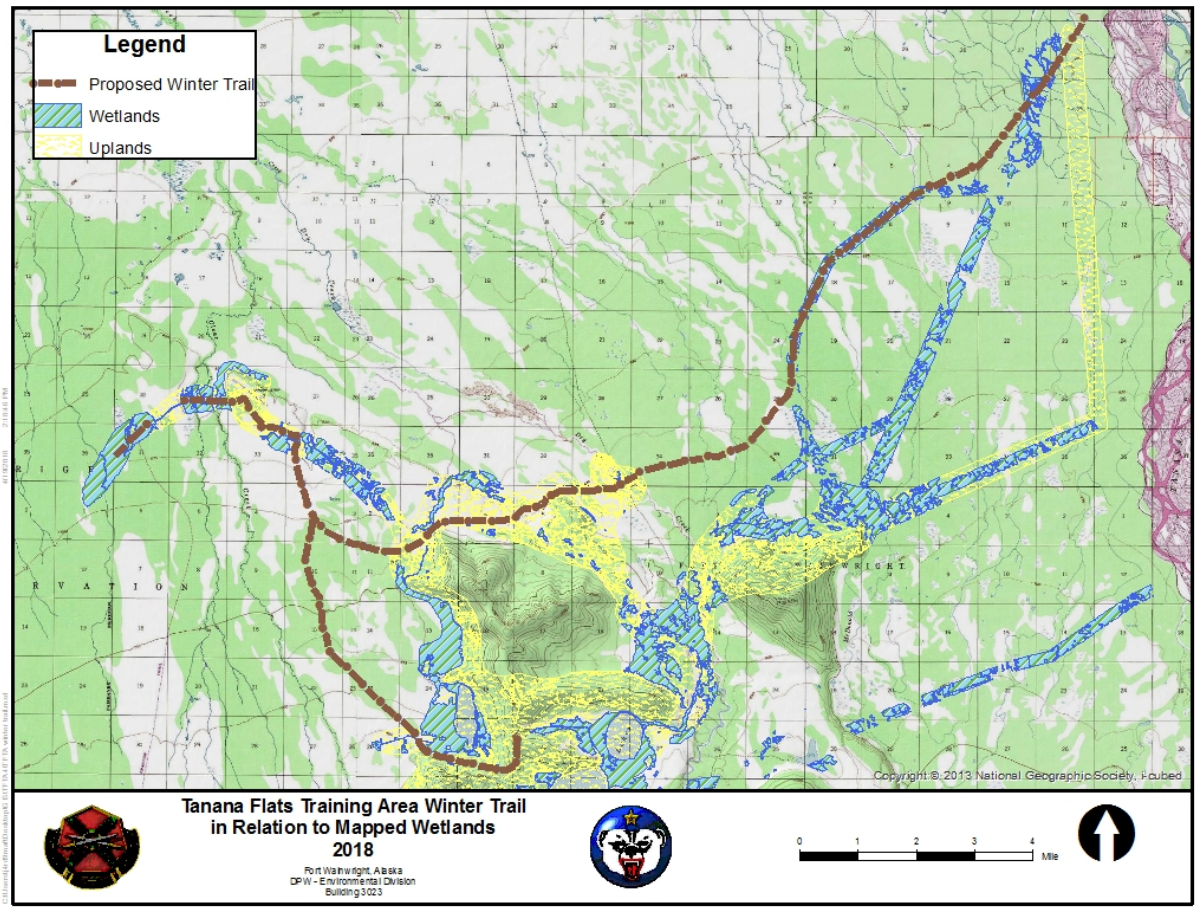

Figure 11. Proposed winter trail alignment in relation to wetlands and other waters in the TFTA

The winter trail alignment has been designed to avoid waters of the United States, including wetlands, to the extent practicable (Figure 11). The distribution of wetlands in the Tanana Flats prevents the complete avoidance of that resource. The wetland areas that intersect the trail may be impacted by the alteration of vegetation, soils, and hydrology through trail construction and usage. The low topographic differential across much of the training area has a tendency to exaggerate the effects of subsidence; i.e., a relatively minor alteration to microtopography can have a profound impact on the presence and distribution of surface water.

Vegetation removal will likely have an impact on wetlands through multiple mechanisms:

- Removing the shrubs and trees growing in the wetlands would reduce the amount of water taken up by wetland plants and increase soil moisture.

- Defoliation would alter the thermodynamic conditions of the areas (more completely described in Section 3.3.1.2) and influence permafrost degradation; which would have a corresponding impact on wetlands. Permafrost is a common restrictive soil feature in Tanana Flats wetlands, so thawing permafrost would impact wetlands by increasing the depth of the restrictive layer and generating additional free water through thawing.
- Surface water absorbs energy from the sun and transmits heat into the soil, which can create a feedback relationship by thawing further permafrost and increasing surface water.
- Clearing the shrubs and trees overlaying thick organic layers and dense moss coverage could result in subsidence; mosses will no longer find suitable habitat in the direct sunlight within the trail and warmer soils will accelerate microbial activity in the partially decomposed plant material on the soil surface. Accelerated decomposition and the reduced presence of mosses could result in microtopographic relief within the trail, which could be manifested by additional surface water.

Compaction of the soils in the trail could potentially occur as a result of vehicular traffic. This would lower the relative elevation of the trail and contribute to surface water.

These phenomena could alter the hydrologic regime of the wetlands they affect by increasing open water and directing sheet flow. Some wetlands will likely become wetter and others drier as the hydrology changes. The subsidence in the trail could provide outlets for wetlands and drain them; this is particularly likely in permafrost areas that may begin to undergo thermal erosion as a result of the additional light and surface water. It is also possible that removing the scrub stratum from these wetlands would effectively convert a palustrine scrub-shrub wetland to an emergent wetland by altering the dominant vegetation type. This would in turn have an effect on the functions provided by the wetland resource, e.g., replacement of shrubs with grasses would reduce the flood flow alteration functional capacity, but increase the sediment removal capacity.

3.5.2.2.2. Surface Water

Implementation of the Proposed Action is anticipated to have minor impacts to surface water resources since these resources will be frozen during initial construction of the winter trail and when in it is in use. No ground disturbing activities would take place during construction or operation of the trail, avoiding impacts to surface water quality through sedimentation. Ice bridges across fish bearing waters would be constructed in accordance with ADFG Fish Habitat permit stipulations in order to prevent altering the bed and bank of fish bearing streams. Fish Habitat permits require that ice bridges be

breached prior to seasonal break up in order to prevent the formation of ice dams and resultant channel diversions.

The protection of surface water was a primary criteria during the design of the proposed winter trail in order to avoid duplicating the hydrologic impacts of existing trails in the Interior region of Alaska. The selection of a hydro-ax to remove vegetation in the trail alignment without disturbing the soil is intended to prevent the creation of hydraulic conduits where the trail intersects surface water, wetlands, or shallow subsurface water.

3.5.2.2.3. Groundwater

Implementation of the Proposed Action is anticipated to have minor impacts to groundwater resources since the ground would be frozen during initial construction of the winter trail and when in it is in use. The risk of aufeis development in low topographic gradient areas like the areas the proposed winter trail crosses is minimal; however, the compaction of snow on the trail in preparation for seasonal opening will likely drive seasonal frost deeper. This could create conditions for aufeising to form by interrupting shallow subsurface flow and forcing it to the surface. The orientation of the trail perpendicular to the likely primary direction of subsurface flow would encourage the development of aufeis in areas of interrupted shallow groundwater movement.

The minimization of the proposed project's impacts to wetlands, surface water, and ground water are contingent upon construction and operation of the trail in the presence of acceptable site conditions. Acceptable site conditions in general would include:

- Adequate seasonal frost depth so frozen soils can support vehicles to reduce the risk of rutting that results in runoff channels and movement of sediment by storm water;
- There is adequate snow depth to protect the surficial soils and vegetation from vehicle traffic;
- Stream crossings contain ground-fast ice or ice that supports the vehicle to reduce the risk of damage to the stream bed;
- Trail access is prevented during the off-season or when site conditions are not adequate in the winter;
- The above conditions are maintained by a winter trail monitoring and maintenance program.

Impacts to water resources would be minimized by the employment of numerous management practices and careful consideration during the design of the winter trail alignment. These management practices and design considerations include constructing and operating the trail after accemptable site conditions are present and

constructing/removing ice bridges where needed in accordance with appropriate permit conditions. The proposed project's impacts to water resources would be less than significant due to the Army's management practices.

3.6. Land Use

3.6.1. Affected environment

3.6.1.1. Military Training

The primary land use for the TFTA is the training and operation of military units. Most of USAG Alaska land was withdrawn from the public domain to support the Army's mission. While military training is the dominant use of these lands, the Army is required to manage the land for multiple uses as long as the military mission is not compromised. Multiple-use activities and opportunities include hunting, fishing, trapping, kayaking, rafting, canoeing, hiking, mountain climbing, downhill and crosscountry skiing, off-road vehicle use, biking, berry picking, wildlife viewing, and scouting. The Army is also mandated to conserve to the extent practicable sensitive and fragile areas such as wetlands and alpine tundra. In addition, USARAK is home to hundreds of wildlife species, which must be managed and protected (USARAK 200-1).

The TFTA has 644,701 acres available for training. The maneuver areas and drop zones comprise approximately 92 percent of the training area's total acreage. The TFTA has 56,835 acres of active impact area, with the two primary areas being the Alpha Impact Area located in the northern portion of the training area and the Blair Lakes Impact Area located near the southern boundary of the TFTA. The TFTA consists of six indirect fire facilities; 11 other, non-live fire facilities; and eight light maneuver training areas. The TFTA has four drop zones (DZ), seven landing zones (LZ), three artillery fire points, and three observation points located throughout the training area. In addition to the six LZs, the TFTA has the Clear Creek Assault Strip co-located with the Clear Creek II DZ. The tactical turf strip is 3,500 feet long by 60 feet wide and is capable of handling C-130 aircraft.

The BLRC is comprised of a 63,100-acre tract, which is part of the 644,701 acres of the TFTA. The Air Force's Land Use Permit provides them with exclusive use of a 33,961.58-acre portion of the tract, and joint use of 29,317 acres. The Army retains an exclusive use of 1,300 acres of the BLRC. The range is located 26 miles southwest of Eielson AFB (EAFB) and 32 miles due south of Fairbanks. Since the range's activation in 1941 by EO 8847 and amended by Public Land Order 2676, the area has been used by the Army to conduct tank maneuvers, live fire artillery, and ground force training. The Eielson AFB has operated their portion as a bombing, strafing, and live ordinance detonation facility.

3.6.1.2. Recreation

The TFTA is located within game management unit (GMU) 20A, which consists of that portion of Unit 20 bounded on the south by the Unit 13 boundary, bounded on the east by the west bank of the Delta River, bounded on the north by the north bank of the Tanana River from its confluence with the Delta River downstream to its confluence with the Nenana River, and bounded on the west by the east bank of the Nenana River (Figure 12). The high density of moose in the Tanana Flats and proximity to the population centers of Fairbanks, North Pole, and Eielson AFB make the TFTA an attractive and highly used area for hunters. Numerous air taxis operating out of the Fairbanks International Airport transport customers into several airstrips in the TFTA every year for fall hunting, and access by snow machine is possible after the Tanana River freezes.

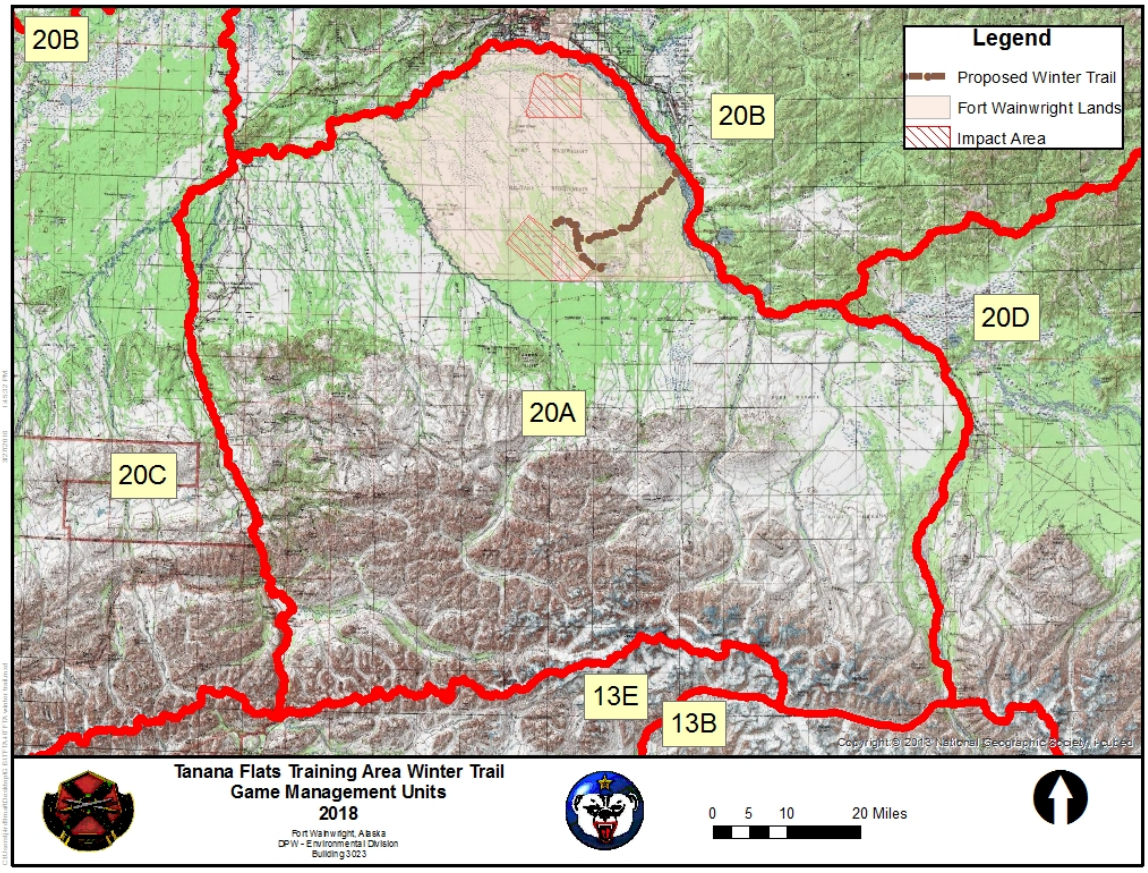

Figure 12. Game management units with respect to the TFTA and proposed winter trail

Use of the TFTA by sportsmen is authorized by 16 CFR 670 (the Sikes Act) and Army Regulation (AR) 190-13. Access to military lands by the public for the purpose of recreation is managed the USARTRAK iSportsman program. The USARTRAK system

provides the user with a Recreational Access Permit (RAP) and establishes conditions the permittee must adhere to in order to comply with the Installation Natural Resources Management Plan (INRMP). Acceptance of the RAP constitutes acknowledgement and acceptance of the permit conditions. Recreational use of the TFTA is superseded by military activities and missions. Military lands include open use areas (open to all types of recreational activity), modified use areas (off-limits to off-road vehicles, except in the winter), limited use areas (open only to low-impact activities, such as hiking, bird watching, skiing, and berry picking), and off-limit areas (closed to all recreation). Impact areas within the TFTA are permanently closed to recreation.

Public access to the Tanana Flats is controlled by season, AKRR, and USAG Alaska. After the Tanana River freezes, members of the public may cross the river in various locations on snow machines to hunt or otherwise recreate within the provisions of their RAP. A trail constructed for the Brim Frost joint training exercise during the 1980s leading to the Blair Lakes area exists approximately 4.3 miles west of Harding Lake, but this trail does not include a means of crossing the Tanana River outside of the frozen months. Individuals with appropriate equipment may also cross the river in landing craft to unload ATVs in the Tanana Flats during the times of the year the river is not frozen. Shallow draft vessels such as airboats or flat bottom boats with surface drive motors may travel up shallow channels, sloughs, and oxbows to gain entry to the Tanana Flats. The Bonnifield Trail system, which was constructed by prospectors between 1908 and 09, is a popular means of accessing the northern part of the Training Area and its use is largely contingent upon the Tanana River freezing to adequate thickness.

The Tanana River Bridge constitutes the only all-season route across the river. The bridge has multiple locked gates and can only be opened with permission from the AKRR. A one-mile-long gravel road extends from the western end of the Tanana River Bridge, terminating in impassable closed needleleaf forest.

3.6.2. Environmental Consequences

3.6.2.1. No action Alternative

Under the No Action Alternative, land use would continue in its present manner, and there would be no impacts to existing recreational resources or military training land use in the proposed winter trail area. Military training land use would continue to be constrained by the development of adequate ice on the Tanana River for the construction of an ice bridge.

3.6.2.2. Preferred Alternative: Construction of a Winter Trail within the TFTA.

3.6.2.2.1. Military Training

The implementation of the preferred alternative would have a beneficial impact to the TFTA's primary land use as a training area for military units by improving accessibility to the facilities and lands within the TFTA. Current access to training lands is limited by the requirement to cross the Tanana River, but the utilization of the Tanana River Bridge would negate that need and provide access annually via the new trail, which would be opened every year rather than biennially. The new trail would connect existing trails to annual, reliable access (Tanana River Bridge) in order to reach more of the training lands in the southern parts of TFTA dedicated to military training. The TFTA was withdrawn from public land in 1941 by Executive Order 8847 to be used for military training and the implementation of the preferred alternative would benefit the area's mandated land use. Training activities are regulated by United States Army Alaska (USARAK) Regulation 350-1 and 350-2, which mandate the protection of environmental resources during training.

The Army uses the TFTA as range and training lands in support of their mission to provide trained and ready forces in support of worldwide unified land operations in order to contribute to a stable and secure operational environment. The facilities near the BLRC used by USARAK include the Clear Creek Assault Strip, and the Clear Creek Butte and Salmon Loaf area. The winter trail would provide earlier, safer, and consistent winter access to the Clear Creek Assault Strip and training areas around the Clear Creek and Salmon Loaf. It is anticipated that the winter trail would enable the training of a Company to Battalion level exercise at least once per year. Exercises would include live fire at the Salmon Loaf and Clear Creek Butte due to their proximity of the Alpha Impact Area, with small arms live fire occurring around the Clear Creek Assault Strip.

3.6.2.2.2. Recreation

Construction of the Tanana River Bridge has widely been anticipated by sportsmen in the Interior region of Alaska as a beneficial impact due to the improvements in accessing the Tanana Flats. Former Governor Sean Parnell addressed the public during the ceremonial opening of the Bridge in 2014, stating "The bridge additionally will provide hunters with access to state land on the far bank of the Tanana." After the ceremony, he continued, "That access should be available by this year's hunting season [2014], although the details still have to be worked out with the military" (Friedman 2014). The construction of the preferred alternative would enhance the recreation benefits of the Tanana River Bridge by providing access to Tanana Flats lowlands and the uplands around Blair Lakes for those without the means to charter an airplane.

The TFTA Winter trail would be managed as an Open Use Area for recreation. Per Army Regulation (AR) 190-13, Open Use Areas are defined as the following:

Open to all types of off-road recreational vehicles. Open to all other recreational activities year round.

- *Frozen* (6+ inches of snow cover): No restrictions for any off-road recreational vehicles when soil is frozen.
- *Unfrozen summer conditions:* During unfrozen conditions, off-road recreational vehicles over 1500 lbs (road vehicles, dune buggies, Argo's, small unit support vehicles, etc.) must stay on existing roads and trails. No restrictions for off-road recreational vehicles under 1500 lbs (all-terrain vehicle, dirt bikes, etc.). Motorized watercraft must stay within existing open water channels.

Improved access and the associated increased use by recreational users has the potential to negatively impact the primary land use of the TFTA, military training. Recreational access would be controlled by a locked gate across the trail at the TFTA boundary west of the AKRR Tanana River Bridge. USAG Alaska would monitor the trail condition with the primary objective of ensuring sustainment of military training land use. The USAG Alaska Conservation Officers would conduct hunting contacts during the hunting season (usually during the month of September) and perform ongoing trail-use assessments, which may result in future restrictions on recreational use.

Unacceptable impacts would include alteration to the hydrology of the Tanana Flats, severe rutting, anthropogenic wildfire, poaching, dumping, extreme soil damage, and other problems. The USAG Alaska would employ adaptive management measures to prevent unacceptable impacts to the Tanana Flats; these measures could include access restrictions, partial exclusion areas, or other means of damage prevention.

Impacts to land use would be minimized by the employment of numerous management practices and careful consideration during the design of the winter trail alignment. Management practices intended to ensure recreation resources are preserved to the extent practicible while preventing unacceptable impacts to military training and natural resources include:

- Resolving conflicts between the training mission and recreation though the USARAK iSportsman portal and the issuance/denial of Recreational Access Permits (RAPs).
- Periodic inspections of the trail conditions during the summer to monitor for unauthorized recreational use impacts.
- Invokation of adaptive management techniques like rules governing the size or weight of off road vehicles, restrictions in trail access based on weather

conditions, partial trail closures to protect more environmentally sensitive areas, complete trail restriction to recreational users, or other measures designed to protect natural resources and the training mission.

The proposed project's impacts to land use would be less than significant due to the Army's management practices.

3.7. Traffic and Transportation Systems

3.7.1. Affected Environment

The route designated for the proposed winter trail does not currently host any vehicular traffic.

The description of the affected environment and environmental consequences of the Proposed Action on traffic and transportation systems will be primarily focused on the existing roads and the potential impact to traffic patterns on Tom Bear Trail Road and the Richardson Highway.

The proposed winter trail would originate at a point approximately one mile west of the terminus of the AKRR Tanana River Bridge. The gravel road between the Tanana River Bridge and the start point of the winter trail was constructed in conjunction with the bridge and crosses Boundary and Beebee Sloughs, with temporary bridges designed to accommodate the 30-ton cranes used to build the Tanana River Bridge. The permits for the temporary bridges expire in 2020, after which the DoD would construct ice bridges across Beebee and Boundary Slough to access the winter trail.

The Tanana River Bridge is a 3,300-foot-long span designed for unidirectional rail and wheeled traffic. There is a walking path on the north side of the bridge. The bridge was completed in 2014 and funded mainly by the DoD ($105 million of the $187 million total construction cost) with the goal of accessing training lands in the TFTA as a primary driver. Gates, controlled by the AKRR and DoD, on both sides of the bridge prevent unauthorized access.

A 2/3rd- mile-long access road connects the east end of the bridge to Tom Bear Trail Road, which is controlled by another gate. The parcels west of the gate are owned by the State of Alaska or AKRR. Tom Bear Trail Road continues a quarter mile before reaching the Richardson Highway (AK-2) near mile marker 332, about 30 miles south of Fairbanks and 6 miles south of Eielson AFB on the Richardson Highway. Three privately held parcels abut the northern margin of Tom Bear Trail Road, and five privately owned parcels lie on the southern edge of the road.

Salcha, Alaska is the closest census designated place to the proposed winter trail and had a population of 1,095 in the 2010 census. It is part of the Fairbanks Alaska Metropolitan Statistical Area and within the Fairbanks North Star Borough.

The majority of traffic along the Richardson Highway near the proposed project are transient vehicles en route to or returning from Fairbanks or other population centers farther north on the Richardson Highway. The land west of the Richardson Highway along Tom Bear Trail Road is fairly sparsely populated and primarily zoned for general use with parcels ranging between one and ten acres in area. This zoning and usage contributes to low population density and minimal traffic delays. In the absence of adverse weather, construction delays, or accidents, traffic in the area is light.

3.7.2. Environmental Consequences

3.7.2.1. No Action Alternative

Under the No Action Alternative, traffic patterns would be continue in their present state, and there would be no impacts to existing traffic levels or transportation systems.

3.7.2.2. Preferred Alternative: Construction of a Winter Trail within the TFTA.

Implementation of the Proposed Action would likely result in minor impacts to traffic and transportation as convoying operations and highway vehicle use would increase along the Richardson Highway between Fort Wainwright and Eielson AFB and the AKRR Tanana River Bridge.

The proposed project would construct a route into the TFTA accessible to wheeled vehicles, generating traffic along the currently undeveloped route alignment. This traffic would be a direct result of the project and coordinated by the project proponent and does not warrant further analysis.

Vehicular traffic along the route leading to the Tanana River Bridge would increase as a result of the Proposed Action. Fuel and other logistical support missions would be redirected from the Bonnifield Trail to the new winter trail. Fuel would be transported by 8,000-10,000-gallon single towed tankers operated by commercial fuel delivery service providers. Tactical vehicles used for training missions could also begin operating through the winter trail, elevating traffic levels.

An exit lane was added to the Richardson Highway north of Tom Bear Trail Road during the construction of the Tanana River Bridge to prevent traffic impacts from that construction project. Military convoys leaving from Fort Wainwright or Eielson AFB

would be able to use the exit lane to slow down and turn off the highway without impacting highway traffic.

USARAK 55-2 governs U.S. Army Alaska transportation operations and planning in Alaska. Convoys are defined as a movement of 10 or more vehicles dispatched to the same destination under a single commander. All convoys moving over the Alaska State highway system require a convoy clearance, issued by the Movement Control Center (MCC). The MCC coordinates with Alaska State authorities, assigns a convoy clearance number, and approves/disapproves the convoy clearance request. This coordination is intended to proactively resolve any potential traffic conflicts caused by military movements. Impacts to traffic and transportation systems would be less than significant due to the Army's requirement to coordinate movement through the MCC in accordance with USARAK 55-2.

3.8. Hazardous Materials/Hazardous Wastes

Operation of the BLRC and other DoD facilities in the TFTA requires the transportation and use of hazardous materials, primarily petroleum, oils, and lubricants (POLs). Maintenance operations at the BLRC generate hazardous waste such as used POL products and batteries. These hazardous materials and hazardous wastes are transported from outside the TFTA to the BLRC on existing trails and by air in some cases.

3.8.1. Affected Environment

Current resupply operations involve the transport of two years of fuel by a commercial fuel company across the Bonnifield trail into the BLRC. This fuel is stored in large above-ground storage tanks in the range complex. The storage capacity of the tank farm is 325,000 gallons and is filled to capacity every other year in order to provide enough fuel, including contingency, for two years of BLRC operation. Fuels and other hazardous materials are stored and handled in accordance with applicable DoD policy, incorporating best management practices such as secondary containment systems, spill kits, and personnel training.

Helicopters transport most of the non-fuel materials required for the operation of the BLRC. Hazardous materials and hazardous waste is packed in drums inside of overpacks (outer container designed to enclose and secure one or more inner containers), and batteries are transported in specially designed containers to prevent leaks from being released into the environment.

The Bonnifield Trail crosses Alpha impact area and Blair Lakes Bombing Range, requiring DoD to perform unexploded ordnance surveys prior to biennial trail

construction. The ordnance used in these impact areas is inert, but contains marking charges that could cause injury to personnel or damage to property if they are triggered or struck by vehicles. The DoD spends $348,000 every two years clearing the trail of unexploded ordnance prior to opening the trail.

No other sources of hazardous materials or hazardous waste were identified during the scoping process. There is the potential for unexploded ordnance to be found almost anywhere in the Training Area. These munitions could have been missed by Explosive Ordnance Disposal (EOD) teams, fallen outside designated impact areas, or be within impact areas but outside the scope of EOD clearance activity. Units and personnel must be vigilant when traversing the Training Area, particularly off-trail in impact areas due to the pervasive threat of UXO.

3.8.2. Environmental Consequences

3.8.2.1. No Action Alternative

Under the No Action Alternative, hazardous waste and hazardous material would be managed in its current manner, and there would be no impacts to existing hazardous material or hazardous waste.

3.8.2.2. Preferred Alternative: Construction of a Winter Trail within the TFTA.

The construction of the preferred alternative would redirect the transport of hazardous waste and hazardous material from the Bonnifield Trail to the new winter trail. A winter trail route utilizing the permanent bridge across the Tanana River would provide annual access to the TFTA and allow fuel deliveries to be performed on a yearly basis. This diffusion of fuel deliveries would reduce the tankage of each delivery iteration. Fuel would be delivered by contractor by tractor trailer pulling single 8-10,000-gallon tankers arriving from Anchorage. The rerouting of fuel delivery through the proposed winter trail would reduce the highway miles traveled by 21 miles from 389 to 368. It would provide for a safer crossing of the Tanana River by substituting an engineered bridge with guard rails for the existing ice bridge. The number of stream crossings on TFTA ice bridges would be reduced by five, reducing the opportunity for spills to reach streams. The proposed winter trail is also 10 miles shorter from the terminus of the Tanana River Bridge to the BLRC than the Bonnifield Trail.

The new trail alignment would avoid crossing any impact areas, improving the safety of current trail operation, which requires annual unexploded ordnance surveys because the Bonnifield Trail transects the Alpha impact area.

The proposed activity would have a beneficial impact on hazardous material and hazardous waste because the proposed trail is shorter than the existing supply route, reducing the chance of spills. Tankage would be reduced by supplying the BLRC annually rather than biennially, the number of stream crossings would be reduced, in turn decreasing the chance of spills impacting aquatic resources. The new trail would avoid crossing impact areas and minimize potential UXO exposure, and helicopter transport of materials would be greatly reduced, minimizing the potential for aircraft accidents and lowering logistical costs.

4. CUMULATIVE IMPACTS

The Council on Environmental Quality's (CEQ) regulations for implementing the National Environmental Policy Act (NEPA) define cumulative effects as "the impact on the environment from the incremental impact of the action when added to other past, present, and reasonably foreseeable future actions regardless of what agency (Federal or non-Federal) or person undertakes such other actions" (40 CFR 1508.7). Cumulative impacts result when the effects of an action are added to or interact with other effects in a particular place and within a particular timeframe. The cumulative impacts analysis focuses on the combination of these effects and any resultant environmental degradation. Cumulative effects analyses include past, present, and reasonably foreseeable future actions in order to provide a view of all disturbances in a particular area compounded over time.

CEQ regulations require that cumulative effects be evaluated along with the direct and indirect effects of each alternative.

4.1. Process for Identification of Cumulative Impacts

Coordination with resource agencies and discussions surrounding the history and development of the proposed project are used to identify reasonably foreseeable future actions. In addition, the Army's cumulative effects guidance manual provides a mechanism for determining and evaluating past, present and reasonably foreseeable future actions. Within this process, the Army defines present actions as those "in detailed planning, under construction, or which have been recently initiated"; and reasonably foreseeable future actions at those "beyond mere speculation, but within the timeframe for analysis." For the proposed action, the Army used 5 years as a timeframe for the analysis due to the relatively quick changing priorities of the DoD, and the military construction schedule which requires 5 years for development and approval of a project.

When considering the Proposed Action of developing a winter trail in the Tanana Flats Training Area (TFTA), the Army has identified general military use of the TFTA for past

actions to be analyzed in the cumulative effects section. For present and reasonably foreseeable future actions, the Army has identified increased usage by the military and non-military users as present and reasonably foreseeable future actions when compared to the current Proposed Action of developing a winter trail in the TFTA. The Army discussed, extensively, whether or not to include the all-season road and AKRR Northern Rail Extension as part of the cumulative effects analysis for this project. It was 3ultimately decided that even though these projects have been identified in recent NEPA analyses and would likely contribute to overall environmental effects in the TFTA, their funding and construction are speculative at this time, not likely to happen in the next 5 years, and therefore will not be included in the cumulative effects analysis for this action. This decision stemmed from discussions with Army planners and Alaska Railroad on the project status for the all-season road and northern rail extension.

4.2. Identified Past, Present, and Reasonably Foreseeable Future Actions

4.2.1. Past Actions

The TFTA is a military training area and has been the site of a variety of military training activities since it was withdrawn in 1941. Those uses include bivouac, maneuvers, indirect fire training, bombing, and other military training activities. Maintenance and operations are conducted in the TFTA throughout the year, involving the transport of materials by aircraft and terrestrial vehicles across the Bonnifield Trail. Land clearing and material extraction has occurred in small pockets of the TFTA. Three gravel landing strips are located in the TFTA, constructed from locally sourced gravel. Trails intercross the training area. Some of these trails have subsided, creating areas of lower relative elevation and impacting hydrology through the presence of additional surface water and directing surface flow.

The past action of greatest intensity in the TFTA was the construction of the BLRC. The Air Force started development of the Blair Lakes Range in the early 1970s and has since that time used the range as an important training facility for strafing and bombing practice. In early 1993, the Air Force implemented a 25-year plan to improve the infrastructure at the range. The improvements have resulted in improved range operations and have also lessened the impact of range maintenance activities to the wetlands. Most Air Force related range activities can now be confined to the all-season roads and target pads. The facility was upgraded in 2010 with a $16.7 million design-build project for the USACE involving the construction of a bulk fuel storage facility, a 20-person dormitory, and vehicle and range maintenance bays located one mile from the existing facilities. The 2,800-square-meter complex features water, septic, power generation, communications and fire protection systems.

Prior to use by the military, the Tanana Flats was traversed by prospectors from Fairbanks accessing the mineral deposits in the foothills north of the Alaska Range. These pioneers constructed trails using men and livestock. Roadhouses were erected along the trails to provide shelter and fresh mounts for travelers. Little evidence of these early activities remain in the TFTA.

4.2.2. Present and Reasonably Foreseeable Future Actions

Increased military usage. The presence of a safer, more efficient, and reliable route into the TFTA would likely increase the amount of military training conducted by the Army and the Air Force in the TFTA. The existing access route into the TFTA is largely dependent on environmental conditions beyond the control of the DoD such as weather, the progress of seasonal frost, and the rate of Tanana River freeze.

The construction of a winter trail into the TFTA would allow more consistent usage of the training area. It may also allow a longer annual usage period by incorporating the AKRR Bridge into the training area access route. The length of use period may also be increased by the use of snow and frost depth measuring devices to determine when the required six inches of snow and/or 12 inches of seasonal frost is present.

Increased military usage has the potential for minor impacts to all of the resources carried forward for analysis. Best management practices and military regulations governing training would be applied in order to minimize the impacts of increased military usage on the resources present in TFTA.

Increased recreational usage. Military training is the dominant land use of the TFTA, but the Army is required to manage the land for multiple uses as long as the military use is not compromised. Multiple-use activities and opportunities include hunting, fishing, trapping, kayaking, rafting, canoeing, hiking, mountain climbing, downhill and cross-country skiing, off-road vehicle use, biking, berry picking, wildlife viewing, and scouting.

Recreational users, largely made up of hunters in the local area, have been following the development of the TFTA winter trail and AKRR bridge project closely in anticipation of the increased access that would result of the construction of a permanent Tanana River crossing and trail into the TFTA. The construction of the proposed project would likely increase recreational user presence in the TFTA and associated impacts from the operation of ORVs in areas that had previously been out of reach to the public.

Access to the TFTA by recreational users is controlled by the AKRR, which controls the gate on the Tanana River Bridge. Access is currently permitted during daylight hours in the month of September. Recreational users are required to agree to the conditions of a

recreational access permit before gaining authorized entry to military lands, which requires certain conditions be met regarding authorized uses. These conditions are generally intended to prevent environmental impact, promote safety, and prevent degradation of the training mission. The full description of access requirements can be found online at: https://usartrak.isportsman.net/files/Documents%2FRegulations%2FDocuments_Regulations_2018%20Outdoor%20Recreation%20Regulation%20Supplment%20Reduced%20size.pdf

The military can also restrict access to certain areas of the installation based on training requirements. The up-to-date access status of military training lands can be found online at: https://usartrak.isportsman.net/openareas.aspx

4.3. Cumulative Impacts Analysis

4.3.1. Cultural Resources

Increased military usage. Military training exercises have the potential to uncover unregistered cultural resources during bivouac, maneuver, land clearing, or other ground disturbing activities. The alignment of the proposed winter trail was designed to avoid known cultural resources, but does cross through the Blair Lakes Archaeological District; the site of the second-oldest known archaeological site in Alaska and 86 pre-contact, historic, and multi-component sites. The construction of a winter trail along the proposed alignment would allow access to previously inaccessible areas in the Blair Lakes Archaeological District; which has the potential to increase inadvertent discovery of cultural resources and exacerbate erosion, exposing previously protected historic sites.

NEPA requires that the army review and document the impacts of Federal or federally funded activities, and mitigate significant impacts. In practice, this means that units wishing to train in TFTA must notify the Director of Public Works, Environmental Office to determine the level of review require for their proposed activity. In many cases, the proposed training activity can be authorized by a low-level environmental review called a “record of environmental consideration”, which does not require a public review. However, any action that could affect cultural resources and is not categorically excluded would require an environmental assessment and public notice period. The required to review and document the environmental impacts of proposed training activities would result in a low level of cumulative impacts to cultural resources from the increased military training presence when considered with the proposed winter trail.

Military training on TFTA is regulated by USARAK 350-2, which provides guidance for the seasonal execution of various training activities in order to prevent unacceptable impacts to the environment, including cultural resources. Adherence to the pre-approved land use matrices in USARAK 350-2 would contribute to a low level of cumulative impact to cultural resources from increased military training.

Increased recreational usage. The increased access provided by the winter trail would be the biggest threat to cultural resources by increased recreational use because it would open areas of the TFTA to inadvertent discovery, accidental damage, looting, or other impacts. The trail would extend into previously inaccessible areas of the TFTA that may not have been thoroughly surveyed for the presence and distribution of cultural resources.

Recreational users are required to adhere to the conditions of their RAP, which includes the following requirement regarding cultural resources;

> *"All individuals who discover archaeological materials, human remains, or any such cultural resource will immediately cease any disturbance of the resource and surrounding area and report such findings to the installation's Cultural Resource Manager (CRM). The disturbance or removal of cultural resources without the approval and direction of the CRM and the appropriate permit(s) can be a violation of federal, state law(s), and Army regulation. Archaeological and cultural resources can be any human/animal part or material fashioned by human activity over 50 years old. Unless you are issued a permit for scientific research, you may not collect any artifacts, ancient or historical, on federal or state lands."*

Adherence to the conditions of RAPs and the Outdoor Recreation Regulation Supplement, United States Army, Alaska, Fort Wainwright would contribute to a low level of cumulative impact to cultural resources from increased recreational activity. Cumulative impacts would be further limited by USARAK regulations limiting tree cutting without a permit to trees smaller than four inches in diameter, for the purposes of brushing out existing trails, clearing camping spots, or minor clearing for hunting or trapping use. This would prevent unauthorized deviation from the trail alignment, which has been screened for impact to cultural resources.

4.3.2. Biological Resources

Increased military usage. Military training exercises have the potential to impact biological resources during bivouac, maneuver, land clearing, or other ground disturbing activities. Additional military in an undeveloped area generally has a negative impact on

biological resources due to habitat disturbance, noise producing activities, direct mortality from accidental or intentional actions like vehicular strikes, self-defense killing of wildlife, transport of invasive species, introduction of unnatural food sources like garbage, and other actions. Military training already occurs in the TFTA, but the construction and operation of the proposed winter trail would open previously inaccessible areas of the TFTA to training and extend the range of the impacts to biological resources from training. Military training use of the TFTA is generally limited to the winter time due to restrictions applied to maneuvers on unfrozen ground, and the impracticability of operating large vehicles in wet areas.

Military training is governed by regulations limiting the impacts to the environment from military training and proposed training activities exceeding the level of impact pre-screened activity thresholds would be subject to environmental analysis commensurate with their level of impact. The Army continuously assesses the lands under its management and updates the Installation Natural Resources Management Plan every five years in order to sustainably manage natural resources, while preserving the dominant use of training lands. When considered with the environmental regulations and best management practices employed by the Army, the cumulative impacts to biological resources of increased military usage would be minor.

Increased recreational usage. Additional recreational use of the TFTA has the potential to impact the biological resources in the area in many of the same ways that increased military usage would, the main differences being that recreational users would likely represent a less intense presence, but would be subject to less oversight.

Some recreational usage increases expected to occur if the winter trail is constructed would be cross-country skiing, berry picking, dog mushing, and other light recreational uses. Off-road vehicle operation in support of hunting and trapping is the largest potential impact presented by increased recreational use due to the additional range offered by ORVs, the potential to degrade the trail, the noise produced by the operation of ORVs, potential wildfire ignitions, and hazardous materials in the form of fuel and oil. The Army's regulations governing the recreational use of military training lands provide operating conditions intended to reduce the impacts of recreational use on training lands. These include weight restrictions, buffers, speed limits, and area closures. Additional recreational access would likely increase the number of game animals taken from the TFTA as well by improving access. The management of game animals is adjudicated by the Alaska Department of Fish and Game (ADFG), which bases harvest limits on regular census. The ADFG would modify harvest limits in the Game Management Unit (GMU) if it is determined the increased recreational usage has an unsustainable impact on wildlife population.

Vegetation could be slightly impacted by the additional recreational usage through some light tree-cutting or brush clearing, but these impacts would be minor due to the restrictions placed on vegetation clearing by the Army's Outdoor Recreation Regulation. The operation of ORVs in the TFTA would introduce additional ignition sources to the area, could damage vegetation, and could transport invasive seeds into the area.

Considering the scale of the biological resources present in the TFTA with respect to the potential impact of the winter trail and the management systems in place to protect biological resources, the cumulative impacts to biological resources would be minor.

4.3.3. Geology and Soils

Increased military usage. Negligible impacts to geology and soils are expected to be presented by the increased military usage of the TFTA due to the mitigations associated with the construction and operation of the trail, and expectation that military usage would be largely confined to the trail prism evaluated in this environmental assessment; namely the requirement for adequate snow or frost to be present prior to trail operation or construction. The proposed trail was designed to avoid impacts to geology and soils and the additional military usage that could accompany the development of the winter trail would be confined to the immediate vicinity of the trail. The Army would monitor trail condition in order to endure unacceptable trail degradation is not presented by increased military usage.

Increased recreational usage. Recreational users are subject to the USARAK regulations governing recreation, but the potential to impact geology and soils remains after considering usage restrictions. Off-road vehicles less than 1,500 pounds can operate anywhere in an open use area throughout the year, i.e., small ORVs are not confined to the trails and could damage areas outside the trail prism that were not included in the study area for this environmental assessment. ORVs weighing more than 1,500 pounds are not allowed on Fort Wainwright lands without a special use permit issued by the Garrison Commander. There are no restrictions for any off-road recreational vehicles when the soil is frozen or there is at least 6" of snow cover.

Off-road vehicles could disturb the insulating organic layer in permafrost areas, making permafrost more susceptible to thaw. The relatively warm nature of the permafrost in the TFTA makes it more sensitive to small temperature fluctuations than permafrost in colder areas, such as permafrost north of the Brooks Range. The impact of soils and geology degradation in the TFTA is considered permanent from an anthropocentric perspective. USAG Alaska Environmental staff would perform trail condition surveys in

order to determine the extent of impact from additional recreational usage and could impose additional restrictions on recreational usage if trail degradation exceeds acceptable levels or impacts the military training mission.

The cumulative impact of increased recreational usage to geology and soils is moderate due to the high likelihood of occurrence and irreversible nature of the impact, when considering the small geographic distribution of the potential impact.

4.3.4. Water Resources

Increased military usage. Negligible impacts to water resources could be presented by the increased military usage of the TFTA as a result of winter trail construction and operation. The additional areas made accessible by the trail could be impacted by off-trail maneuvers, but normal TFTA training is conducted in coordination with DPW Environmental and so subject to environmental analysis through appropriate mechanisms based on level of impact. Terrestrial training in the TFTA is mostly confined to the winter, when the majority of water resources, including wetlands, are frozen and resilient to impact. Some groundwater impacts may occur through aufeis, but those impacts have been analyzed in the water resources section of this environmental assessment.

Increased recreational usage. Moderate impacts to water resources may be presented by an increase in recreational usage of the TFTA. Recreational use is not confined to the frozen months, or any time of the year, that would reduce impacts to water resources in the manner of way military training. The operation of ORVs in wetlands could alter the wetland hydrology by creating ruts that act as channels and drain water away from wetlands. The operation of ORVs in riparian areas without the presence of ice bridges could contribute to water quality degradation and erosion.

The Fort Wainwright Outdoor Recreation Regulations explicitly prohibit “disturbing the landscape by rutting, trenching, or damaging wetlands.” The closed nature of the forest along much of the trail would deter a large portion of recreational users from deviating from the trail and reduce the probability of impacting water resources outside of the scope of analysis in the environmental assessment. Fort Wainwright Environmental would also perform trail condition surveys in order to evaluate trail conditions. The results of the surveys could lead to further access restrictions in order to prevent unacceptable environmental damage or impacts to the training mission. Impacts to water resources could be potentially be remediated, but wetlands restoration is particularly challenging in Alaska due to the short growing season and other factors, so any impacts to water resources should be considered persistent. Given the high

likelihood of the impacts occurring and the difficulty associated with remediating those impacts, the residual impacts to water resources from increased recreational usage is moderate when considered with applicable regulatory protections.

4.3.5. Land Use

Increased military usage. A significant beneficial impact to land use would result from the increase in military usage because military usage is the dominant land use of the TFTA.

Increased recreational usage. A beneficial impact to land use would result from the increase in recreational usage due to the secondary directive of the Army to allow compatible land uses on withdrawn lands.

4.3.6. Traffic and Transportation Systems

Increased military usage. Traffic and transportation systems would see a negligible impact from increased recreational usage due to the elevated number of vehicles using the access routes. Military vehicle traffic would pass through the sections of highway and Tom Bear Trail Road leading up to the bridge and continue on to the winter trail after passing through the gates controlling access on the AKRR Bridge. Military vehicle traffic would be coordinated with the State Department of Transportation and Installation Movement Control Center in order to evaluate and avoid potential impacts to traffic and transportation systems.

Increased recreational usage. Traffic and transportation systems would see a minor impact from increased recreational usage due to the elevated number of vehicles using the access routes. The greatest impact to traffic and transportation systems would likely occur during moose hunting season in September. The availability of adequate parking for privately owned vehicles and trailers could present a problem depending on what areas are made available to the public during that time.

4.3.7. Hazardous Materials and Hazardous Waste

Increased military usage. Negligible impacts to hazardous waste and hazardous materials would be presented when considering the potential increase in military usage because the construction and operation of the winter trail would provide a safer and more reliable access route into the TFTA than the existing route along the Bonnifield Trail.

Increased recreational usage. Minor impacts to hazardous waste and hazardous material could be presented by the increased recreational usage of the TFTA by an increase in fuel, oils, and other materials associated with ORVs. The operation of ORVs in the TFTA is subject to State of Alaska regulations regarding pollution.

5. CONCLUSION

The impacts of the proposed project are less than significant when considered individually or cumulatively with past, present, or reasonably foreseeable future actions. Table 5 presents a summary of the comparative analysis of the Proposed Action and No Action Alternative for each resource evaluated in this EA. A detailed discussion of potential effects is presented in Chapter 3, Affected Environment and Environmental Consequences.

Based on the analysis performed in this EA, implementation of the Proposed Action, in general, would have less than significant direct, indirect, and cumulative effects on the quality of the natural or human environment. A Finding of No Significant Impact (FNSI) will be prepared for the proposed activity. An Environmental Impact Assessment is not required for the construction and operation of a winter trail in the TFTA.

The Proposed Action incorporates a number of standard measures, including best management practices (BMPs), where appropriate to reduce and/or eliminate potential impacts. In recent years, both the USAG Alaska and U.S. Army Alaska (USARAK) have produced a variety of NEPA analyses including Army force transformation efforts, the addition of Soldiers and new equipment, a general increased use of training lands, and range development projects throughout USARAK ranges. These documents have also identified many regulations, policies, and management programs, BMPs, and specific mitigation measures used to avoid, minimize, and mitigate various adverse impacts to the affected environment at Fort Wainwright. The following example documents provide examples of BMPs and mitigation measures that are ongoing and incorporated as baseline management techniques employed by the USAG Alaska for land management, including this action. No new mitigation measures are proposed for the construction of the winter trail in the TFTA.

- *Modernization and Enhancement of Ranges, Airspace, and Training Areas in the Joint Pacific Alaska Range Complex in Alaska Final Environmental Impact Statement (EIS), August 2013.*

- *Range Complex and Training Land Upgrades Finding of No Significant Impact and Programmatic Environmental Assessment, March 2010*

- *U.S. Army Alaska Regulation 350-2 Training Range Safety, July 2011*

- *U.S. Army Garrison Fort Wainwright Regulation 190-13 Outdoor Recreation Policies and Enforcement on Fort Wainwright Installation Lands and Waters, October 2013*

- *Integrated Natural Resources Management Plan (INRMP), 2013; 2007 INRMP EA; and 2013 INRMP Update Record of Environmental Consideration*

- *Integrated Cultural Resources Management Plan (ICRMP), 2013; 2000 ICRMP EA; and 2012 ICRMP Update Record of Environmental Consideration Integrated Training Area Management (ITAM) Plan and ITAM EA, October 2005 and June 2005, respectively*

Table 5. Summary Table of Environmental Impacts

Resource/Issue	Preferred Alternative	No Action Alternative
Cultural Resources	No historic properties affected	No Effect
Biological Resources	Minor impacts from the loss of 142 acres of vegetation, disruption to habitat, and elevated game animal harvest from access improvement	Minor impact from sustained use of Bonnifield Trail and associated wildlife disturbance and vegetation degradation. No new impacts from winter trail.
Geology and Soils	Minor impacts from potential permafrost degradation	Moderate impacts from the sustainment of Bonnifield Trail usage and resultant soil degradation
Water Resources	Minor impacts from potential subsidence and resultant hydrologic alteration	Moderate impacts from the sustainment of Bonnifield Trail usage and resultant hydrologic alteration
Land Use	Moderate beneficial impacts to military training land use, potential moderate beneficial impacts to recreation land use (contingent upon recreational users compliance with protective restrictions)	No Effect
Traffic and Transportation Systems	Minor impact from increases military traffic in vicinity of Salcha, minor beneficial impact from decrease in military traffic in vicinity of Fairbanks as access point shifts	No Effect
Hazardous Materials and Hazardous Waste	Moderate beneficial impact as fuel tankage and air transport of hazardous materials would decrease, access route would become safer and more reliable	Moderate impact from sustained high level of tankage over the Bonnifield Trail and continued use of aircraft resupply
Cumulative impacts	Minor impact from increased military and recreational usage	No Effect

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U.S. Army Alaska			
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7. DISTRIBUTION LIST

FEDERAL OFFICIALS AND AGENCIES

- Bureau of Land Management
- US Army Corps of Engineers, Regulatory Division
- National Park Service, Cultural Resources Team
- National Park Service, NHL Program Coordinator
- US Fish and Wildlife Service, Planning Assistance Branch
- Natural Resources Conservation Service

STATE OFFICIALS AND AGENCIES

- Alaska State Historic Preservation Office
- Alaska Department of Fish and Game, Wildlife Division
- Alaska Department of Fish and Game, Habitat Division
- Alaska Department of Transportation and Public Facilities
- Alaska Department of Natural Resources
- Alaska Railroad Corporation
- Alaska Department of Environmental Conservation, Water Quality Division

LOCAL OFFICIALS AND AGENCIES

- Fairbanks North Star Borough, Historic Preservation Commission

ALASKA NATIVE TRIBES

- Native Village of Tetlin
- Nenana Native Association
- Native Village of Tanacross
- Village of Dot Lake
- Northway Village
- Healy Lake Village

NON-GOVERNMENAL AGENCIES

- Tanana Chiefs Conference, Realty Branch
- Tanana Yukon Historical Society

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Appendix A
Scoping Comment Letters Received

From:	Durst, James D (DFG)
To:	Ferguson, Matthew W CIV USARMY CEPOA (US)
Cc:	Borba, Bonnie M (DFG); Ott, Alvin G (DFG); Wuttig, Klaus G (DFG); Brown, Caroline L (DFG); Hollis, Tony L (DFG); Fink, Mark J (DFG); Proulx, Jeanne A (DNR); Soiseth, Benjamin N CIV USARMY CEPOA (US); NOAA Fisheries, Anchorage; Bob Henszey; Rees Dan
Subject:	[EXTERNAL] ADFG TFTA Winter Trail EA Scoping Comments
Date:	Tuesday, December 12, 2017 12:09:06 PM
Attachments:	FH11-III-0007-2 USARAK Seibel Ice Bridges Water Withdrawals.pdf FH11-III-0007-2 Enclosures.pdf

USACE Environmental Resources Section

Attn. Mr. Matthew Ferguson

CEPOA-PM-C-ER (M. Ferguson)

P.O. Box 6898

JBER, AK 99506-0898

The Alaska Department of Fish and Game (ADF&G), Division of Habitat has reviewed the Invitation to Participate in the Scoping Process for the Tanana Flats Training Area Winter Trail Environmental Assessment, Fort Wainwright, Alaska. Scoping comments will be used during preparation of an Environmental Assessment (EA) for construction of a winter trail in the Tanana Flats Training Area (TFTA). During our review, we consulted with the ADF&G divisions of Commercial Fisheries, Sport Fish, Subsistence, and Wildlife Conservation, as well as the ADF&G Access Defense program, and have incorporated their comments.

The United States Army Garrison Fort Wainwright, Alaska (USAG FWA) proposes to establish an approximately 23-mile winter trail to connect the southwest end of the Alaska Railroad Corporation's (ARRC's) Tanana River Crossing bridge series to the existing trail and road system near the Blair Lakes Impact Area. The trail would be approximately 40 feet wide and constructed of compacted and graded snow atop the existing organic mat. Trees and shrubs within the trail corridor would be hydroaxed. Ice bridges would be used to cross at least five streams. The trail would potentially be used annually from October through March.

A major source of information and analyses in the eastern portion of the proposed route is the Surface Transportation Board's 2009 Environmental Impact Statement (Docket No. 34658) Alaska Railroad Corporation Construction and Operation of a Rail Line between North Pole and Delta Junction, Alaska. Phase 1 of that project (known as the Northern Rail Extension or NRE) was completed, resulting in the existing 3,300 feet long Tanana River Crossing bimodal bridge over the Tanana River braidplain and temporary vehicle bridges over two Tanana River side channels locally known as Boundary Slough and Beebee Slough. Current NRE construction ends just west of the Beebee Slough crossing.

The winter trail as proposed appears to cross at least three cataloged anadromous fish water bodies (Tanana River side channels, Clear Creek, unnamed tributary to Clear Creek), and several resident fish water bodies (including Dry Creek). The numerous bogs and fens in the area form the headwaters of both resident fish streams and anadromous fish streams such as Bear Creek and McDonald Creek. Water quality and quantity in these drainages needs to be maintained during winter trail development, use, and maintenance, including efforts to not change surface sheet flow across the area since the trail runs largely perpendicular to surface flows.

Available information includes fish and hydrologic surveys done for the NRE, surveys by ADF&G and others documented online in the ADF&G Fish Resource Monitor (see Blockedhttp://extra.sf.adfg.state.ak.us/FishResourceMonitor/), and recent surveys sponsored by the Fort Wainwright Directorate of Public Works. The Anadromous Fish Act (Alaska Statute [AS] 16.05.871) covers the protection of anadromous water bodies, their beds, and banks, while the Fishway Act (AS 16.05.841) guarantees that the free passage of fish, upstream and downstream, is maintained in all fishbearing waters.

The USAG FWA uses a number of traditional ice bridge crossings of fishbearing waters, currently permitted by ADF&G under Fish Habitat Permit FH11-III-0007 Amendment 2 (attached). This permit addresses crossing locations and construction methods, and conditions for associated water withdrawals. All crossings of fishbearing water bodies, and associated water withdrawals, are subject to review by ADF&G for potential fish habitat permits.

For crossings of anadromous water bodies and spring-fed fish bearing water bodies, the ADF&G strongly recommends use of properly designed and installed bridges or open-bottom arches, with embedded culverts a less desirable third choice. Bridges and arches greatly reduce effects on fish and fish habitat, accommodate winter overflow and icing, and provide stable, predictable crossings. Recommended structures are also preferable for crossings of resident fish bearing water bodies that are not spring fed, but those waters are more amenable to installation, use, and maintenance of ice bridges. It is important that ice bridges be slotted or otherwise compromised prior to breakup to allow for natural stream flows within the established channel.

Wildlife species typical of interior Alaska use the various portions of the TFTA at least seasonally, including moose, brown and black bears, wolves, lynx, marten, beaver, and other furbearers. The area north of the proposed trail is a moose calving concentration area. By winter, about half the moose have left that area, dispersing south to the northern foothills (likely crossing the proposed winter trail route)and east to the upper Salcha basin. The other half of the population remains in the greater project area, using willow-rich winter feeding areas. The moose population in the TFTA is mandated by state statute for intensive management including high productivity and high human use.

The ADF&G appreciates the efforts made by the USAG FWA to coordinate and facilitate public use of Fort Wainwright training areas, including the TFTA, for recreation, fishing, hunting, trapping, wood cutting, and other pursuits using the USARTRAK system provided such use does not conflict with the military mission or training activities. Portions of the TFTA potentially affected by development and use of the proposed winter trail (TA 207 and TA 208) currently receive substantial use by hunters, bear baiters, and trappers. Existing public uses should be accommodated as much as possible.

Two longer-term issues should be addressed in the EA. The bridges currently over Boundary and Beebee sloughs are temporary structures, installed as part of NRE Phase 1 construction. The permits authorizing installation and use of these bridges require removal by March 31, 2020. Permanent bridges for crossings of the slough channels by both vehicles and the railroad were designed and permitted by the ARRC but have not been constructed. The EA needs to identify and address plans by the USAG FWA for crossing these channels on a continuing basis.

For a number of years, the Department of Defense has been hardening travel corridors, target sites, and operational facilities within the Tanana Flats, Yukon, and Donnelly training areas to improve accessibility and reduce potential

natural resource damage. Central to those efforts has been the conversion of winter trails and ice waterbody crossings to all season roads and permanent bridge or culvert crossing structures. It is reasonable to assume that such upgrades are in the future for the access route proposed for this EA. Such a conversion from winter trail to all season road should be identified and addressed by the EA, and include material sources, road and clearing widths, any wetland fills or ground disturbances, water body crossings, and potential alterations to surface water flows, snow machine and dog musher access, etc.

Any questions about these comments, or requests for additional information, may be directed to me or to Regional Supervisor Audra Brase (907-459-7282 audra.brase@alaska.gov).

James Durst, Habitat Biologist

Alaska Department of Fish & Game

Division of Habitat

1300 College Road

Fairbanks, AK 99701

(907) 459-7254

james.durst@alaska.gov

11.14.17 3130-1R Army Ft. Wainwright

DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT COMMAND
HEADQUARTERS, U.S. ARMY GARRISON, FORT WAINWRIGHT
1046 MARKS ROAD #6000
FORT WAINWRIGHT, ALASKA 99703-6000

NOV 02 2017

Directorate of Public Works

SUBJECT: Tanana Flats Training Area Winter Trail

Judith E. Bittner
State Historic Preservation Officer
Office of History and Archaeology
550 West Seventh Avenue, Suite 1310
Anchorage, Alaska 99501-3565

MSJ No Historic Properties Affected
Alaska State Historic Preservation Officer
Date: 11.14.17 File No.: 3130-1R Army Ft. Wainwright 2017-01263
Please review: 36 CFR 800.13 / A.S. 41.35.070(d)

Dear Ms. Bittner:

The US Army Garrison Fort Wainwright (USAG FWA) has proposed to develop a new winter trail in the Tanana Flats Training Area (TFTA). No ground disturbance is expected, but vegetation removal using a hydroaxe method will occur in the trail corridor. Winter travel will occur along the trail and winter maneuvering by the Army may take place in the area surrounding the trail.

The Section 106 of the National Historic Preservation Act (NHPA) (54 U.S.C. § 306108) review of the project was conducted in July 2017. No archaeological sites are known from within the footprint of the trail area of potential effect (APE). Most of the trail development APE is in previously surveyed locations and fall under Fort Wainwright's Operations and Maintenance Programmatic Agreement (FW-PA-1601) and surveys in the area for the past seven years have targeted upland locations to identify over 80 sites. The road route was created in close consultation with Fort Wainwright's cultural resources staff to avoid archaeological sites. The USAG FWA has determined that no historic properties will be adversely affected by the undertaking. The Application of the Criteria for Adverse Effect [36 CFR § 800.5(a)] indicates a finding of **No Historic Properties Affected** for the Tanana Flats Training Area Winter Trail project. The USAG FWA requests your concurrence with this finding.

Project Setting and Environment: The proposed project is located in southeastern section of TFTA (Figure 1). The geology of Fairbanks, Alaska and the surrounding area is characterized by round even-topped, northeast to east trending ridges that rise above adjacent valley floor to an elevation of 450-915 meters above sea level (masl). Bedrock is primarily composed of Precambrian Birch Creek schist with few areas of igneous intrusions, granite and quartz diorite. Most of the area is covered by a thin (1-200 cm) mantle of micaceous aeolian silt (loess) derived from outwash plains south of the Tanana River (Muhs and Budahn 2006). Soils are typically well-drained brown silt loam associated with poorly drained silt loams in depressions and drainages (Natural Cooperative Soil Survey 1999).

2017-01263

From:	Leinberger, Dianna L (DNR)
To:	Ferguson, Matthew W CIV USARMY CEPOA (US)
Cc:	Wait, Alexander J (DNR); Sackinger, Robert B (DNR)
Subject:	[EXTERNAL] FW: Tanana Flats Winter Trail scoping invite
Date:	Wednesday, December 13, 2017 5:14:40 PM
Attachments:	AKDNR.pdf

Mr. Ferguson,

Thank you for the opportunity to provide scoping comments. Please be aware that while the Alaska Department of Natural Resources issued a private exclusive easement to the Alaska Railroad Corporation for the Tanana River Bridge, the road across the islands which are state land, and for bridges across Boundary and BeeBee Sloughs (the sloughs to the west of the river), the existing bridges across the sloughs are temporary and not authorized beyond 2020.

If you have any questions regarding this, please let us know. Again, thank you for the opportunity to provide input during scoping.

-Dianna

Dianna Leinberger
Natural Resource Manager
Northern Region Office - Fairbanks
Division of Mining, Land & Water
Department of Natural Resources
(907) 451-2728

-----Original Message-----
From: Ferguson, Matthew W CIV USARMY CEPOA (US) [mailto:Matthew.W.Ferguson@usace.army.mil]
Sent: Monday, November 13, 2017 11:49 AM
To: Proulx, Jeanne A (DNR) <jeanne.proulx@alaska.gov>
Subject: Tanana Flats Winter Trail scoping invite

Hi Jeanne,

Please find an invitation to participate in the scoping process for US Army Garrison Ft. Wainwright's proposed winter trail in the attached.

Thanks!

Matt Ferguson, Biologist
Environmental Resources Section
USACE, Alaska District
907-753-2711

ALASKA
RAILROAD

December 11, 2017

CAPITAL PROJECTS
TEL 907.265.3095
FAX 907.265.2638

Matthew Ferguson
CEPOA-PM-C-ER (M. Ferguson)
P.O.Box 6898
JBER, AK 99506-0898

RE: Comments on the Tanana Flats Training Area Winter Trail Environmental Assessment, Fort Wainwrights, Alaska

Dear Mr. Ferguson:

On behalf of the Alaska Railroad Corporation (ARRC), thank you for the opportunity to comment on this proposed project. Based upon the information provided, ARRC has no specific comments or objects regarding the proposed project. However, we would like to bring two mattes to your attention.

First, there is no long-term agreement for the military to use the bridge over the Tanana River. Use by the military for access to the tainting ground has been permitted on a case-by-case basis. It would seem that the proposed winter trail development will likely increase the need for the military to use the bridge, and it would be administratively more expedient if a long-term usage agreement were to be in place prior to trail construction.

Secondly, two temporary construction bridges remain in place, crossing two sloughs (Boundary and Beebee sloughs) on the south/west side of the river. The regulatory permits for these bridges specifically direct for their removal. IF the military intends to utilize these two bridges, new bridges will have to be constructed, or the regulatory permitting and potentially their ownership will have to be adjusted for longer-term use.

Thank you for the opportunity to review the proposed project. Please feel free to contact me with any further questions.

Sincerely,

Brian A. Lindamood, PE, SE
Director, Capital Projects

cc: Tim Sullivan
Clark Hopp
Jeannette Greenbaum

United States Department of the Interior

BUREAU OF LAND MANAGEMENT
Eastern Interior Field Office
222 University Avenue
Fairbanks, Alaska 99709-3816
http://www.blm.gov/ak

In Reply Refer To:
8353 (LLAKF02000)

Matt Ferguson – Biologist
DEPARTMENT OF THE ARMY
Alaska District, U.S. Army Corps of Engineers
P.O. Box 6898
Joint Base Elmendorf-Richardson, AK 99506-0898

Re: Scoping Process for the Tanana Flats Training Area Winter Trail EA, Fort Wainwright, Alaska

Dear Mr. Ferguson:

The Bureau of Land Management Eastern Interior Field Office (EIFO) has reviewed the referenced scoping request for an Environmental Assessment (EA) evaluating the potential impacts from the construction of a winter trail in the Tanana Flats Training Area (TFTA). EIFO understands the winter trail will be constructed and maintained in the same manner as the Bonnifield Trail currently utilized to access the TFTA. The proposed winter trail would begin at the terminus of the Alaska Railroad Tanana River Bridge, near Salcha, Alaska, and extend southwest for approximately 23 miles. The proposed route would link to: 1) an existing trail to the Bonnifield Bypass Trail currently utilized on a biennial basis, and 2) the existing trail to the Blair Lakes Landing Zone (BLLZ) area. EIFO understands the activities would not include any upgrades to existing trails to the BLLZ area. The proposed 40-foot wide trail would be constructed during the winter season once the ground is sufficiently frozen. Trail construction involves hydroaxing vegetation which removes the above ground vegetation (trees/shrubs) while leaving the organic mat intact, thereby reducing erosion potential. Ice bridges would be constructed to cross five streams including Clear, McDonald, Dry, and Bear creeks. EIFO understands the sole purpose of this trail is winter access to the TFTA, from approximately October through March.

These lands were withdrawn from all forms of appropriation under the public land laws, including mining laws, and reserved for the use of the War Department as an aerial bombing and gunnery range by Executive Order 8847 in 1941. EO 8847 was amended in 1962 by Public Land Order 2676, which substituted the words "Department of the Army" for the words "War

Department" wherever they occur. EO 8847 also stated the Department of Interior shall retain jurisdiction of the minerals and vegetative resources of the lands.

EIFO appreciates early coordination on the proposed winter trail project in the TFTA. We offer the following recommendations to consider in your analysis.

Fire Management: The effect of a linear fuel break should be analyzed. This project could aide in the suppression of unwanted wildfire and potentially obstruct fires that are desirable. The project also may increase human activity during fire season and thus potentially increase human ignitions. Since the proposal is to complete the clearing in winter months fire risk from clearing activities should be minimal.

We also recommend that during the design phase of this project the route or construction technique potentially be modified to aide in fire protection from planned military pyrotechnic activities. Slash treatment plans should be specified and analyzed for effect on fire hazard as well as that of forest pests. Any slash or woody debris created/removed should be piled. Piles should be constructed with care to keep free of any tundra and soil. Piles should be burned to reduce fire hazard from woody down debris. Piles should be constructed individually and not a wind-throw technique which is difficult to burn because of arrangement. Piles of 15-20 feet high by 15-20 wide are preferred. Piles should be spaced at least 50 feet apart.

Invasive, Nonnative Species: Although use will be primarily during the winter, the potential for introduction or spread of invasive, nonnative species should be analyzed. The Alaska Exotic Plant Information Clearinghouse (AKEPIC) indicated that several invasive species of highest concern have been recorded in the Tanana Flats Training Area near or adjacent to the planned winter trail. We recommend you consider establishing a minimum snow depth (for example, 12 inches) and frost depth (for example, 12 inches) to reduce the chances of invasive species being introduced or spread along the winter trail. It will also minimize damage to vegetation and soil disturbance that would provide an opportunity for invasive plant species to establish. If vehicles and equipment used on the trail have been used during periods of the year, and in places where invasive plant seed could be encountered, they should be pressure washed before traveling on the trails.

Recreation/Access: If this trail will be accessible to the public for recreation, we recommend you analyze impacts from public access. These could include direct impacts to resources from motorized access such as soil erosion. Indirect impacts could include increased harvest of fish and game resources due to improved access and the potential introduction or spread of noxious or invasive species

Subsistence: We recommend you analyze impacts to subsistence users. ANILCA Section 810 requires an evaluation of effects on subsistence resources and access of any Federal action. Federal subsistence use is not allowed on TFTA, but the construction could affect Federal subsistence users through effects on migratory species such as moose and fish.

Vegetation: The proposed action will affect vegetation resources (including clearing of brush and trees) and should be analyzed. Since the Department of the Interior retained management of

vegetation resources on these lands, Fort Wainwright will need to work with BLM EIFO on the disposition of any forest products harvested during this project. We recommend you analyze effects of winter roads on underlying vegetation, especially in wetlands, riparian and permafrost areas. The JPARC EIS proposed construction of a gravel road is in this same area.

Fish: Three anadromous streams (Bear, McDonald, and Clear Creeks) identified in the Alaska Dept. of Fish & Game Anadromous Waters Catalog (AWC) are located in the vicinity of the proposed winter trail route. These streams are occupied by Coho, Chum and Chinook salmon. They also provide habitat for resident Arctic Grayling. Impacts to fish movement (migration) during winter months should be analyzed and minimized. BLM recommends that construction of an ice road comply with Alaska Department of Fish & Game specifications for withdrawing water and constructing ice-bridge stream crossings to minimize impacts to fish and their habitats. When possible, crossing of waterway courses should be made using a low-angle approach. Crossings reinforced with additional snow or ice ("bridges") should be removed, breached, or slotted before spring breakup.

Wildlife/Terrestrial: Some direct loss of wildlife habitat, such as vegetation for migratory birds, will occur. We recommend that you use raptor data collected in TFTA in 2010 to minimize impacts to nesting raptors and eagles, and avoid vegetation clearing during the nesting season.

Hydrology/water quality: The winter trail has the potential to disrupt hydrology of the area if not designed properly. The Army should design the trail to avoid areas of groundwater upwelling and blockage of stream or drainage patterns. Construction requiring the withdrawal of water should be designed to maintain sufficient quantities of surface and contributing groundwater to support fish, wildlife, and other beneficial uses. The analysis should describe how streams altered by channeling or diversion would be restored to proper functioning condition. Additionally we recommend you describe how streams/groundwater upwelling along the trail will be monitored for impacts caused by construction or use.

The EA should consider potential impacts to water quality, including how the winter trail be constructed, to avoid pollution or degradation of streams or lakes. Streams should be monitored for water quality impacts that may be caused by route construction and/or use. Erosion control measures should be implemented and maintained in disturbed areas, with potential to catch and confine runoff.

Soils: The winter trail has the potential for impacts to soils if not designed properly. The Army should design and locate the trail to avoid highly erodible, unstable, or fragile soils and minimize compaction of soils and breakage, abrasion, compaction, or displacement of vegetation. Consider offsetting the trail location annually to avoid using the same route each year. Consider prudent use of erosion control measures, including matting, temporary sediment traps, and water bars. The type and location of sediment control structures, including construction methods, would vary by site-specific characteristics.

I have enclosed a Valued Environmental Components Matrix (VEC Matrix) that was composed by resource specialists. This is the process that EIFO goes through to get input from resource staff to make decisions on lands that are solely managed by BLM. The recommendations in the VEC Matrix are solely to provide information and context to be considered in your analysis and do not constitute guidance from BLM.

We appreciate the opportunity to comment on this project, and would be happy to discuss our comments with you. These comments are based on the information provided in the scoping request. If there are changes to the project plan, we would appreciate an opportunity to review the changes. We look forward to discussing vegetation management in the TFTA as you move forward on this project. Please contact John Haddix at 907-474-2350 or jahaddix@blm.gov, should you have any questions concerning these comments.

Sincerely

Adam Carr
Field Manager

Enclosure

Valued Environmental Components (VEC) Matrix

Valued Environmental Components	Identify Issues for Analysis (Refer to Section 6.4 of the BLM NEPA Handbook) YES or NO	Rationale and Specialist Sign Off Brief Description of Rationale
Air Quality	Yes	1) How will noise associated with use of the winter trail affect local wildlife, particularly moose. 2) How will burning of slash piles from route clearing impact local air quality, including Fairbanks and North Pole PM2.5 nonattainment areas. 3) How will emissions from motorized vehicles and equipment, associated with winter trail use, impact local air quality/ local PM2.5 nonattainment areas. BWK_121117
Areas of Critical Environmental Concern	No	There are no ACECs in the region of the proposed action and this should not require analysis in an EA. JDH 2017_11_17
Cultural Resources	No	On November 2, 2017, the Ft. Wainwright Directorate of Public Works sent a letter to the Alaska State Historic Preservation Office recommending a finding of No Historic Properties Affected for the proposed undertaking. I received a copy of this detailed letter, and have read through it. The route chosen was created in close coordination with Ft. Wainwright's cultural resources staff to avoid archaeological sites. The APE has been surveyed by archaeologists. I concur with the Army's finding. ROM 11-27-17
Environmental Justice	No	FWA would be responsible for coordinating this action through their JAG office. JAH 2017_12_12
Essential Fish Habitat	Yes	There are three anadromous streams (Bear, McDonald, and Clear Cr) identified in the Alaska Dept. of Fish & Game Anadromous Waters Catalog (AWC) that are located in the vicinity of the proposed winter trail route. The proposed action does not provide enough detailed information for the construction and/or removal of the ice bridges at the end of each season to determine if EFH would be affected. Also, the extent of anadromy often times extends beyond what has been identified in the AWC. The issues for analysis would include: 1. How would the proposed ice bridges affect fish movement (migration) during winter months? 2.If the ice bridges impede all stream flow during the winter, how would that affect fish and aquatic species downstream and for what distance? Please consider the following Stipulations: **Objective:** Maintain natural spring runoff patterns and fish passage, avoid flooding, prevent streambed sedimentation and scour, protect water quality, and protect stream banks. **Requirement/Standard:** Crossing of waterway courses shall be made using a low-angle approach. Crossings that are reinforced with additional snow or ice ("bridges") shall be removed, breached, or slotted before spring breakup. Ramps and bridges shall be substantially free of soil and debris. **Objective:** Avoid additional freeze-down of deep-water pools harboring over-wintering fish and invertebrates used by fish. **Requirement/Standard:** Travel up and down streambeds is prohibited unless it can be demonstrated that there will be no additional impacts from such travel to over-wintering fish or the invertebrates they rely on. Rivers, streams, and lakes shall be crossed at areas of grounded ice whenever possible. JP_11-20-17
Farm Lands	NA	JAH 2017_12_12

Valued Environmental Components (VEC) Matrix

Fire Management	Yes	Sent to AFS Mil Zone for their thoughts. The effect of a linear fuel break should be analyzed. Basically, it would aide in the suppression of unwanted wildfire and potentially obstruct fires that are desirable. It also may increase human activity during fire season and thus potentially increase human ignitions. Since the proposal is to do the clearing in winter months fire risk from clearing activities should be minimized. Could the route or construction technique potentially be modified to aide in fire protection from planned military pyrotechnics activities on the ranges? Hydroaxe can refer to a variety of equipment. Slash treatment plans should be specified and analyzed for effect on fire hazard as well as that of forest pests. Comment from Russ Long at AFS: • Any slash or woody debris created/removed should be piled. Piles should be constructed with care to keep free of any tundra and soil. Piles should be burned to reduce fire hazard from woody down debris. Piles should be constructed individually and not a wind-throw technique which is difficult to burn because of arrangement. Piles of 15-20 feet high by 15-20 wide are preferred. Piles should be spaced at least 50 feet apart. TBS 12/01/2017
Floodplains	Yes	1) How would clearing a 40 foot swath of all above ground vegetation within the floodplain area at stream crossings affect floodplain function? For example, the removal of floodplain vegetation will decrease the floodplains ability to dissipate stream energy during over the bank water events. JP_11-20-17
Hydrology	Yes	1) How will the winter trail be designed for minimal disruption of natural drainage patterns. 2) How will the winter trail construction be designed to avoid areas of groundwater upwelling. 3) How will the winter trail be constructed to avoid blocking any stream or drainage system. 4) How will construction requiring the withdrawal of water be designed to maintain sufficient quantities of surface water and contributing groundwater to support fish, wildlife, and other beneficial uses. 5) How will streams altered by channeling or diversion be restored to a condition that will allow for proper functioning of stream channels, riparian zones, wetlands and watersheds. 6) How will streams/groundwater upwelling areas along the winter trail be monitored for impacts that may be caused by route construction and/or use. BWK_121117
Invasive, Nonnative Species	Yes	Although use will be primarily during the winter, the potential for introduction or spread of invasive, nonnative species should be analyzed. JDH 2017_11_17; The Alaska Exotic Plant Information Clearinghouse (AKEPIC) indicated that several invasive species of highest concern have been recorded in the Tanana Flats Training Area near or adjacent to the planned winter trail. Establishing a minimum snow, for example, 12 inches, and frost depth, for example 12 inches, will reduce the chances of invasive species being introduced or spread along the winter trail. It will also minimize damage to vegetation and soil disturbance that would provide an opportunity for invasive plant species to establish. If vehicles and equipment that will be used on the trail have been used during periods of the year and in places where invasive plant seed could be encountered, they should be pressure washed before traveling on the trails. RMG_11242017
Mineral Resources	No	There are no active federal mining operations within the affected area. There are no mineral resource concerns with the proposed action. JDF 11-28-2017
Native American Religious Concerns	No	There are no known Native American Religious Concerns in the APE. ROM 11-27-17

Valued Environmental Components (VEC) Matrix

Paleontological	No	Paleontological resources will not be affected by the Proposed Action. ROM 11-27-17
Realty/Land Status		These lands were withdrawn from all forms of appropriation under the public land laws, including mining laws, and reserved for the use of the War Department as an aerial bombing and gunnery range by Executive Order 8847 in 1941. EO 8847 was amended in 1962 by Public Land Order 2675 which substituted the words "Department of the Army" for the words "War Department" wherever they occur. EO 8847 also stated the Department of Interior shall retain jurisdiction of the minerals and vegetative resources of the lands.
Recreation	No	Lands are withdrawn for military purposes and not managed primarily for recreational uses. The area is utilized in part or whole for hunting, fishing, trapping, and other recreational activities which are highly monitored. How could the proposed action impact current recreational use? Would future increased recreational access be able to be managed and sustained? CC 11/22/17
Socioeconomic	No	Project details are insufficient to analyze this. JAH 2017_12_12
Soils	Yes	1) How will the winter trail be designed for minimal disruption of areas with highly erodible/ unstable or fragile soils. 2) How will the winter trail be designed to minimize compaction of soils and breakage, abrasion, compaction, or displacement of vegetation. 3) How will Offsets of the winter trail/ice road location to avoid using the same route or track each subsequent year impact soils. 4) If necessary, how will the prudent use of erosion control measures be implemented and maintained, including matting, temporary sediment traps, and water bars to control soil erosion. The type and location of sediment control structure, including construction methods, would vary by site-specific characteristics. 5) How will soils along the winter trail be monitored for impacts that may be impacted by route construction and/or use. BWK_121117
Subsistence	Yes	ANILCA Section 810 requires an evaluation of effects on subsistence resources and access of any Federal action. Federal subsistence use is not allowed on TFTA, but the construction could affect Federal subsistence users, eg. through effects on migratory species such as moose and fish. JDH 2017_11_28
Threatened or Endangered Species	No	As noted in the JPARC EIS (p. 5-2), *None of the definitive projects in this EIS involve effects on endangered or threatened species because no listed species occur within the action areas of these projects. Therefore, no consultation with USFWS regarding listed species is required for definitive projects.* However, potential effects on BLM-AK sensitive species should be examined. JDH 2017_11_28
Travel Management	No	This would create a new travel route in Tanana Flats training area. Impacts from this new route should be analyzed in the FWA NEPA document. Would seasonal or other vehicle restrictions be needed? What level of future use could be maintained? Ie. Parking, annual maintenance, signage, widening etc. Does a travel management CC 12/12/17
Tribal Notification – Ft. Yukon & Chalkyitsik	No	Neither the area nor the proposed action are of stated concern to the tribal governments at Ft. Yukon & Chalkyitsik. ROM 11-27-17
Vegetation	Yes	The proposed action will affect vegetation resources (including clearing of brush and trees) and should be analyzed. Analyse effects of winter roads on underlying vegetation, especially in riparian and permafrost areas. What types of vehicles will

Valued Environmental Components (VEC) Matrix

		use this road? Will minimum depths of frozen soil and snowcover be required? Will degradation in some segments from multi-year use require future re-routing around those segments and therefore expand the area of impact? Will construction of the road also facilitate off-road vehicular use? Will public use be prohibited? The JPARC EIS proposed construction of a gravel road. Will this road be constructed on the same route as a later gravel road route? Might the trail be used (eg. by public) in the summer? Will trail be routed so as to avoid wetland and riparian habitats? How will route be selected and marked in snow-free season to avoid these and other sensitive habitats? JDH 2017_11_17 Forest Management, Could Biomass (trees) removed during the clearing process be utilized?
Visual Resources	No	BLM recently conducted a broad visual resource inventory for the area of the proposed action. No determination of visual resource classification has been set at this time. What would be the impact of the proposed action be on a future VRM classification? CC 12/12/17
Wastes, Hazardous or Solid		
Water Quality – Surface or Ground	Yes	1) How will the winter trail be constructed to avoid pollution or degradation of streams or lakes. 2) How will streams be monitored for water quality impacts that may be caused by route construction and/or use. 3) How will disturbed areas having the potential to catch and confine runoff have erosion control measures implemented/installed and maintained to prevent water quality impacts from erosion. BWK_121117
Wetlands / Riparian Zones	Yes	1) How would clearing a 40 foot swath of all above ground vegetation within the wetland/riparian areas at stream crossings affect the functions normally provided by vegetation, i.e., streambank stability, stream energy dissipation, overhead fish cover, etc.) JP_11-20-17
Wild and Scenic Rivers	No	No WSR's located in the immediate area. CC 11/22/17
Wilderness Characteristics	No	Lands are allocated for military purposes and have been use for that for some time. CC 11/22/17
Wildlife/Aquatic	Yes	1. How would the proposed ice bridges affect fish movement (migration) during winter months? 2.If the ice bridges impede all stream flow during the winter, how would that affect fish and aquatic species downstream and for what distance? Please consider the following Stipulations: **Objective:** Maintain natural spring runoff patterns and fish passage, avoid flooding, prevent streambed sedimentation and scour, protect water quality, and protect stream banks. **Requirement/Standard:** Crossing of waterway courses shall be made using a low-angle approach. Crossings that are reinforced with additional snow or ice ("bridges") shall be removed, breached, or slotted before spring breakup. Ramps and bridges shall be substantially free of soil and debris. **Objective:** Avoid additional freeze-down of deep-water pools harboring over-wintering fish and invertebrates used by fish. **Requirement/Standard:** Travel up and down streambeds is prohibited unless it can be demonstrated that there will be no additional impacts from such travel to over-wintering fish or the invertebrates they rely on. Rivers, streams, and lakes shall be crossed at areas of grounded ice whenever possible. JP_11-20-17
Wildlife/Terrestrial	Yes	Some direct loss of wildlife habitat, such as vegetation for migratory birds, will occur. Will habitats of nesting bald eagles and other raptors be avoided? Will public access patterns change as a result of this road? JDH 2017_11_28

Valued Environmental Components (VEC) Matrix

Planning	No	The project is located in an area with no existing BLM land use plan. However, the Army has determined the proposal is consistent with its Integrated Natural Resource Plan. JC 11/21-2017

NEPA Number: None

Date Initiated: 16 Nov 2017

Project Name: Fort Wainwright Tanana Flats Winter Trail

Project Lead: John Haddix

NEPA Team: Fairbanks

Deadline: 5 Dec 2017

From: Sprau, Matthew H CIV USARMY USAG (US)
To: Ferguson, Matthew W CIV USARMY CEPOA (US)
Subject: FW: [Non-DoD Source] Re: TFTA Winter Trail EA
Date: Thursday, November 16, 2017 7:01:16 AM

Matt,

Communication with BLM Alaska Fire Service for the admin.

Thanks,
Matt

-----Original Message-----
From: Long, Russell [mailto:rblong@blm.gov]
Sent: Wednesday, November 15, 2017 4:58 PM
To: Sprau, Matthew H CIV USARMY USAG (US) <matthew.h.sprau.civ@mail.mil>
Cc: Ray, Justin <jray@blm.gov>; Giles Dirk <dgiles@blm.gov>; Walton Bonds <wbonds@blm.gov>; Christopher Friar <cfriar@blm.gov>; JoeDon Morton <jmorton@blm.gov>
Subject: [Non-DoD Source] Re: TFTA Winter Trail EA

All active links contained in this email were disabled. Please verify the identity of the sender, and confirm the authenticity of all links contained within the message prior to copying and pasting the address to a Web browser.

_____

Matt, we will take a look and see if there are any thoughts from our group on this potential project.

Thanks!

Russ Long
Alaska Fire Service

Military Zone FMO

rblong@blm.gov < Caution-mailto:rblong@blm.gov > c (907)388-9773 o (907)356-5875 Caution-Blockedhttp://afs.ak.blm.gov/afs.php < Caution-Blockedhttp://afs.ak.blm.gov/afs.php > Caution-Blockedhttp://www.fireleadership.gov/ < Caution-Blockedhttp://www.fireleadership.gov/ >

On Wed, Nov 15, 2017 at 4:04 PM, Sprau, Matthew H CIV USARMY USAG (US) <matthew.h.sprau.civ@mail.mil < Caution-mailto:matthew.h.sprau.civ@mail.mil > > wrote:

Hi Russ,

We sent this map out to the BLM Eastern Interior Field Office but wanted to make sure you got it as well. We're working through an environmental assessment to look at constructing a winter trail into the Tanana Flats Training Area (TFTA), from the AK Railroad Bridge to the Blair Lakes. We're calling it a winter trail because that is the intended time frame for usage to minimize ground impacts. A hydroaxe will be used to put in the trail and then snow will be compacted/graded to create the drivable surface; identical to was it currently done for the Bonnifield Trail that exists in the TFTA.

Let me know if you have any comments or concerns you think we need to take a look at for the analysis. We're asking agencies to submit comments by around 14 December. If you have any questions feel free to contact me anytime.

Thanks,
Matt

Matthew H. Sprau
NEPA Program Manager
U.S. Army Garrison
Fort Wainwright, Alaska
Ph: (907)361-9688
Fax: (907)361-9867

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Fairbanks Fish and Wildlife Field Office
101 12th Avenue, Room 110
Fairbanks, Alaska 99701
December 7, 2017

Matt Ferguson – Biologist
DEPARTMENT OF THE ARMY
Alaska District, U.S. Army Corps of Engineers
P.O. Box 6898
Joint Base Elmendorf-Richardson, AK 99506-0898

Re: Scoping Process for the Tanana Flats Training Area Winter Trail EA, Fort Wainwright, Alaska

Dear Mr. Ferguson:

The U.S. Fish and Wildlife Service (Service) has reviewed the referenced scoping request for an Environmental Assessment (EA) evaluating the potential impacts from the construction of a winter trail in the Tanana Flats Training Area (TFTA). The Service understands the winter trail will be constructed and maintained in the same manner as the Bonnifield Trail currently utilized to access the TFTA. The proposed winter trail would begin at the terminus of the Alaska Railroad Tanana River Bridge near Salcha, Alaska, and extend southwest for approximately 23 miles. The proposed route would link to: 1) an existing trail to the Bonnefield Bypass Trail currently utilized on a biennial basis, and 2) the existing trail to the Blair Lakes Landing Zone (BLLZ) area. The Service understands the activities would not include any upgrades to existing trails to the BLLZ area. The proposed 40-foot wide trail would be constructed during the winter season once the ground has sufficiently frozen. Trail construction involves hydroaxing vegetation which removes the aboveground vegetation (trees/shrubs) while leaving the organic mat intact thereby reducing erosion impacts. Ice bridges would be constructed to cross five streams including Clear, McDonald, Dry and Bear creeks. The Service understands the sole purpose of this trail is winter access to the TFTA, from approximately October through March.

Recommendations: The Service appreciates early coordination on the proposed winter trail project in the TFTA. We offer the following recommendations to help minimize the proposed project's impacts on fish and wildlife and their habitats.

Threatened and Endangered Species: There are no threatened or endangered species in the project area, thus the Service does not expect project-related activities to adversely impact listed species. This letter constitutes informal consultation under the Endangered Species Act. Preparation of a Biological Assessment or further consultation regarding this project is not necessary at this time.

Eagles and Their Nests: The Bald and Golden Eagle Protection Act protects eagles from take, including disturbance to their nests, roosts, and foraging sites. Bald eagles are known to nest along the Tanana River and Blair Lakes. Ultimately, the applicant is responsible for preventing disturbance to eagles. If an eagle nest is discovered within a half-mile of the project site, please

contact our office for further assistance.

Migratory Birds: The Migratory Bird Treaty Act prohibits the willful killing or harassment of migratory birds, including their active nests, eggs or nestlings. The Service recommends avoiding clearing, excavation and fill activities in potentially suitable nesting habitats during the nesting season to minimize the likelihood of disturbing nesting birds. The TFTA provides nesting habitat for great gray, great horned, hawk and boreal owl species, gray jays and ravens, which are all early nesting species. Raptor surveys conducted in the TFTA in 2010 documented nesting owls and common ravens with young as early as 31 March. The incubation period is 20 – 25 days for ravens and 30 – 37 days for great horned owls, therefore we recommend the snow trail area be rendered unsuitable for breeding birds by hydroaxing the vegetation prior to the early nesting season, preferably no later than 1 March. This would likely deter birds from nesting within the trail footprint.

Fish: The Alaska Anadromous Waters Catalog (AWC) identifies Bear, McDonald and Clear Creeks as anadromous water for Coho, Chum and Chinook Salmon. They also provide habitat for resident Arctic Grayling. The Service recommends following the Alaska Department of Fish and Game's specifications for withdrawing water and constructing ice-bridge stream crossings to minimize impacts to fish and their habitat.

Riparian Vegetation: Riparian corridors are valuable habitat in the form of streamside vegetation associated with watercourses. These areas provide an important link between upland and aquatic environments, and are often classified as wetlands. Riparian corridors associated with watercourses provide essential breeding, rearing and feeding habitat for numerous species of fish and wildlife, since they generally provide more habitat diversity than the adjacent uplands (Magoun and Dean 2000). The primary functions of a riparian area include promoting bank stability, maintaining water quality, providing structure and food for fish and other aquatic organisms, water temperature control, flood control, and providing habitat (cover) for fish and wildlife.

Removing riparian vegetation can alter in-stream habitat. Riparian vegetation is extremely important for fish (Gregory et al. 1991). The roots of riparian trees and shrubs prevent erosion by holding stream banks in place as well as trapping sediment and pollutants which help maintain water quality. During high stream flow periods, riparian vegetation and woody debris slows and dissipates flood waters, which help to prevent or minimize erosion that could damage fish spawning areas and aquatic invertebrate habitats. Loss of riparian vegetation also reduces shading which can cause increased water temperature, reduced dissolved oxygen, reduced nutrient input, and increased predation of certain fish species resulting from reduced cover (Karr and Schlosser 1977, Gregory et al. 1991). In cold climates, removal of riparian vegetation can lower water temperatures during winter, leading to increased ice formation and delay or damage to the development of many newly spawned fish or incubating eggs (NMFS 2005). Loss of riparian vegetation and disturbance to the bank and substrate can also alter benthic communities, changing prey availability for fish (Rabeni and Smale 1995; Berkman et al. 1986; Berkman and Rabeni 1987)).

Maintaining a healthy corridor of riparian vegetation is one of the best, and most cost efficient, ways to support and protect fish and wildlife by filtering suspended solids, nutrients and harmful

or toxic substances, stabilizing the bank and preventing erosion (Johnson and Ryba 1992). The Service recommends implementing erosion control methods and minimizing vegetation disturbance in riparian areas during winter trail and ice-bridge construction to minimize adverse effects from erosion.

Invasive Weeds: The Service recommends implementing Best Management Practices (BMPs) for minimizing the introduction and transport of invasive species into and out of the project footprint. Prevention is the most critical aspect of invasive species management, including winter months. This is especially important along rivers and streams which can transport invasive species into more remote areas of the state. BMPs can include establishing an equipment cleaning practice to minimize invasive species introduction spread throughout areas that would not otherwise be exposed. BMP's may also include invasive species education for staff and contractors, and erosion control products, management strategies that anticipate and suppress secondary invaders while rapidly restoring native plants to fill the space vacated by the target weed, and developing a monitoring and treatment plan. Unlike most of the country, the Alaska climate and poor access to remote areas previously minimized the potential for introducing and proliferating invasive species in the state. However, these barriers are no longer as effective due to a warming climate and improved access. Special precautions are now needed to ensure protection from invasive species. Refer to http://aknhp.uaa.alaska.edu/maps/akepic/ for the location of invasive species within the project area, with the understanding that lack of information does not equate absence of invasives at the location. The UAF Cooperative Extension Service has a BMP guide for managing invasive plant species, which can be found at https://www.uaf.edu/files/ces/publications-db/catalog/anr/PMC-00342.pdf. Also available is a free self-paced training course on invasive species control that can be found at https://weedcontrol.community.uaf.edu/. For more assistance with managing for invasive species in your project area, please contact our office.

Conclusion: We appreciate this opportunity for early comment, and we would be happy to discuss our comments with you. Our comments are based on the information provided in this scoping request. Should the project plans change, we would appreciate an opportunity to review the changes. Please contact Amal Ajmi at 907-456-0324 or amal_ajmi@fws.gov should you have any questions concerning these comments.

Sincerely,

For Robert J. Henszey
Branch Chief, Planning and Consultation

ecc: Audra Brase, ADF&G-Division of Habitat, Fairbanks
Valerie Baxter, BLM, Fairbanks
Christine Nelson, Director of Community Planning, FNSB

Literature Cited:

Berkman, H. E., and C.F. Rabeni. 1987. Effect of siltation on stream fish communities. Environmental Biology of Fishes 18, 285–94.

Berkman, H. E., C.F. Rabeni, and T.P. Boyle. 1986. Biomonitors ofstream quality in agricultural areas: fish versus macroinvertebrates.Environmental Management 10, 413–19.

Gregory, S. V., F. J. Swanson, W. A. McKee, and K. W. Cummins. 1991. An ecosystem perspective of riparian zones: Focus on links between land and water. Bioscience 41(8):540-551.

Johnson, A.W. and D. M. Ryba. 1992. A literature review of recommended buffer widths to maintain various functions of stream riparian areas. Prepared for King County Surface Water Management Division. Aquatic Resource Consultants, Renton, WA. 29 pp.

Karr, J. R. and I. J. Schlosser. 1977. Impact of nearstream vegetation and stream morphology on water quality and stream biota. U. S. EPA Ecological Research Series EPA-600/3-77-097. Athens, GA.

Magoun, A.M. and F. C. Dean. 2000. Floodplain forests along the Tanana River, interior Alaska: terrestrial ecosystem dynamics and management considerations. Alaska Boreal Forest Council Miscellaneous Publication No. 3.139 pp.

National Marine Fisheries Service, Northwest Region (NMFS). 2005. Pacific coast groundfish fishery management plan essential fish habitat designation and minimization of adverse impacts: draft environmental impact statement. Seattle, WA.

Rabeni, C. F., and M. A. Smale. 1995. Effects of siltation on stream fishes and the potential mitigating role of the buffering riparian zone. Hydrobiologia 303:211– 219.

Appendix B
Public Notice
Comment Letters
Received

Comment Number	Comment	Response to Comment
USFWS_1	There are no threatened or endangered species in the project area, thus the Service does not expect project-related activities to adversely impact listed species. This letter constitutes informal consultation under the Endangered Species Act. Preparation of a Biological Assessment or further consultation regarding this project is not necessary at this time.	Comment noted. Thank you for your input.
USFWS_2	The Bald and Golden Eagle Protection Act protects eagles from take, including disturbance to their nests, roosts, and foraging sites. Bald eagles are known to nest along the Tanana River and Blair Lakes. Ultimately, the applicant is responsible for preventing disturbance to eagles. If an eagle nest is discovered within a half-mile of the project site, please contact our office for further assistance.	Comment noted. Thank you for your input.
USFWS_3	The Service appreciates any voluntary mitigation measures intended to avoid and minimize adverse impacts to migratory birds and their habitats. Migratory bird nests, eggs, or nestlings could be destroyed if work is conducted during the spring and summer breeding season, which is generally May 1 through July 15 at the proposed site. A common mitigation measure to help minimize impacts to nesting birds is to avoid land disturbing activities (e.g., clearing, excavation, gravel fill, brush hogging, etc.) during the breeding season. However, we also support project proponents finding other ways to minimize impacts to migratory birds. The TFTA provides nesting habitat for great gray, great horned, hawk and boreal owl species, gray jays and ravens, which are all early nesting species. Raptor surveys conducted in the TFTA in 2010 documented nesting owls and common ravens with young as early as 31 March. The incubation period is 20 – 25 days for ravens and 30 – 37 days for great horned owls, therefore we recommend the snow trail area be rendered unsuitable for breeding birds by hydro-axing the vegetation prior to the early nesting season, preferably no later than 1 March. This would likely deter birds from nesting within the trail footprint.	Vegetation clearing will be conducted during the winter once the soil is frozen to adequate depth to support the weight of construction equipment. All vegetation clearing is expected to be completed well before the bird nesting season begins in Interior Alaska, as stated in the EA.
USFWS_4	The Alaska Anadromous Waters Catalog (AWC) identifies Bear, McDonald and Clear Creeks as anadromous water for Coho, Chum and Chinook Salmon. They also provide habitat for resident Arctic Grayling. The Service recommends following the Alaska Department of Fish and Game's specifications for withdrawing water and constructing ice-bridge stream crossings to minimize impacts to fish and their habitat.	Ice bridges required for the operation and construction of the trail will be constructed in accordance with the ADFG Fish Habitat Permit stipulations regarding water draw, intake screen openings, breaching, flow requirements, and other measures to reduce impacts to fish and their habitat, as stated in the EA.
USFWS_5	The Service recommends implementing erosion control methods and minimizing vegetation disturbance in riparian areas during winter trail and ice-bridge construction to minimize adverse effects from erosion. Riparian corridors are valuable habitat in the form of streamside vegetation associated with watercourses. These areas provide an important link between upland and aquatic environments, and are often classified as wetlands. Riparian corridors associated with watercourses provide essential breeding, rearing and feeding habitat for numerous species of fish and wildlife, since they generally provide more habitat diversity than the adjacent uplands. The primary functions of a riparian area include promoting bank stability, maintaining water quality, providing structure and food for fish and other aquatic organisms, water temperature control, flood control, and providing habitat (cover) for fish and wildlife.	The Army recognizes the value of riparian vegetation and as stated in the EA will employ best management practices to minimze impacts to riparian habitat; including approaching stream crossings at right angles, siting stream crossings to provide shallow angles of approach, constructing stream crossings with ground fast ice, and minimizing stream crossings. The Army will adaptively manage the trail based on experience gathered during construction and operation in order to apply additional minimization measures from on-the-ground observations.

USFWS_6	The Service recommends implementing Best Management Practices (BMPs) for minimizing the introduction and transport of invasive species into and out of the project area. Prevention is the most critical aspect of invasive species management, including winter months. This is especially important along rivers and streams, which can transport invasive species into more remote areas of the state.	As stated in the EA, the Army will employ BMPS, as applicable, to minimize the spread of invasive species. These include limiting the trail width to 40 feet; washing construction equipment, military vehicles, and fuel tankers prior to entering the training area to prevent the spread of invasive species; and clearing vegetation after the ground has frozen in order to reduce the viablity of invasive propagules.
FNSB_HPC_1	The FNSB Historic Preservation Commission reviewed the Environmental Assessment and Draft Finding of No Significant Impact for the Tanana Flats Training Area Winter Trail at their regular meeting August 20. The HPC concurs with the finding and has no further concerns.	Comment noted. Thank you for your input.
NNA_1	No we have no comments I thought it was pretty well explained.	Comment noted. Thank you for your input.
ADFG_1	We support the increased public access the trail will provide, particularly for hunting, and appreciate the U.S. Army Garrison Alaska's efforts to support public access to the extent that it does not interfere with the primary purpose of the training area. We would like to point out that any winter roads requiring ice bridges, or other modifications to streams for crossings, would require a fish habitat permit. Thank you for the opportunity to comment.	Comment noted. Thank you for your input.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Fairbanks Fish and Wildlife Field Office
101 12th Avenue, Room 110
Fairbanks, Alaska 99701
August 21, 2018

Sean N. Fisher
Colonel, US Army
Installation Management Command
Headquarters, U.S. Army Garrison Alaska
1046 Marks Rd #6000
Fort Wainwright, AK 99703-6000

Re: Tanana Flats Training Area Winter Trail EA, Fort Wainwright, Alaska

Dear Colonel Fisher:

The U.S. Fish and Wildlife Service (Service) has reviewed the referenced Environmental Assessment (EA) evaluating the potential impacts from the construction of a winter trail in the Tanana Flats Training Area (TFTA). The Service understands the winter trail would be constructed using a hydro-ax to remove only the vegetation, while leaving the ground surface intact to help reduce permafrost subsidence and erosion. The hydro-ax clearing would occur when the ground is sufficiently frozen to minimize ground disturbance. Hydro-ax vegetation would be left in place to provide protective insulation to the permafrost underneath the trail. Snow would be compacted, graded and maintained in the same manner as the Bonnifield Trail currently utilized to access the TFTA. Ice bridges would be constructed over Boundary and BeeBee sloughs, and at Dry Creek, Clear Creek East and West, Rigney Creek, and Beaver Pond Creek. Annual military usage of the trail would occur during the winter months, generally October to March depending on weather and ground conditions.

The proposed 40 ft. wide winter trail would begin at the terminus of the Alaska Railroad Tanana River Bridge near Salcha, Alaska, and extend southwest for approximately 29.3 miles. The proposed route would link to: 1) an existing trail to the Bonnifield Bypass Trail currently utilized on a biennial basis (~21.5 miles), and 2) the existing trail to the Blair Lakes Landing Zone (BLLZ) area (7 miles). The Service understands the activities would include any upgrades to existing trails to the BLLZ area.

Recommendations: The Service appreciates the opportunity to comment on the proposed winter trail project in the TFTA. We offer the following recommendations to help minimize the proposed project's impacts on fish and wildlife and their habitats.

Threatened and Endangered Species: There are no threatened or endangered species in the project area, thus the Service does not expect project-related activities to adversely impact listed species. This letter constitutes informal consultation under the Endangered Species Act. Preparation of a Biological Assessment or further consultation regarding this project is not necessary at this time.

Eagles and Their Nests: The Bald and Golden Eagle Protection Act protects eagles from take, including disturbance to their nests, roosts, and foraging sites. Bald eagles are known to nest along the Tanana River and Blair Lakes. Ultimately, the applicant is responsible for preventing disturbance to eagles. If an eagle nest is discovered within a half-mile of the project site, please contact our office for further assistance.

Migratory Birds: The Service appreciates any voluntary mitigation measures intended to avoid and minimize adverse impacts to migratory birds and their habitats. Migratory bird nests, eggs, or nestlings could be destroyed if work is conducted during the spring and summer breeding season, which is generally May 1 through July 15[1] at the proposed site. A common mitigation measure to help minimize impacts to nesting birds is to avoid land disturbing activities (e.g., clearing, excavation, gravel fill, brush hogging, etc.) during the breeding season. However, we also support project proponents finding other ways to minimize impacts to migratory birds. The TFTA provides nesting habitat for great gray, great horned, hawk and boreal owl species, gray jays and ravens, which are all early nesting species. Raptor surveys conducted in the TFTA in 2010 documented nesting owls and common ravens with young as early as 31 March. The incubation period is 20 – 25 days for ravens and 30 – 37 days for great horned owls, therefore we recommend the snow trail area be rendered unsuitable for breeding birds by hydro-axing the vegetation prior to the early nesting season, preferably no later than 1 March. This would likely deter birds from nesting within the trail footprint.

Fish: The Alaska Anadromous Waters Catalog (AWC) identifies Bear, McDonald and Clear Creeks as anadromous water for Coho, Chum and Chinook Salmon. They also provide habitat for resident Arctic Grayling. The Service recommends following the Alaska Department of Fish and Game's specifications for withdrawing water and constructing ice-bridge stream crossings to minimize impacts to fish and their habitat.

Riparian Vegetation: The Service recommends implementing erosion control methods and minimizing vegetation disturbance in riparian areas during winter trail and ice-bridge construction to minimize adverse effects from erosion. Riparian corridors are valuable habitat in the form of streamside vegetation associated with watercourses. These areas provide an important link between upland and aquatic environments, and are often classified as wetlands. Riparian corridors associated with watercourses provide essential breeding, rearing and feeding habitat for numerous species of fish and wildlife, since they generally provide more habitat diversity than the adjacent uplands (Magoun and Dean 2000). The primary functions of a riparian area include promoting bank stability, maintaining water quality, providing structure and food for fish and other aquatic organisms, water temperature control, flood control, and providing habitat (cover) for fish and wildlife.

Removing riparian vegetation can alter instream habitat. Riparian vegetation is extremely important for fish (Gregory et al. 1991). The roots of riparian trees and shrubs prevent erosion by holding stream banks in place as well as trapping sediment and pollutants which help maintain water quality. During high stream flow periods, riparian vegetation and woody debris slows and dissipates flood waters, which help to prevent or minimize erosion that could damage fish

[1] Raptors may nest two or more months earlier than other birds. Canada geese and trumpeter swans begin nesting April 20th. https://www.fws.gov/alaska/fisheries/fieldoffice/anchorage/pdf/USFWS%20Timing%20Recommendations%20for%20Land%20Disturbance%20&%20Vegetation%20Clearing.pdf

spawning areas and aquatic invertebrate habitats. Loss of riparian vegetation also reduces shading which can cause increased water temperature, reduced dissolved oxygen, reduced nutrient input, and increased predation of certain fish species resulting from reduced cover (Karr and Schlosser 1977, Gregory et al. 1991). In cold climates, removal of riparian vegetation can lower water temperatures during winter, leading to increased ice formation and delay or damage to the development of many newly spawned fish or incubating eggs (NMFS 2005). Loss of riparian vegetation and disturbance to the bank and substrate can also alter benthic communities, changing prey availability for fish (Rabeni and Smale 1995, Berkman et al. 1986, Berkman and Rabeni 1987).

Maintaining a healthy corridor of riparian vegetation is one of the best, and most cost efficient, ways to support and protect fish and wildlife by filtering suspended solids, nutrients and harmful or toxic substances, stabilizing the bank and preventing erosion (Johnson and Ryba 1992).

Invasive Weeds: The Service recommends implementing Best Management Practices (BMPs) for minimizing the introduction and transport of invasive species into and out of the project area. Prevention is the most critical aspect of invasive species management, including winter months. This is especially important along rivers and streams, which can transport invasive species into more remote areas of the state. BMPs can include thoroughly washing equipment before entering the project area to remove dirt and debris that may harbor invasive plant seeds and propagules to minimize their introduction and spread throughout areas that would not otherwise be exposed. BMP's may also include invasive species education for staff and contractors, using weed-free erosion control products, employing management strategies that anticipate and suppress secondary invaders while rapidly restoring native plants to fill the space vacated by weed control, and developing a monitoring and treatment plan. Unlike most of the country, the Alaska climate and poor access to remote areas previously minimized the potential for introducing and proliferating invasive species in the state. However, these barriers are no longer as effective due to a warming climate and improved access. Special precautions are now needed to ensure protection from invasive species. Please refer to http://aknhp.uaa.alaska.edu/maps/akepic/ for the location of invasive species within the project area, with the understanding that lack of information does not equate absence of invasives at the location. The UAF Cooperative Extension Service has a BMP guide for controlling the spread of invasive plant species, which can be found at https://www.uaf.edu/files/ces/publications-db/catalog/anr/PMC-00342.pdf. Also available is a free self-paced training course on invasive species control that can be found at https://weedcontrol.community.uaf.edu/. For more assistance with managing for invasive species in your project area, please contact our office.

Conclusion: These comments are submitted in accordance with provisions of the Sikes Act (16 U.S.C. 670 et seq.), Endangered Species Act of 1973 (87 Stat. 844), the Fish and Wildlife Coordination Act (48 Stat. 401, as amended: 16 U.S.C. 661 et seq.), the Alaska National Interest Lands Conservation Act (Section 101 (a)(c), 102 (1) and Section 302(5)(B)), the Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and the National Invasive Species Act of 1996 [P.L.104-332], as amended (NISA); and constitute the report of the Department of the Interior.

We appreciate this opportunity for comment, and we would be happy to discuss our comments with you. Our comments are based on the information provided in the EA. Should the project

plans change, we would appreciate an opportunity to review the changes. Please contact Amal Ajmi at 907-456-0324 or amal_ajmi@fws.gov should you have any questions concerning these comments.

Sincerely,

Robert J. Henszey
Branch Chief
Conservation and Planning Assistance

ecc: Audra Brase, ADF&G-Division of Habitat, Fairbanks
Valerie Baxter, BLM, Fairbanks
Christine Nelson, Director of Community Planning, FNSB

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Eli,

The FNSB Historic Preservation Commission reviewed the Environmental Assessment and Draft Finding of No Significant Impact for the Tanana Flats Training Area Winter Trail at their regular meeting August 20. The HPC concurs with the finding and has no further concerns.

Thank you for the opportunity to comment.

Melissa

Melissa Kellner

Long-Range Planner

Community Planning Department

Fairbanks North Star Borough

(907) 459-1252

mkellner@fnsb.us < mkellner@fnsb.us >

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-----Original Message-----
From: Donald Charlie [mailto:doncharlie_85@hotmail.com]
Sent: Wednesday, August 22, 2018 3:21 PM
To: Cook, Elizabeth A CIV (US) <elizabeth.a.cook80.civ@mail.mil>
Subject: [Non-DoD Source] Re: Tanana Flats Winter Trail EA comment period closes August 25

No we have no comments I thought it was pretty well explained.

Hello,

The Alaska Department of Fish and Game reviewed the EA for the proposed Tanana Flats Training Area winter trail. We support the increased public access the trail will provide, particularly for hunting, and appreciate the U.S. Army Garrison Alaska's efforts to support public access to the extent that it does not interfere with the primary purpose of the training area. We would like to point out that any winter roads requiring ice bridges, or other modifications to streams for crossings, would require a fish habitat permit. Thank you for the opportunity to comment.

Best regards,

Ashley List

Ashley List

ANILCA Program / State-Federal Issues

Alaska Department of Fish and Game < Caution-Blockedhttp://www.adfg.alaska.gov/ >

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