ENVIRONMENTAL ASSESSMENT
FOR
TANANA FLATS TRAINING AREA ALL-SEASON ROAD

PREPARED BY:

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APPROVED BY:

Jason A. Cole — 26 June 2025

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Date

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June 2025

Letters or other written comments provided may be published in the Final EA. As required by law, substantive comments will be addressed in the Final EA and made available to the public. Only the names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

DRAFT FINDING OF NO SIGNIFICANT IMPACT (FONSI)

TANANA FLATS TRAINING AREA ALL-SEASON ROAD

Pursuant to provisions of the National Environmental Policy Act (NEPA), Title 42 United States Code (USC) Sections 4321 to 4347, the U.S. Army has assessed the potential environmental consequences associated with constructing a new all-season gravel road into the Tanana Flats Training Area (TFTA) and the Blair Lake Range Complex (BLRC).

The purpose of the Proposed Action is to establish year-round ground access to the largest continuous training area available to the 11th Airborne Division, thereby ensuring it can meet mission requirements and support the Army's Arctic Strategy. The TFTA lacks direct road access to the rest of Fort Wainwright. A single bridge across the Tanana River connects the Richardson Highway to the TFTA in Salcha, Alaska, but it terminates less than one mile into the training area. As a result, access is limited to aircraft, low-ground-pressure vehicles, and a seasonal snow road for highway vehicles. The Proposed Action is needed to ensure safe, reliable, year-round access to the TFTA and BLRC. This access would allow the Army to meet training requirements outlined in the Department of Defense Arctic Strategy and the Army's *Regaining Arctic Dominance,* accessing 655,000 acres of previously difficult-to-access training land.

The Environmental Assessment (EA), incorporated by reference into this finding, analyzes the potential environmental consequences of activities associated with the TFTA All-Season Road Project and identifies environmental protection measures to avoid or reduce adverse impacts.

The EA evaluates all potential impacts of Alternative 1 (No Action Alternative), Alternative 2 (Preferred Alternative-Double-Lane Road with Dry Creek Low-Water Crossing), and Alternative 4 (Single-Lane Road with Dry Creek Low-Water Crossing).

Alternative 3, which proposed constructing approximately 3.75 miles of new road detour from the winter trail alignment and a two-lane, pre-engineered bridge over Dry Creek, was dismissed from detailed consideration. Although this alternative would provide safe, efficient, year-round access, it did not follow the existing winter trail alignment or build upon existing improvements along the full route.

ALTERNATIVE 1: No Action Alternative

Under this alternative, no all-season gravel road would be constructed. Access to the TFTA and BLRC would remain limited to the existing winter snow road.

ALTERNATIVE 2: Preferred Alternative – Double-Lane Road with Dry Creek Low-Water Crossing

This alternative involves constructing a two-lane gravel road between the Tanana River Bridge and the BLRC and training assets within the TFTA. The proposed road would generally follow the existing winter trail route and include a low-water crossing at Dry Creek.

ALTERNATIVE 4: Single-Lane Road with Dry Creek Low-Water Crossing

This alternative would construct a single-lane gravel road generally along the same alignment as Alternative 2, also incorporating a low-water crossing at Dry Creek, but with a reduced road width.

SUMMARY OF FINDINGS

The analyses of the affected environment and environmental consequences of implementing the Preferred Alternative presented in the EA concluded that by implementing standing environmental protection measures and operational planning, the U.S. Army would be in compliance with all terms and conditions and reporting for implementation of the reasonable and prudent measures stipulated by the State Historic Preservation Office concurrence and with Alaska Department of Fish and Game (ADF&G) Fish Habitat

Permits, an U.S. Army Corps of Engineers Clean Water Act Section 404 Permit, and a Fairbanks North Star Borough floodplain permit.

The Army has concluded that no significant adverse effects would result to the following resources because of the Preferred Alternative: air quality, cultural resources, geology and soils resources, biological resources, water resources, land use, transportation and transportation systems, and hazardous materials/hazardous waste.

The following summary outlines how potential adverse impacts to specific resources have been sufficiently mitigated to support this Finding of No Significant Impact.

Geology and Soils

The Preferred Alternative would reduce erosion and permafrost degradation caused by surface vegetation disturbance by providing a stable gravel road substrate. Best management practices (BMPs) used during construction would limit erosion. Ground disturbance would be minimized by following the existing winter trail alignment, and properly-sized culverts would help preserve permafrost.

Biological Resources

Impacts to biological resources under the Preferred Alternative would be minimized through a combination of design considerations, operational controls, and adherence to environmental regulations. These measures would reduce both direct and indirect impacts to vegetation and fish and wildlife habitat.

To reduce impacts to vegetation, the cleared right-of-way would be limited to 70 feet in width. To minimize soil erosion and permafrost degradation, the existing winter trail alignment would be followed to the extent practicable. For soils that can support clearing, vegetation would likely be removed during the growing season. In other areas, vegetation would be cleared only after the ground has frozen, minimizing soil disturbance and the potential for erosion or permafrost degradation. In accordance with invasive species management practices, all construction equipment, military vehicles, and fuel tankers would be thoroughly washed prior to entering the TFTA to prevent the introduction and spread of invasive species. The Army would continue to map and control invasive species along the proposed road alignment throughout and after the construction phase.

To minimize impacts to nesting migratory birds, vegetation clearing would occur outside the nesting bird window, which runs from May 1 through July 15, in accordance with the Migratory Bird Treaty Act. The Bald and Golden Eagle Protection Act would also be observed, including pre-construction eagle nest surveys and implementation of any necessary avoidance measures.

While no in-stream construction is planned for bridge installations because all bridge components, including abutments, would be placed above the ordinary high-water mark, – culvert installation could impact resident and anadromous fish and their habitats. To minimize potential impacts, the Army would consult with the ADF&G during the design and permitting of culverts. Best Management Practices would be implemented during construction to reduce sedimentation and preserve water quality and aquatic habitats.

To mitigate potential impacts on wildlife from increased vehicle traffic, vegetation would be cleared within the road's right-of-way to improve driver visibility. Additional measures to reduce the risk of wildlife-vehicle collisions would include the establishment of lower speed limits and driver education programs for personnel operating on the new road.

Increased recreational use resulting from improved access would not have an unsustainable impact on wildlife populations or habitat because existing policy and partnerships are in place to mitigate for impacts. The Army's regulations governing the recreational use of military lands, including the Sikes Act, U.S. Army Garrison Alaska recreation program, and Army land management partners (ADF&G, Bureau of Land Management, etc.) would continue to apply to the TFTA. The Army continuously assesses the

TFTA to ensure sustainable land use and natural resource management. As part of this commitment, the Integrated Natural Resource Management Plan (INRMP) for Fort Wainwright, which includes the TFTA, is updated every five years. The INRMP includes provisions for monitoring, habitat restoration, and adaptive management in response to emerging environmental concerns. Indirect impacts to biological resources associated with increased military training and recreational activity from the new road would be mitigated as appropriate, while maintaining the military's dominant use of the area for training.

Water Resources

Approximately 35 acres of wetlands would be filled and 22 acres of wetlands would be cleared. To mitigate these impacts, at least 70.2 acres of selected gravel extraction sites would be converted into emergent wetland and open water complexes. Work will begin after the gravel pits are closed, and successful wetland conversion is estimated to take between three and five years. Final mitigation site selection would occur post-extraction. It is anticipated that two material sites would be converted, though additional sites may be included if necessary. Bridges at Clear Creek and Rigney Creek would avoid below high-water mark impacts and accommodate flood flows. Culverts, including those at Beaver Pond Creek and others, would be designed to accommodate 100-year flood flows. The low-water crossing at Dry Creek would be designed for overtopping and repaired after flood events. A Fairbanks North Star Borough floodplain permit would be obtained prior to construction.

To help protect water quality during construction, a Section 401 Water Quality Certificate and an Alaska Construction General Permit would be acquired, and a Stormwater Pollution Prevention Plan would be developed and followed.

Army oversight, environmental regulations, and BMPs would help ensure that increased military training and recreational activities would not negatively affect surface waters.

Hazardous Materials/Hazardous Waste

Hazardous materials during construction would be handled in compliance with federal and Army regulations. Hazardous materials use, storage, transportation, and disposal would follow the U.S. Army Garrison (USAG) Alaska's Hazardous Material and Waste Management Plan (HMWMP), and all personnel would follow the most current version of the HMWMP for reporting and response procedures.

FINDING OF NO SIGNIFICANT IMPACT (FONSI)

Based on my review of the facts and analyses contained in the attached EA, conducted under the provisions of NEPA, I conclude that the Preferred Alternative – Double-Lane Road with Dry Creek Low-Water Crossing would not result in significant adverse environmental impacts. Accordingly, an Environmental Impact Statement is not required. The signing of this Finding of No Significant Impact completes the environmental impact analysis process.

_____ _____

Jason A. Cole
Colonel, U.S. Army
Commanding

Date

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ACRONYMS AND ABBREVIATIONS

AASHTO	American Association of State Highway and Transportation Officials
ACCS	Alaska Center for Conservation Science
ADEC	Alaska Department of Environmental Conservation
ADF&G	Alaska Department of Fish and Game
AFB	Air Force Base
AFFI	Alaska Freshwater Fisheries Inventory
AKRR	Alaska Railroad
APE	Area of Potential Effect
AR	Army Regulation
AWC	Anadromous Waters Catalog
BLM	Bureau of Land Management
BLRC	Blair Lake Range Complex
BMP	best management practices
CFR	Code of Federal Regulations
DOD	Department of Defense
EA	Environmental Assessment
FONSI	Finding of No Significant Impact
GHG	greenhouse gas
GMU	Game Management Unit
HAP	hazardous air pollutant
HMWMP	Hazardous Material and Waste Management Plan
INRMP	Integrated Natural Resource Management Plan
km^2	kilometers squared
lbs.	pounds
Magnuson-Stevens Act	Magnuson-Stevens Fishery Conservation and Management Act
NAAQS	National Ambient Air Quality Standards
NEPA	National Environmental Policy Act
NHD	National Hydrography Dataset
NHPA	National Historic Preservation Act
NRCS	Natural Resources Conservation Service
NRHP	National Register of Historic Places
ORV	off-road vehicle

PSD	prevention of significant deterioration
ROI	Region of Influence
SAP	Sikes Act Permit
SHPO	Alaska State Historic Preservation Office
TFTA	Tanana Flats Training Area
UAF ECP	University of Alaska Fairbanks, Environmental Community Partnership
UFC	United Facilities Criteria
USAG	United States Army Garrison
USFWS	United States Fish and Wildlife Service
UXO	unexploded ordnance

CHAPTER 1. PURPOSE OF AND NEED FOR ACTION

1.1 Introduction

1.1.1 Description of the Tanana Flats Training Area

The Tanana Flats Training Area (TFTA) spans approximately 660,000 acres within the Middle Tanana River Basin. It is bounded by the Tanana River to the north and east, the Wood River to the west, and the 34th gridline, located 50 miles north of the Alaska Range, to the south. The TFTA provides a realistic training environment for soldiers. It lies within the Tanana-Kuskokwim Lowland, a broad depression featuring three prominent terraces near Blair Lakes and the Tanana River (Bateman et al., 2021).

The TFTA contains numerous sloughs, creeks, lakes, and seasonally persistent bodies of water. Due to poorly drained soils and groundwater upwelling, much of the area consists of wetlands. Permafrost is widespread but discontinuous, ranging from 20 inches to 120 feet below the ground surface. Over the past 200 years, approximately 42 percent (%) of permafrost in the region has undergone thermal degradation (U.S. Army Garrison [USAG] Alaska, 2018).

Wetland vegetation includes sedges, green alder (*Alnus viridis*), dwarf birch (*Betula nana*), and willow (*Salix* spp.). Elevated areas support black spruce (*Picea mariana*) and tamarack (*Larix laricina*) with an understory of Labrador tea (*Rhododendron groenlandicum*), dwarf birch, and willow. Better-drained stream courses contain paper birch (*Betula papyrifera*), white spruce (*Picea glauca*), and black spruce (Bateman at al., 2021).

Wildlife in the TFTA includes moose, black and brown bears, wolves, red squirrels, marten, snowshoe hares, foxes, raptors, waterfowl, shorebirds, and both migratory and resident birds. The area's water systems also support various fish species (Bateman at al., 2021).

1.1.2 History of the Tanana Flats Training Area

Over 160 archaeological sites have been discovered in the TFTA, including the McDonald Creek site, the second oldest known archaeological site in Alaska, dating to 13,900 years ago. At that time the TFTA was part of unglaciated grasslands that supported bison, mammoth, and elk. Small bands of nomadic people followed these animals across the Bering Land Bridge to Alaska. Artifacts from McDonald Creek indicate that early inhabitants hunted large and small game as well as waterfowl in the area (Bateman at al., 2021).

Archaeological sites from the Northern Archaic Tradition, which coincided with the beginning of the Holocene and regional warming around 6,000 years ago, have also been discovered in the TFTA. These sites are characterized by side-notched projectile points, bifacial knives, microblades, end scrapers, and other tools (Esdale et al., 2017).

Sites dating back to approximately 2,500 years ago indicate a transition from a nomadic lifestyle to more permanent settlements. This shift was facilitated by seasonally abundant food sources, storage caches, and longer-term habitation (USAG Alaska, 2018).

Since the 1940s, the TFTA has been in continuous use by various branches of the military. It was withdrawn from public lands on August 8, 1941, by President Franklin D. Roosevelt under Executive Order 8847, for use by the War Department. Originally called the Mammoth Zone, it was selected due to its proximity to an existing military installation and was used as a bombing and gunnery range. In December 1941, the Army began testing anti-aircraft artillery and rifle performance in sub-zero temperatures as low as -20 degrees Fahrenheit. Bombing operations occurred in the region from 1942 to 1944. (Bateman et al., 2021).

From the late 1940s through the 1990s, the TFTA hosted annual and biannual trainings to prepare soldiers, develop tactics, and test equipment such as uniforms, small arms, and cold-weather survival gear in Arctic conditions. (Bateman et al., 2021).

Executive Order 8847 originally stipulated that, after the national emergency ended, the land would be returned to the Department of the Interior or other Federal agencies. However, the TFTA was ultimately withdrawn permanently through a series of amendments and public land orders (Bateman et al., 2021).

1.1.3 Current Usage

The Arctic region is increasingly subject to geopolitical competition, particularly from Russia and China, which seek military and economic access. While the TFTA is in a sub-Arctic region rather than the Arctic itself, it provides training opportunities that simulate Arctic-like conditions. The Army's Arctic Strategy focuses on preparing forces able to operate effectively in extreme cold environments in coordination with allies and partners (U.S. Army, 2021).

The Arctic presents challenges as both a strategic location and an extreme environment. As a location, it requires the Army to adapt its posture and conduct multidomain operations. As an environment, it poses operational challenges due to extreme temperatures and difficult terrain (U.S. Army, 2021).

To enhance Arctic readiness, the Army aims to improve its ability to operate in cold-weather and high-altitude conditions. This effort includes adjustments in training, equipment, and force posture and contributions from the Army Reserve and National Guard. Integrated solutions will strengthen readiness and resilience for operations in extreme cold and mountainous environments. A total Army approach will support joint operations in Arctic conditions globally (U.S. Army, 2021).

The Army seeks to maintain a strategic advantage in the Arctic by enabling sustained operations in competition, crisis, and conflict. This includes a calibrated force posture and multidomain formations, and engagement with allies and partners to enhance regional stability (U.S. Army, 2021).

Improving Arctic operational capability requires a balanced approach across the force while addressing challenges in Arctic-stationed units. The Army's strategy accounts for evolving environmental conditions and their impact on long-term operational sustainability (U.S. Army, 2021).

The Blair Lake Range Complex (BLRC), operated by Eielson Air Force Base (AFB), is located within the TFTA, and is accessible only by helicopter or construction of a snow road. Both the TFTA and BLRC are used year-round for training, including air and ground maneuvers, live fire exercises, drop-zone operations, and artillery and mortar training. Figure 1-1 illustrates the TFTA and the BLRC.

1.2 Purpose and Need

1.2.1 Purpose of the Proposed Action

The TFTA lacks direct land access to the rest of Fort Wainwright. Currently, a single bridge across the Tanana River connects the Richardson Highway to the TFTA in Salcha, AK, but it terminates less than one mile into the training area. As a result, access is limited to aircraft, low ground pressure vehicles, and a seasonal snow road for highway vehicles.

The proposed action aims to support the Army's Arctic Strategy by establishing year-round ground access to the largest continuous training area available to the 11th Airborne Division, ensuring it meets mission requirements.

The BLRC currently relies on weekly flights for crew changes and a snow road for resupplying fuel and bulk materials. An all-season road would reduce fuel storage needs and provide more cost-effective and timely access to the BLRC.

1.2.2 Need for the Proposed Action

The proposed action is needed to ensure safe, reliable, year-round access to the TFTA and BLRC. This access would support the Army in meeting training requirements outlined in the Department of Defense (DOD) Arctic Strategy (DOD, 2024) and the Army's *Regaining Arctic Dominance* (U.S. Army, 2021) by making 655,000 acres of previously difficult-to-access training land available.

1.3 Scope and Content of the Environmental Assessment

Per the updated National Environmental Policy Act (NEPA) this Environmental Assessment (EA) evaluates the potential impacts of the proposed action and its alternatives on the potentially affected environment, as well as the degree and significance of those impacts. Effects or impacts are defined as reasonably foreseeable changes to the human environment resulting from the proposed action or alternatives, as defined below:

1. Direct effects: Occur at the same time and place as the action.
2. Indirect effects: Occur later in time or at a greater distance but are still reasonably foreseeable.

This analysis relies on existing survey data (biological, cultural, and geological) to describe current environmental conditions and assess potential impacts on resource areas.

1.4 Decision To Be Made

The U.S. Army Garrison Alaska manages the TFTA, while the 11th Airborne Division is the proponent of the proposed action.

If the evaluation of impacts in this EA determines that no significant environmental impacts would occur, the Fort Wainwright Garrison Commander will issue a Finding of No Significant Impact (FONSI) by August 31, 2025.

If significant environmental impacts are identified, the proposed action will be modified and mitigated to reduce impacts to a non-significant level. If mitigation cannot sufficiently reduce impacts, a Notice of Intent to prepare an Environmental Impact Statement will be published.

1.5 Public Participation

To support the analysis and the decision-making process, U.S. Army Garrison Alaska and the 11th Airborne Division maintain a policy of open communication with interested parties and actively encourage public participation. The Army invites federal and state agencies, public and private organizations, and individuals- including minority, low-income, disadvantaged, and Native American groups - to engage in the NEPA and decision-making processes.

The EA and Draft FONSI are available for review and public comment for a 30-day period, from July 1, 2025. U.S. Army Garrison Alaska also published a Notice of Availability for these documents in the *Fairbanks Daily News-Miner* on July 1, 2025, July 3, 2025, and July 15, 2025.

Copies of the EA and Draft FONSI are available at:

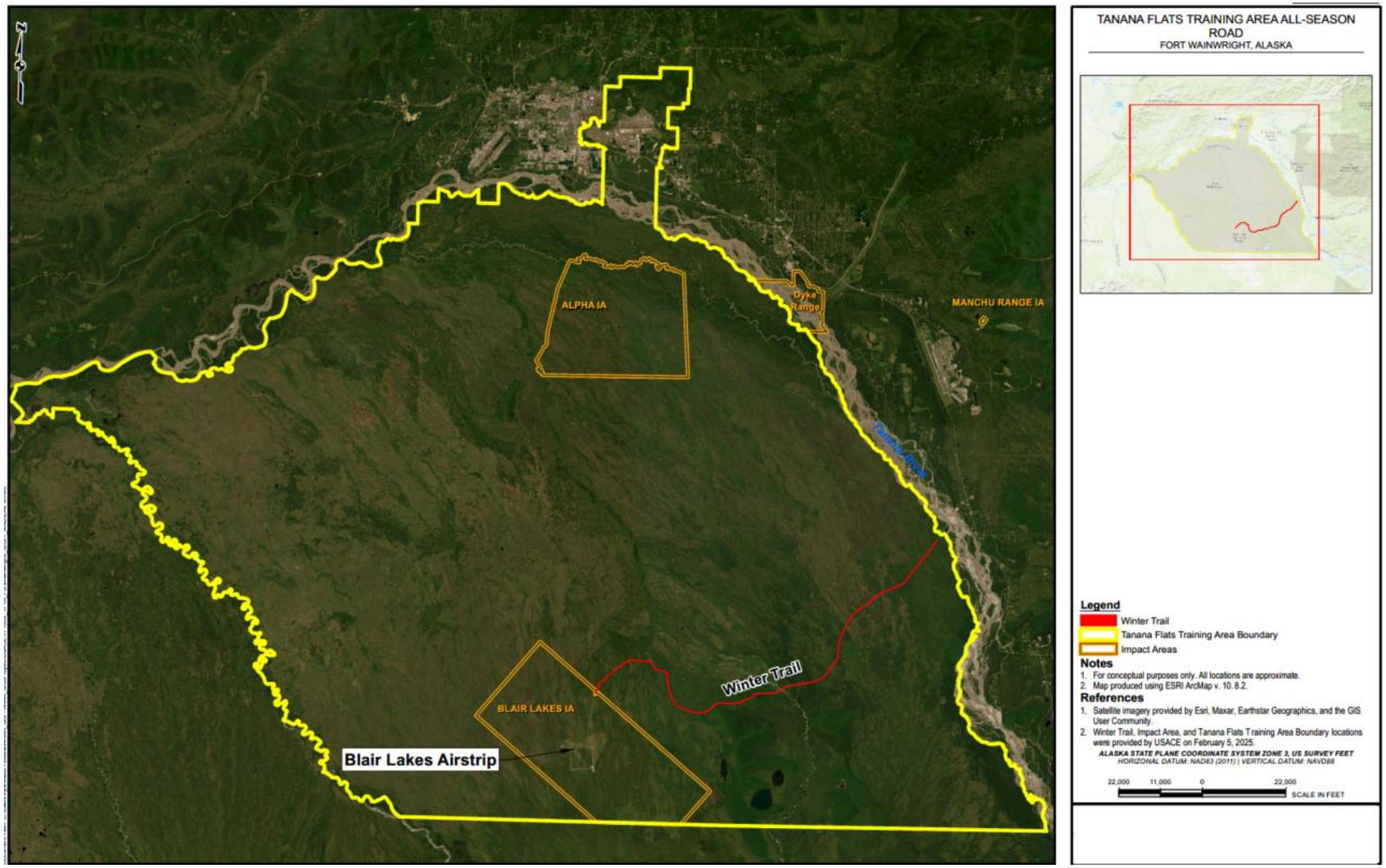
- Noel Wien Public Library, Fairbanks
- North Pole Branch Library, North Pole

The documents are also accessible online at:

https://home.army.mil/wainwright/about/garrison/public-works/environmental/national-environmental-policy-act-nepa

Following the 30-day review period, the Army will address all relevant comments received.

Figure 1-1. Tanana Flats Training Area All-Season Road Existing Conditions



CHAPTER 2. DESCRIPTION OF PROPOSED ACTION AND ALTERNATIVES

2.1 Proposed Action

The Army is seeking to develop year-round access to the TFTA and the BLRC by constructing approximately 25 miles of double-lane gravel road. This road would connect the BLRC and TFTA training areas to the Tanana River Bridge following a route similar to the existing winter trail and incorporating a low-water crossing at Dry Creek.

2.2 Selection Standards

The NEPA requires the consideration of reasonable alternatives for the proposed action. Reasonable alternatives are those that meet the purpose and need of the proposed action and that "would cause a reasonable person to inquire further before choosing a particular course of action."

This section outlines the selection standards used to determine whether alternatives were reasonable and should be carried forward for analysis. Two selection standards were established to identify viable alternatives for accessing the TFTA and the BLRC based on the needs identified for the proposed road balanced against anticipated impacts to the cultural, natural, and socioeconomic environment. Alternatives considered in this EA were screened against the following selection standards:

Selection Standard 1. Provide safe, efficient, and reliable year-round military access to the TFTA and BLRC

Alternatives carried forward for further consideration must provide safe and reliable year-round access to the TFTA and BLRC. A reasonable alternative must comply with transportation safety standards established by the American Association of State Highway and Transportation Officials (AASHTO), including the *Geometric Design of Highways and Streets*, *Roadside Design Guide -4*, and *Very Low-Volume Local Roads* guidance.

To facilitate safe and efficient traffic flow, alternatives must provide unimpeded travel, with acceptable levels of service, sightlines, and grades. The alternative must be passable in all seasons and maintainable in winter conditions.

For efficiency and reliability, the selected alignment must primarily traverse suitable soils to support all-season mechanized maneuvers and sustain heavy military vehicles year-round without risk of road subsidence when the ground thaws. Alignments over unstable soils that could fail and require frequent repairs would compromise efficiency, reliability, and increase maintenance costs.

To ensure safety, the selected alternative must minimize steep slopes reducing risks to personnel, especially in winter when icy roads and limited daylight increase hazards. The route must remain passable for emergency evacuations and medical responses.

Selection Standard 2. Utilize the existing winter trail alignment and improvements

The existing winter trail alignment was selected based on screening criteria established by U.S. Army Garrison Alaska (2018), including:

- Safe and reliable access to Blair Lake and surrounding training areas
- Minimal steep slopes along route
- Minimized impacts to wetlands
- Minimized impacts to permafrost soils
- Limited stream crossings

- Minimal changes to hydrology systems
- Minimized impacts on cultural resources

Since the current alignment meets these criteria and was originally constructed to provide safe access, alternatives should follow this route to the extent practicable. The existing alignment minimizes environmental and cultural impacts by avoiding wetlands, sensitive hydrology, permafrost, and steep slopes to the extent practicable. It also provides convenient access to gravel material sites, facilitating road construction.

Using and improving the existing winter trail infrastructure, including cleared pathways and associated enhancements, would minimize unnecessary environmental impacts. Deviating from this alignment may increase disruption within the TFTA, including additional clearing, habitat fragmentation, and impacts to wetlands, permafrost, and fish streams. A new alignment may also intersect historical sites increasing the risk of cultural resource disturbances.

2.3 Screening of Alternatives

The following alternatives that may meet the purpose and need to ensure safe and reliable year-round access to the TFTA and BLRC were considered and evaluated against the selection standards (Table 2-1).

Alternative 1 – No Action

Under this alternative, no year-round all-season gravel road would be constructed. Access to the TFTA and BLRC would remain limited to the existing winter snow road.

Alternative 2 – Double-Lane Road with Dry Creek Low-Water Crossing (Preferred)

This alternative would involve constructing a two-lane gravel road between the Tanana River Bridge and the BLRC/training assets within the TFTA. The proposed road would generally follow the existing winter trail route and include a low-water crossing at Dry Creek.

Alternative 3 – Double-Lane Road with Dry Creek Bridge

This alternative would involve constructing a two-lane gravel road generally along the existing winter trail alignment between the Tanana River Bridge and the BLRC/training assets in the TFTA. Unlike Alternative 2, this alternative would include a 3.75-mile bypass to a suitable Dry Creek bridge crossing location and construction of a two-lane bridge to improve access reliability.

Alternative 4 – Single-Lane Road with Dry Creek Low-Water Crossing

This alternative would involve constructing a single-lane gravel road generally along the existing winter trail alignment between the Tanana River Bridge and the BLRC/training assets in the TFTA. It would include a low-water crossing at Dry Creek, similar to Alternative 2, but with a reduced road width.

Alternative 5 – Access via Aircraft

This alternative would provide access to the TFTA and BLRC only via helicopter or fixed-wing aircraft, utilizing the existing gravel airstrip at the BLRC. Under this alternative, all personnel, fuel, equipment, and supplies would be transported by air. No winter trail would be constructed.

Table 2-1. Selection Standard Summary

Alternative Descriptions	Selection Standards	
	Provide safe, efficient, and reliable year-round military access to the TFTA and BLRC	**Utilize the existing winter trail alignment and improvements**
Alternative 1: No Action	No	Yes
Alternative 2: Double-Lane Road with Dry Creek Low-Water Crossing	Yes	Yes
Alternative 3: Double-Lane Road with Dry Creek Bridge	Yes	No
Alternative 4: Single-Lane Road with Dry Creek Low-Water Crossing	Yes	Yes
Alternative 5: Access via Aircraft	No	No

Action alternatives that meet the purpose and need and the selection standards above were considered reasonable and retained for consideration in this EA. Except for the required No Action Alterative, alternatives failing to meet one or more selection standard were deemed unreasonable and removed from further analysis.

2.4 Detailed Description of the Alternatives

2.4.1 Alternative 1 (No Action Alternative)

Under Alternative 1 (No Action), the Army would not construct a year-round gravel road. Access to the TFTA and BLRC would remain limited to the winter trail via snow road.

Because the No Action Alternative is unusable in summer, it would not provide year-round access to the TFTA and BLRC (Selection Standard 1). It would maintain access via the existing winter trail alignment and improvements (Selection Standard 2). Figure 1-1 shows the location of the winter trail.

2.4.2 Actions Common to all Road Alternatives

Alternatives 2, 3, and 4 share several common components. This section outlines those elements that remain consistent across all road alternatives.

Each road alternative would involve constructing a 25-mile hardened road designed to support low-volume traffic year-round, with periodic increases in use during winter training exercises. The proposed road design would follow criteria outlined in Unified Facilities Criteria (UFC) 3-201-1, which references the Military Surface Deployment and Distribution Command Transportation Engineering Agency Pamphlet 55-17 (*Better Military Traffic Engineering*), as well as the *AASHTO Geometric Design of Highways and Streets* (*The Green Book*), the *AASHTO Roadside Design Guide*, and the *AASHTO Very Low-Volume Local Roads* guidance documents.

2.4.2.1 Road Alignment Clearing

Throughout the road alignment, where the existing alignment does not meet line-of-sight, speed, or road upgrade requirements, a right-of-way would be cleared. Timber greater than six inches in diameter and six feet in length would be salvaged, including birch, spruce, and aspen. Salvaged timber would be stacked in decks ranging from 1 to 10 cords in size. Tree stumps would be ground to debris size in accordance with project specifications. In upland areas only, organic materials within the proposed road footprint would be removed and spread to aid in the future maintenance of shoulders and ditches.

2.4.2.2 Road Construction

The proposed road would be constructed over two construction seasons beginning in July 2025. During the first season, work would begin at the Alaska Railroad (AKRR) Bridge at the Tanana River and progress to Dry Creek. The second season would focus on construction from Dry Creek to the BLRC. While most construction would occur during the summer, some activities, including vegetation clearing from permafrost soils, material site development, gravel spreading, and prefabricated bridge placement, may occur during the winter.

Typical road construction equipment, such as dump trucks, front-end loaders, bulldozers, graders, off-road trucks, and possibly a crane for bridge installation, would be used. Construction vehicles would remain on-site overnight, with crews accessing the site via personal vehicles. Staging areas would be located approximately every five miles along the alignment.

Earth-moving activities would be minimal, except in areas of poor soil strength for constructing material sites and staging areas. Geotextile fabric would be laid under the gravel road in areas with poor soil strength, including wetlands, to protect permafrost from thermal degradation. The proposed road would be constructed by placing two to three feet of pit-run gravel in layers, with each layer compacted using Class C Compaction methods. This would involve a minimum of three passes with a smooth vibrator drum roller, weighing at least 24,000 pounds (lbs.), with a minimum vibration of 1,800 vibrations per minute, and centrifugal force of 55,000 lbs. or greater. (Natural Resources Conservation Service [NRCS], 2016a).

In areas outside of wetlands, unsuitable soil would be excavated to a depth that reaches suitable soil.

2.4.2.3 Bridges

The proposed road would include five water crossings: two at Clear Creek, one at Rigney Creek, one at Beaver Pond Creek, and one at Dry Creek. For the two Clear Creek crossings and the Rigney Creek crossing, either single-lane or double-lane pre-engineered style bridges would be installed, each capable of supporting up to 35 tons. Engineered concrete abutments would be placed in uplands, outside of the 2-year floodplain, with riprap used to stabilize the crossing site. All bridges would be equipped with appropriate guardrails and signage.

To cross Beaver Pond Creek, four 60-inch culverts would be installed. These culverts would be intentionally oversized to accommodate overflow, which has been observed near the crossing. Additional culverts may be added if deemed necessary to accommodate overflow.

2.4.2.4 Dry Creek Crossing

The crossing at Dry Creek would be a low-water crossing, usable year-round except during high water events. To construct this 900-foot-long by 44-foot-wide crossing, the area would be excavated approximately 3 feet during a dry period when the creek is not flowing. Excavated material would be stored in upland areas adjacent to the creek. The base of the excavated area would be filled with 6 to 8-inch rock, surfaced with gravel, and armored with riprap on the upstream side. Riprap would also be

installed on both banks of Dry Creek, extending 150 feet upstream from the crossing. The low-water crossing would be designed to be overtopped during flood events, which are not expected to occur often. Repairs would be conducted following these events.

2.4.2.5 Culverts

Approximately thirty 18-inch culverts would be installed in seasonal drainages and wetlands to maintain hydrological connectivity and prevent ponding adjacent to the proposed road, which is a primary cause of permafrost degradation in the road prism. Additional culverts would also be placed at small ephemeral stream crossings. These culverts would be aligned parallel to the flow of water and designed to meet the Alaska Department of Fish and Game (ADF&G) Fish Passage Improvement Program guidelines, as well as the U.S. Fish and Wildlife Service (USFWS) Alaska Fish Passage Program requirements.

2.4.2.6 Material Sites

Up to nine 20-acre (approximate) material sites would be established in upland areas along the route as gravel sources for the proposed road. Gravel extraction would be limited to a maximum depth of 60 to 80 feet. These sites would be strategically located to ensure they do not become connected to nearby streams, thereby avoiding the potential to trap fish.

2.4.2.7 Wetland Impacts Mitigation

To mitigate for wetland impacts, at least 70.2 acres of selected material sites would be converted into emergent wetland and open water complexes. The specific size and selection of sites for wetland conversion would be determined after gravel extraction. It is anticipated that two material sites would be converted, though additional sites may be included if necessary. This work will begin after the gravel pits are closed, and successful wetland conversion is estimated to take between three and five years.

The side slopes of the converted material sites would be approximately 20:1, becoming steeper near the low-water mark. Stockpiled overburden would be used to re-contour the site. Peninsulas created during gravel extraction would be partially removed to form a series of islands surrounded by shallow emergent wetlands. Upland areas would be seeded with native grass and/or forb species, including those collected from neighboring emergent wetlands. In areas of emergent wetland, native grass seed may be applied to prevent erosion.

2.4.3 Alternative 2 (Preferred Alternative). Double-Lane Road with Dry Creek Low-Water Crossing

In addition to the components described above in Section 2.4.2, the following would be implemented under Alternative 2.

Alternative 2 would have a driving surface width of 36 feet, allowing for two 14-foot-wide traffic lanes with 4-foot shoulders. The side slopes of the proposed road would be 4:1, and the road base would average 50 feet in width. To ensure adequate line of sight for a double-lane road, a right-of-way approximately 60 to70 feet wide would be cleared. (See Figure 2-1 for an overview of the Preferred Alternative.)

Alternative 2 would require approximately 480,000 cubic yards of gravel, which would be sourced from material sites along the alignment, outside of wetland areas.

There is potential for Alternative 2 to initially be constructed as a single-lane gravel road, with future upgrades to a double-lane road as funding permits. If this phased construction approach is adopted, the timeframe would shift.

Alternative 2 would provide safe, efficient, and reliable year-round access to the TFTA and BLRC (Selection Standard 1), except during rare flooding events. This alternative would follow the existing winter trail alignment and build upon existing winter trail improvements (Selection Standard 2).

2.4.4 Alternative 4. Single-Lane Road with Dry Creek Low-Water Crossing

Alternative 4 would include all the road features described in Section 2.4.2, follow the same alignment as Alternative 2, and utilize a low-water crossing at Dry Creek. However, unlike Alternative 2, Alternative 4 would have a single-lane gravel road (Figure 2-1).

For line-of-sight requirements, an approximately 40-foot-wide right-of-way would be cleared. The driving surface would be 18 feet wide, including the driving lane and shoulders on both sides. To accommodate safe passing, pull-outs would be constructed along the route.

Alternative 4 would require approximately 245,000 cubic yards of gravel to be sourced from material sites along the alignment outside of wetlands.

This alternative would provide safe, reliable, and mostly efficient year-round access to the TFTA and BLRC, with pull-outs to facilitate vehicle passing (Selection Standard 1). It would follow the existing winter trail alignment and build upon existing winter trail improvements for most of the route (Selection Standard 2).

2.5 Alternatives Eliminated from Further Consideration

Other alternatives considered would not meet the purpose and need or comply with all of the selection standards and have been eliminated from further consideration as described below.

2.5.1 Alternative 3. Double-Lane Road with Dry Creek Bridge

Alternative 3 would include all the road features described in Section 2.4.2 with two lanes like those in Alternative 2 (Figure 2-1).

Unlike Alternatives 2 and 4, Alternative 3 would involve the construction of approximately 3.75 miles of new road to the south, connecting to a new two-lane, pre-engineered style bridge over Dry Creek. The bridge would support up to 35 tons, with engineered concrete abutments installed in uplands outside Dry Creek's 2-year floodplain. Riprap would be used to secure the crossing site.

Alternative 3 would provide safe, efficient, and reliable year-round access to the TFTA and BLRC (Selection Standard 1). However, it would not follow the existing winter trail alignment and build upon existing improvements for the full length of the road (Selection Standard 2). After about 11 miles, the alignment would deviate from the existing trail for approximately 3.75 miles to accommodate the new bridge at Dry Creek. Alternative 3 does not meet Selection Standard 2 and has been dismissed from further consideration in this document.

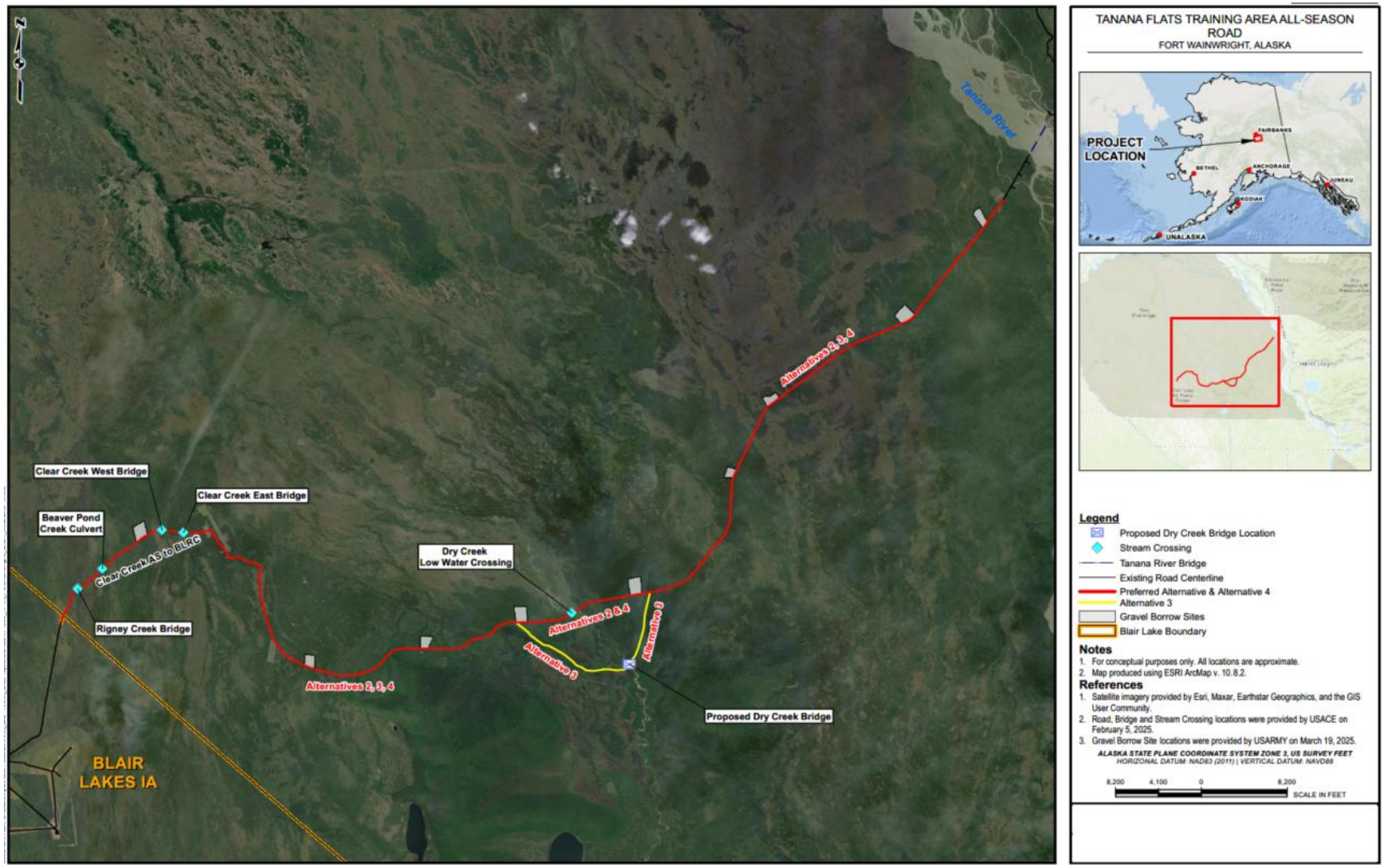
2.5.2 Alternative 5. TFTA via Aircraft

Under Alternative 5, the Army would access the TFTA only via helicopter or transport plane, utilizing the gravel landing strip at the BLRC, located toward the southern end of the TFTA (Figure 1-1). No winter trail would be constructed. All transportation of personnel, fuel, equipment, and supplies to and from the TFTA would rely exclusively on aircraft. This method would involve frequent air operations, flight schedule coordination, refueling logistics, and cargo handling to support training activities.

Alternative 5 would not provide safe, efficient, or reliable year-round military ground access to the TFTA and BLRC (Selection Standard 1). Although aircraft are relatively safe, they cannot transport as many passengers, cargo, or fuel as efficiently as a road-based system. Additionally, aircraft operations are

subject to delays and cancellations due to weather conditions. Moreover, Alternative 5 would not utilize the existing winter trail alignment and improvements during non-winter months (Section Standard 2). Therefore, Alternative 5 does not meet Selection Standards 1 or 2 and has been dismissed from further consideration in this document.

Figure 2-1. Tanana Flats Training Area All-Season Road Alternatives 2, 3, and 4



CHAPTER 3. AFFECTED ENVIRONMENT AND ENVIRONMENTAL CONSEQUENCES

The NEPA requires the analysis of areas and components of the environment that may be potentially affected. This section identifies those areas, with resources unlikely to be affected summarized in Section 3.1 and those with potential adverse impacts detailed in Section 3.2.

Each environmental resource discussion begins with an explanation of the affected environment within the region of influence (ROI), followed by a discussion of potential environmental consequences. The existing condition of each resource is described to provide a baseline for comparing potential future environmental, social, and economic effects, aiding both public and agency decision-makers.

3.1 Scope of the Analysis

In accordance with the scope of the Preferred Alternative, resource areas with minimal or no anticipated impacts were identified and eliminated from further analysis through a preliminary screening process. The following resource areas were not carried forward for detailed analysis, along with the rationale for their exclusion.

- ***Airspace –*** The proposed action would not alter airspace designations within or adjacent to the TFTA. No structures or equipment exceeding 200 feet in height will be constructed during the project, and no air traffic obstruction standards (14 Code of Federal Regulations (CFR) Part 77) will be exceeded. Therefore, airspace impacts are not anticipated and this resource area is not carried forward for detailed analysis.
- ***Electromagnetic Spectrum –*** The proposed action and subsequent military operations are expected to generate negligible electromagnetic impacts. Given the remote nature of the TFTA and the absence of infrastructure that generates high levels of electromagnetic fields, there is minimal potential for interference with electronic equipment. As such, this resource area is not carried forward for further analysis.
- ***Noise –***The proposed action would not impact noise levels in the TFTA or surrounding areas. Temporary construction noise would be indiscernible to the public and far from sensitive noise receptors, such as schools, hospitals, or residences. Any slight increase in vehicular traffic along Tom Bear Trail, which currently provides access to the TFTA, is not anticipated to notably add to the baseline traffic noise levels. Therefore, this resource area is not carried forward for detailed analysis.
- ***Subsistence –***As a nonrural community, Fairbanks and the surrounding area, including the TFTA, is classified by the State of Alaska as a nonsubsistence-use area (ADF&G 2025a). Therefore, subsistence is not analyzed further in this document. Recreational uses, including hunting and fishing, are considered in detail in section 3.2.6.
- ***Visual Resources –*** The proposed action would not result in visual impacts. The project would have low-visibility infrastructure, such as unintrusive bridges, and would follow an existing cleared alignment away from prominent viewsheds. No high-profile viewsheds would be affected, and visual impacts are not expected. This resource area is not carried forward for detailed analysis.
- ***Energy and Facilities*** No new energy infrastructure or expansion of existing facilities is proposed as part of the proposed action. Therefore, this resource area is not carried forward for further consideration.

- ***Socioeconomics*** **–**The proposed action is not expected to have any notable socioeconomic impacts, as it does not involve increases or decreases in personnel stationed at Fort Wainwright. This resource area is dismissed from further consideration.
- ***Human Health and Safety*** **–**The proposed action is not expected to pose any health or safety risks. There are no known unexploded ordnances (UXOs) or contaminated sites along the proposed alignment, and the Army will take appropriate precautions to ensure worker safety during construction. As such, this resource area is not carried forward for further analysis.
- ***Utilities*** **–** The TFTA lacks utility infrastructure (e.g. power lines, water, sewer, or telecommunications facilities). Since no utility systems would be disrupted or modified by the proposed action, this resource area is not carried forward for further analysis.

3.2 Environmental Resources Included for Detailed Consideration

The following environmental resource areas require detailed analysis to assess potential impacts from alternatives that have been carried forward for analysis: air quality, biological resources, cultural resources, geological and soil, land use, socioeconomics and recreation, and water resources. The following subsections provide in-depth analysis of these resources and potential impacts to them.

3.2.1 Air Quality

This section describes air quality within the ROI, which encompasses the TFTA.

3.2.1.1 Affected Environment

The Alaska Department of Environmental Conservation (ADEC) Division of Air Quality regulates the region where the TFTA is located. North of the project area, a portion of the Fairbanks North Star Borough, including the City of Fairbanks and the City of North Pole, has been designated as a federal non-attainment area for $PM_{2.5}$ (a measure of particulate matter) due to ambient air concentrations exceeding the National Ambient Air Quality Standards (NAAQS). However, the TFTA and surrounding training areas, where the project would be located, are in compliance with all NAAQS, and this region is considered an attainment area.

3.2.1.2 Environmental Consequences

Alternative 1: No Action Alternative

Under the No Action Alternative, there would be no changes to air quality. There would be no increase in air emissions due to construction and emissions associated with traffic along the winter trail and aircraft access during the summer would remain the same.

Preferred Alternative: Double Lane Road with Dry Creek Low Water Crossing

Criteria pollutant and greenhouse gas (GHG) emissions associated with construction of the Preferred Alternative, the double-lane gravel road with a low-water crossing over Dry Creek, were evaluated. Potential air emissions resulting from the Preferred Alternative were estimated using the *California Emissions Estimator Model* (CalEEMod, version 2020.4.0), a standard emissions modeling software package. Modeling results are shown below in Table 3-1.

Table 3-1. Tanana Flats Training Area All-Season Road – Maximum Annual Emissions

Project Phase	Reactive Organic Gasses (ton/yr)	Nitrogen Oxides (ton/yr)	Carbon Monoxide (ton/yr)	Sulfur Dioxide (ton/yr)	Particulate Matter$_{10}$ (ton/yr)	Particulate Matter$_{2.5}$ (ton/yr)	Carbon Dioxide Equivalents (ton/yr)
Construction	3.17	24.8	23.6	0.073	13.0	5.62	7,150
Operational (non-mobile)	0.22	1.30	1.44	0.0060	0.046	0.043	582
Operational (mobile) [a]	0.031	0.043	0.18	0.00026	0.0035	0.0015	28.0
TOTAL	**3.42**	**26.1**	**25.2**	**0.079**	**13.0**	**5.67**	**7,760**
Prevention of Significant Deterioration Threshold	250	250	250	250	250	250	75,000
Exceeds Threshold?	No	No	No	No	No	No	No

[a] Operational mobile emissions (truck travel to/from site) calculated off-model using vehicle-specific emissions factors

Air quality impacts that would result from the Preferred Alternative were evaluated based on the estimated annual criteria pollutant emissions associated with the construction of the low volume double lane road by comparing these values to federal prevention of significant deterioration (PSD) thresholds, which apply to emissions sources in geographic areas considered to be in attainment with all NAAQS.

The PSD threshold for nitrogen oxides, carbon monoxide, sulfur oxides (such as sulfur dioxide), particulate matter, and reactive organic gases (ozone precursors), is 250 tons per year, as specified in 40 CFR Part 52, Section 21(b). The PSD thresholds provide a conservative indicator for determining whether a project's emissions would have a significant impact on air quality. Estimates of the project's annual criteria pollutant emissions were found to be below all PSD thresholds and thus the project would not contribute to an exceedance of the NAAQS for any pollutant. Therefore, the Preferred Alternative would have minor adverse impacts on regional air quality.

Greenhouse Gas Emissions

To determine the impact of the Preferred Alternative's GHG emissions on regional air quality, a conservative significance threshold of 75,000 tons-per-year of carbon dioxide equivalents (CO_2e) was used. This quantitative threshold is not used an indicator of a significant impact, rather it provides a *de minimis* threshold to identify projects whose impact on regional GHG levels is too trivial or minor to merit consideration. If the annual quantity of GHG emissions generated by a project falls below this threshold, its impact on regional GHG levels can be considered negligible, and further analysis is not warranted. Based on this criterion, as the annual GHG emissions that the proposed project would potentially generate were estimated at less than 75,000 tons-per-year of CO_2e during the construction and operational phases, the Preferred Alternative would have minor adverse impacts on regional GHG levels.

Hazardous Air Pollutants

Hazardous air pollutant (HAP) emissions were not evaluated for the proposed project because of its location in a remote area far from any residential areas that might be affected. Further, the Preferred Alternative will not involve the construction or operation of stationary sources, which are the major contributors of HAPs. While diesel-fueled off-road construction equipment and mobile sources are

sources of diesel particulate matter, the use of this equipment will be limited to two years and travel on the proposed road would be infrequent.

Based on the criteria pollutant and GHG emissions modeling performed, there would be minor adverse impacts to air quality, and regional greenhouse gas concentrations that would result from the construction and operations of the Preferred Alternative would be negligible. Estimated annual criteria pollutant emissions due to the project were all determined to not exceed federal PSD standards, and the project's GHG emissions were found to be negligible. Additionally, as the geographic region in which the proposed project is located does not lie within a federal NAAQS non-attainment or maintenance area for any regulated air pollutant, General Conformity requirements do not apply and conformance with a state implementation plan was not assessed. Finally, as the proposed project would not involve the construction or operations of permanently installed stationary sources of air pollutant emissions, no air quality permit would be required. Therefore, the Preferred Alternative would have minor adverse impacts on regional air quality and impacts to GHG levels would be negligible.

The air quality and greenhouse gas emissions detailed technical analysis is found in Appendix A.

Alternative 4: Single-Lane Road with Dry Creek Low-Water Crossing

Construction of a single-lane road will minimize tree clearing activities and equipment use, lowering the emissions produced by construction equipment. As in Preferred Alternative, there would be minor adverse impacts to air quality and regional GHG concentrations from the construction and operations of Alternative 4.

3.2.2 Cultural Resources

This section describes cultural resources in a ROI that primarily includes an area centered on the proposed road alignments.

3.2.2.1 Affected Environment

Interior Alaska has been continuously inhabited for at least the last 14,000 years. Around 6,000 years ago, the Northern Archaic Tradition emerged, coinciding with the onset of the Holocene and a general warming trend. This tradition is characterized by side-notched projectile points, bifacial knives, microblades, endscrapers, and other tools (Esdale et al. 2017).

Approximately 2,500 years ago, a significant cultural shift occurred as nomadic big game hunting gave way to a more sedentary lifestyle focused on seasonally abundant food sources, storage caches, and permanent settlements. This transition marked the beginning of the Athabascan Tradition, which featured diversified resource, a decline in stone tool reliance, and an increased emphasis on copper (for knives, projectile points, awls, ornaments, and axes) as well as bone and antler (for projectile points, fishhooks, beads, buttons, and gaming pieces) (Esdale et al. 2017).

Archaeological investigations in the TFTA began in 1973 when Zorro Bradley and colleagues conducted a survey in the Blair Lake area. Subsequent surveys by James Dixon contributed to the designation of three archaeological districts: Blair Lakes (FAI-00335), Clear Creek Butte (FAI-00336), and Wood River Buttes (FAI-00337). In 1993, a survey in the Clear Creek Butte area confirmed the location of several archaeological sites. Since then, additional surveys have expanded understanding of the region, with 92 new sites identified in 2009-2010 around the Wood River Buttes, Salmon Loaf, and areas north and east of Blair Lakes. The district boundaries were adjusted in 2016 to account for these new discoveries.

Recent surveys have focused on the Blair Lakes region, which has a long history of human use from the late glacial period through the homesteading era and has also served as an important military training site. The McDonald Creek site (FAI-02043), located in this region, is the second-oldest archaeological site in

Alaska, with stone tool debris dating back 13,900 years. The area of the Blair Lakes Archaeological District crossed by the proposed road alignment contains 84 pre-contact, historic, and multi-component sites.

To date, archaeologists have surveyed 29,508 acres within the TFTA -approximately 5.1% of the area - identifying 169 archaeological sites and a historic trail. Most sites fall within the three designated archaeological districts. Of these, 25 sites have been determined eligible for the National Register of Historic Places (NRHP), 30 have been deemed ineligible, and 114 remain under evaluation (Esdale et al., 2023). Archaeological sites identified within the proposed road corridor are listed in Table 3-2.

Table 3-2. Known Cultural Sites within the Proposed Road Corridor

Site	Time Period	National Register Status	Distance to Project (ft)	Projected Date DOE/Fieldwork
FAI-00052	Prehistoric	Contributing Element of an NRE District	636	Complete
FAI-00053	Prehistoric	Determined Not Eligible for Listing	1102	Complete
FAI-01998	Prehistoric	Not Evaluated	2,418	
FAI-02045	Prehistoric	Determined Not Eligible for Listing	1,371	Complete
FAI-02046	Prehistoric	Determined Not Eligible for Listing	1,762	
FAI-02047	Prehistoric	Contributing Element of an NRE District	2,218	Complete
FAI-02048	Prehistoric	Determined Not Eligible for Listing	423	Complete
FAI-02049	Prehistoric	Not Evaluated	2,605	
FAI-02050	Prehistoric	Not Evaluated	4,062	
FAI-02051	Prehistoric	Not Evaluated	4,423	
FAI-02053	Prehistoric	Determined Not Eligible for Listing	289	Complete
FAI-02065	Prehistoric	Not Evaluated	7,999	
FAI-02066	Prehistoric	Not Evaluated	7,972	
FAI-02067	Prehistoric	Not Evaluated	7,835	
FAI-02068	Prehistoric	Not Evaluated	4,334	
FAI-02069	Prehistoric	Not Evaluated	7,520	
FAI-02070	Prehistoric	Not Evaluated	7,897	
FAI-02071	Prehistoric	Not Evaluated	7,024	
FAI-02072	Prehistoric	Not Evaluated	7,162	
FAI-02073	Prehistoric	Contributing Element of an NRE District	7,648	Complete
FAI-02074	Prehistoric	Determined Not Eligible for Listing	3,783	Complete
FAI-02075	Prehistoric	Not Evaluated	6,476	
FAI-02076	Prehistoric	Not Evaluated	5,928	
FAI-02077	Prehistoric	Contributing Element of an NRE District	5,748	Complete
FAI-02078	Prehistoric	Not Evaluated	7,625	
FAI-02361	Prehistoric	Determined Not Eligible for Listing	1,900	Complete
FAI-02054	Prehistoric	Determined Not Eligible for Listing	2,221	Complete
FAI-02055	Prehistoric	Determined Not Eligible for Listing	1,982	Complete

Site	Time Period	National Register Status	Distance to Project (ft)	Projected Date DOE/Fieldwork
FAI-02056	Prehistoric	Determined Not Eligible for Listing	2,756	Complete
FAI-02057	Prehistoric	Determined Not Eligible for Listing	2,743	Complete
FAI-02058	Prehistoric	Contributing Element of an NRE District	2,461	Complete
FAI-02059	Prehistoric	Not Evaluated	2,395	
FAI-02060	Prehistoric	Contributing Element of an NRE District	2,526	Complete
FAI-02061	Prehistoric	Not Evaluated	1,949	
FAI-02062	Prehistoric	Determined Not Eligible for Listing	1,348	Complete
FAI-02244	Prehistoric	Not Evaluated	4,777	
FAI-02246	Prehistoric	Determined Not Eligible for Listing	5,892	Complete

Environmental Consequences

Alternative 1: No Action Alternative

Under the No Action Alternative, cultural resources would remain preserved in their current state, and there would be few impacts to cultural sites within the proposed road alignment area.

Effects Common to Action Alternatives

Although portions of the proposed road alignment fall within the boundaries of the Blair Lakes Archaeological District (FAI-00335), an assessment determined that the road, staging areas, material extraction sites, and right-of-way clearing would not have an adverse effect on the district or its 84 known archaeological sites (Cook, 2025).

A ten-mile stretch of trail, located within the project's Area of Potential Effect (APE) but outside of the Blair Lakes Archaeological District between Dry Creek and McDonald Creek, is scheduled for pedestrian survey in 2025. However, cultural resources are not expected to be present in this lowland segment (Cook, 2025).

The proposed road could lead to some increased military training activities in the TFTA, including bivouac construction, land clearing, and other ground-disturbing activities. Military training exercises have the potential to uncover unanticipated cultural sites. Planning for the avoidance of or minimization of impacts to archaeological sites within the APE began at the earliest stages of route planning. Although an existing winter trail currently passes through this area, its use is limited to frozen conditions when snow and ice protect the ground. The proposed all-season road would provide year-round access, increasing the potential for inadvertent discovery of cultural resources and exacerbating erosion, although the closest known National Register of Historic Places-eligible site is 650 feet from the proposed road alignment and protected by a wetland area which would hinder access.

Additionally, the proposed road could increase recreational use in the TFTA, further raising the risk of inadvertent discovery, accidental damage, looting, or other impacts to cultural resources, particularly in areas without snow or ice cover. However, no sections of the proposed road's route will extend into areas that have not been surveyed. Monitoring will ensure earliest discovery of any off-road damage and recreational users must register with the USAG Alaska and obtain a Sikes Act Permit (SAP), which prohibits the disturbance or removal of cultural resources.

Preferred Alternative: Double Lane Road with Dry Creek Low Water Crossing

Consultation with the Alaska State Historic Preservation Office (SHPO) was initiated on January 29, 2024. On March 6, 2025, SHPO concurred with a finding of No Adverse Effect on historic properties (SHPO File No. 3130-1R Army/2024-0145). See Appendix B). The SHPO also agreed that most of the unsurveyed sections of the proposed road alignment have a low potential for containing cultural resources. Any post-review discoveries made during construction will be assessed and mitigated under a separate agreement, if necessary. Once completed, the road will be incorporated into USAG Alaska's regular archaeological monitoring plan as outlined in the Garrison's Integrated Cultural Resource Management Plan.

In accordance with Section 106 of the National Historic Preservation Act (NHPA), Tribal governments from Dot Lake, Healy Lake, Minto, Nenana, Northway, Tanacross, and Tetlin were consulted on January 23, 2023, to determine if the tribal entities had interests or concerns regarding the project. No responses were received. Additionally, tribal governments were consulted at summit meetings with USAG Alaska command on August 1, 2023 and August 7, 2024, and no concerns were raised.

Because the Preferred Alternative avoids known cultural sites and the SHPO concurred with a finding of no adverse effect and because there are measures to report and mitigate inadvertent discoveries, impacts to cultural resources would be negligible. The new road will be incorporated into USAG Alaska's regular archaeological monitoring plan to ensure cultural sites are protected from military training activities and recreational users.

Alternative 4: Single-Lane Road with Dry Creek Low-Water Crossing

The SHPO's concurrence with a finding of no adverse effect to cultural resources applies to Alternative 4 because it follows the same alignment as the Preferred Alternative. The alternative avoids known cultural sites and includes measures to report and mitigate inadvertent discoveries, and its impacts to cultural resources would be negligible.

3.2.3 Geology and Soil

This section describes geology and soil resources, including permafrost, in a ROI that includes the TFTA.

3.2.3.1 Affected Environment

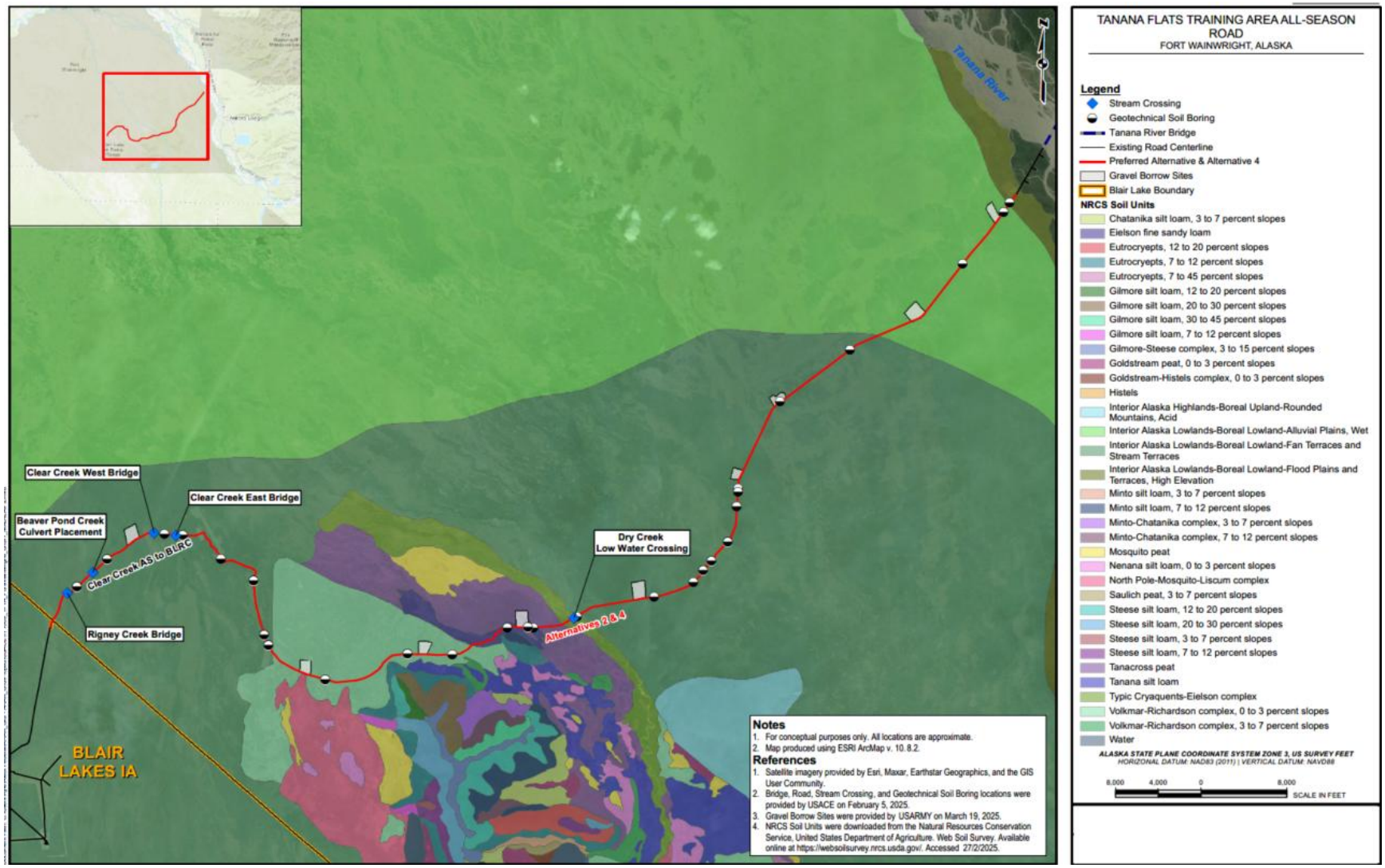
The proposed Tanana River crossing and Blair Lake area are located at the northern edge of the Tanana Lowlands, near the Yukon-Tanana Uplands, about 30 miles southeast of Fairbanks. The Tanana River basin is filled with alluvial deposits of gravel, sand, and silt from fluvial and glacio-fluvial origins, with thicknesses ranging from a few feet to over 500 feet near the river. The hills around the TFTA are part of the Yukon-Tanana Uplands, composed of rounded ridges and hills with elevations between 1,500 and 3,000 feet, underlain by schist bedrock and localized granitic intrusions. The advance of glaciers from the Alaska Range caused rapid sediment deposition in the Tanana Valley, with windblown silt (loess) mantling the bedrock hills.

The Tanana Flats area has experienced numerous moderate and occasional strong earthquakes over the past 200 years due to the interaction between the Pacific and North American plates. The movement of the Pacific Plate creates stresses in the North American Plate, leading to seismic activity in the interior of Alaska. The Tanana Lowlands, located between the Denali and Kaltag-Tintina systems, have seen significant earthquakes, including the 2002 Denali Fault earthquake. Despite few known active faults in the Tanana Lowlands, the area has experienced several large earthquakes, indicating underlying seismic zones.

The project area is in a discontinuous permafrost zone, where permafrost is widespread but varies in nature and occurrence. Removal of trees and insulating ground cover can lead to degradation of near-surface permafrost. The silt on north-facing slopes and valley bottoms is typically frozen and contains high amounts of ice and organics. Despite the presence of permafrost in vegetated areas on riverbanks, river channels and deep lakes in Interior Alaska are usually free of permafrost

Most of the proposed road area is poorly drained boreal lowland floodplains, stream terraces, and peatlands. Hydric soils, which result from prolonged saturation and are characterized by anaerobic conditions in the upper portion of the surface soil profile and are indicators of wetlands, comprise over 50 percent of soils (Figure 3-1; NRCS, 2016b; NRCS, 2025). Findings from the 2009 Geotechnical Feasibility Study indicate that soils closest to the Tanana River are silty overlying sand and gravel, with frozen soils encountered from the surface to a depth of approximately 10 feet (Shannon & Wilson, 2009). In the Dry Creek corridor and near the terminus of the existing winter trail, silty soils overlie weather schist bedrock. Discontinuous deep permafrost is present. Low loess hills found along the alignment are of similar composition, but without permafrost. Erosion potential is low for all soils except in loess hills, where slopes are as high as 7% and soils are fine silts (NRCS, 2016b).

Figure 3-1. Tanana Flats Training Area All-Season Road Soils



3.2.3.2 Environmental Consequences

Alternative 1: No Action

Because there would be no construction associated with the No Action Alternative, no impacts would be expected to geology or soil, including permafrost.

Effects Common to Action Alternatives

The proposed road involves modifying an existing winter access trail to become an all-season access route. This includes removing organic material, building an elevated gravel roadbed, crossing several stream courses, and developing multiple material source areas. Initially, the hydrologically active layer between the ground surface and permafrost could see a major reduction in hydraulic conductivity, effectively acting as a subsurface dyke preventing the lateral movement of shallow groundwater. This reduction would be caused by factors such as the removal or compaction of the active layer during construction, alteration of seasonal thermodynamics causing deeper and more persistent seasonal ground freeze, and/or alterations of permafrost elevation upwards into the road fill. During spring break up and summer rains, water would become ponded by the reduced active layer on one or both sides of the road.

Subsequently, the increased heat transfer from ponded water and the road embankment would result in the eventual melting and deepening of the permafrost under the road alignment. This would re-establish a deeper active flow layer, which would continue to expand due to the combined effects of conductive heat transfer through road material and advective heat transfer via flowing water. This expanding thaw bulb in the road vicinity would result in uneven road subsidence and a large linear zone of degraded or absent permafrost. In the long term, reducing permafrost extent could result in deepened groundwater flow paths and reduced flows to hydrologic features previously fed by the shallow hydrologically active zone between the ground surface and the permafrost. This flow reduction would likely impact smaller streams and groundwater-dependent ecosystems such as fens.

Clearing vegetation for the right of way would also allow snow to accumulate in areas that had been previously sheltered, particularly in forest. The accumulation of snow would impact seasonal frost development and permafrost where present because snow is a thermal insulator and soil temperatures change more gradually when snow cover is present. Snow cover could slow the progress of both autumn soil frost development and spring thaw, when snow insulates the ground from the sun's warming rays. The evergreen canopy prevents the accumulation of snow beneath trees. This would allow the frost to penetrate deeper and earlier than in treeless areas. In the spring, the thick organic layer generally present in black spruce forests would act as insulation to prevent early thawing.

Aerial imagery of the current winter trail indicates that, in some areas, vehicles are deviating from the road alignment onto adjacent areas, likely to avoid muddy, impassable areas. All road alternatives would provide a stable gravel road substrate that would eliminate the need to travel off-road. This would decrease erosion and impacts to permafrost caused by disturbance of surface vegetation.

Preferred Alternative: Double Lane Road with Dry Creek Low Water Crossing

The increased area impacted by the Preferred Alternative would increase the volume of disturbed soils; however, the alignment minimizes erosion effects by avoiding steep areas. The Preferred Alternative would have moderate adverse impacts to geology and soil, including permafrost because it utilizes the existing road alignment, minimizing the additional disturbed ground area to a corridor along both sides of the existing winter trail. Additionally, use of properly-sized culverts at water crossings along the entire alignment will help to minimize further impacts to permafrost.

Alternative 4: Single-Lane Road with Dry Creek Low Water Crossing

Alternative 4 would have moderate adverse impacts to geology and soil, including permafrost, similar to those described above, because the road alignment follows the existing winter access trail alignment and would have properly-sized culverts.

3.2.4 Biological Resources

This section describes biological resources, including vegetation, fish, and wildlife, within the ROI, which encompasses the TFTA. No species listed as threatened, endangered, or proposed under the Endangered Species Act are known to inhabit the TFTA (IPaC 2025).

3.2.4.1 Affected Environment

Vegetation

The TFTA lies within the Tanana River Floodplain ecodistrict, a dynamic landscape shaped by Interior Alaska's extreme climate, characterized by long, cold winters and a short, intense growing season. Vegetation has been classified using the Alaska Vegetation Classification (Viereck, et al.1992) which identifies the following plant communities within the area (Figure 3-2):

- Forests: mixed, needleleaf, and broadleaf forests
- Scrub: tall, low, and dwarf scrub
- Herbaceous communities

The eastern portion of the TFTA, which is generally lower in elevation, is predominantly scrub and forested, whereas the western portion includes large barren areas in early successional stages following wildfire disturbance.

In June 2024, the McDonald Fire was ignited by lightning in the TFTA and initially burned approximately 153,000 acres of vegetation. The McDonald Fire merged with the Clear Creek Fire, which had burned 23,000 acres and the Meridian Fire, which had burned 3 acres, resulting in a total burned area of over 176,700 acres (Bureau of Land Management [BLM], 2024). It was the largest wildfire within the Fairbanks North Star Borough since 2004 (Alaska Beacon 2024). Most of the east side of the TFTA adjacent to the Tanana River was impacted by the wildfire.

TFTA's forests primarily consist of:

- Mixed Forests: dominated by Black spruce (*Picea mariana*), white spruce (*P. glauca*), tamarack (*Larix laricina*), paper birch (*Betula papyrifera*), quaking aspen (*Populus tremuloides*), and balsam poplar (*P. balsamifera*)
- Needleleaf forests: dominated by black spruce, white spruce, and tamarack
- Broadleaf forests: primarily quaking aspen, paper birch, and balsam poplar

Forested canopies provide shaded habitat for mosses, forming dense understories in closed-canopy forests. Common moss species include bog groove-moss (*Aulacomnium palustre*), sphagnum moss (*Sphagnum* spp.), and reindeer lichen (*Cladonia* spp.) (ADF&G 2015; USAG Alaska 2018).

Vegetative scrub communities within and near the proposed road alignment consist of:

- Tall scrub: Dominated by willows (*Salix spp*.) and green alder (*Alnus viridis*), either alone or in combination.
- Low scrub communities: composed of willows, dwarf birch (*Betula nana*), resin birch (*B. glandulosa*), and various ericaceous shrubs, including Labrador tea (*Rhododendron groenlandicum*), and lingonberry (*Vaccinium vitis-idaea*).

Although found in other Tanana Flats areas, there are no scrub shrub areas containing Labrador tea, lingonberry, or alpine blueberry (*Vaccinium uliginosum*) along the proposed project alignment (ADF&G 2015; USAG Alaska 2018).

Herbaceous communities include graminoids such as bluejoint (*Calamagrostis canadensis*), sedges (*Carex* spp.), and cottongrass (*Eriophorum* spp.), with scattered coltsfoot (*Petastites frigidus*) and intermittently abundant horsetail (*Equisetum* spp.) (ADF&G 2015; USAG Alaska 2018).

To establish the TFTA winter trail, vegetation along the alignment was cleared via hydro-ax, reducing ground disturbance while producing mulched vegetation for trail insulation. Approximately 142 acres were cleared, distributed across various plant communities as follows (USAG Alaska 2018):

- Mixed forest: 45.2 acres
- Needleleaf forest: 43.2 acres
- Broadleaf forest: 33.5 acres
- Low scrub: 7.8 acres
- Tall scrub: 7.7 acres
- Dwarf tree scrub: 0.4 acres
- Herbaceous communities: 0.4 acres

The vegetation communities within the TFTA support diverse wildlife populations and play a crucial function in carbon storage, water filtration, and soil stabilization, which are essential for maintaining the environmental health and resilience of the Tanana River Floodplain ecosystem.

As part of USAG Alaska's Integrated Natural Resource Management Plan (INRMP), the Army annually reviews the Alaska Center for Conservation Science (ACCS) plant status list for Fort Wainwright, which includes the TFTA. The 2020 INRMP update confirmed that no plant species of concern are present in the TFTA (USAG Alaska 2020). The 2013 INRMP listed six rare plant species in the TFTA, but as of the July 2024 update to the Alaska Rare Vascular Plant list, only one of these six species remains listed: the bulb water hemlock (*Cicuta maculata*) or bulblet-bearing water-hemlock (*C. bulbifera*). Its global rank of G5 means the species is secure globally, with little to no risk of extinction due to its extensive range and abundant populations (ACCS 2024). The species' state rank of S3 means it is vulnerable in Alaska and has a moderate risk of extirpation due to a restricted range, relatively few populations, and recent widespread declines or threats (ACCS 2024).

Invasive Species

Executive Order 13112, Safeguarding the Nation from the Impacts of Invasive Species (amended on December 5, 2016), requires federal agencies to prevent and control invasive species to minimize their economic, ecological, and human health impacts.

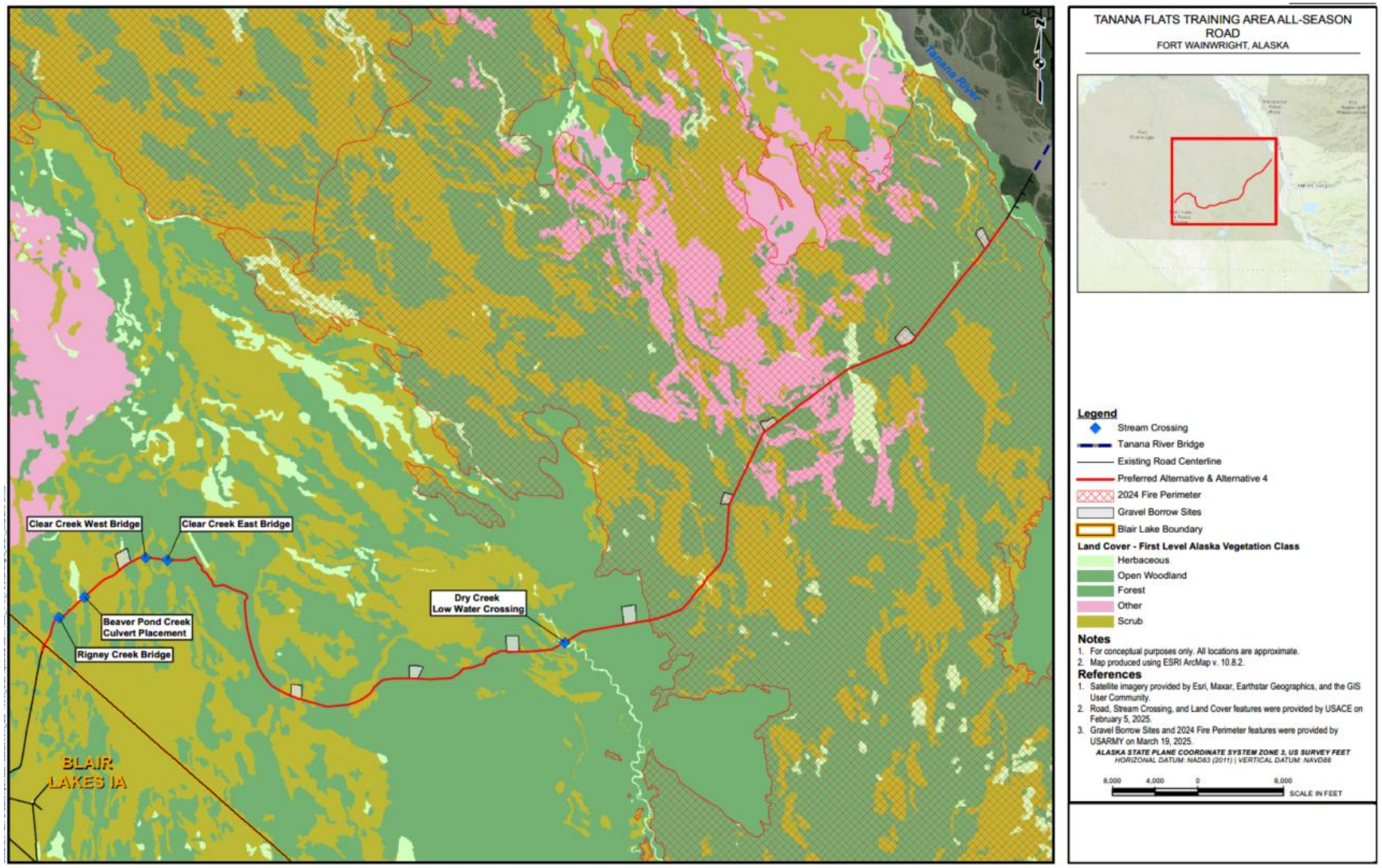
The Alaska Exotic Plant Information Clearinghouse database, managed by the ACCS, identifies the following invasive species within the TFTA (ACCS 2024):

- Yellow sweetclover (*Melilotus officinalis*)
- Narrowleaf hawksbeard (*Crepis tectorum*)
- European bird cherry (*Prunus padus*)
- Butter and eggs (*Linaria vulgaris*)
- Bird vetch (*Vicia cracca*)
- Common plantain (*Plantago major*)
- European stickseed (*Lappula squarrosa*)
- Field sowthistle (*Sonchus arvensis*)

- Foxtail barley (*Hordeum jubatum*)
- White sweetclover (*Melilotus albus*)
- Waterweed (*Elodea Michx*)

In 2023 and 2024, targeted treatments were conducted to remove white sweetclover and bird vetch within the TFTA (USAG Alaska, 2023a; USAG Alaska, 2024).

Figure 3-2. Tanana Flats Training Area All-Season Road Vegetation Classes and 2024 Wildfire Extent



Fish and Wildlife

Various fish and wildlife species inhabit the TFTA, as described below.

Anadromous and Resident Fish. Many ponds and lakes in the region either freeze completely during winter or become ice covered, and lack sufficient dissolved oxygen to support fish. Additionally, several creeks experience seasonal drying or low water levels, rendering them uninhabitable for fish during certain times of the year. However, there are several anadromous and resident fish species bearing creeks within the proposed road alignment area.

According to a study of anadromous waters conducted in preparation for the proposed road construction, Fivemile Clear Creek, a side channel of the Tanana River, supports coho salmon (*Oncorhynchus kisutch*). Bear Creek, another Tanana River side channel, supports chum salmon (*O. keta)* and coho salmon, as well as resident slimy sculpin (*Cottus cogmatus)* (Brinkman et al. 2014). Arctic graylings (*Thymallus arcticus*) have also been reported in Fivemile Clear Creek. McDonald Creek is not mapped in the Anadromous Waters Catalog (AWC) nor the Alaska Freshwater Fish Inventory (AFFI).

Dry Creek supports Arctic grayling, though no anadromous species are present (ADF&G 2025b and 2025c). Surveys conducted in 2004 also documented slimy sculpin upstream from the proposed road alignment in a section of the creek with perennial flow (University of Alaska Fairbanks, Environmental Community Partnership [UAF ECP], 2025). Grayling and sculpin most likely occupy Dry Creek where it intersects the proposed road alignment area when it is flowing.

Clear Creek is classified as an anadromous water body supporting chum salmon and Chinook salmon (*O. tshawytscha*) (ADF&G 2025c). Fish surveys conducted in 2013 and 2014 by Colorado State University's Center for Environmental Management on Military Lands confirmed the presence of these. Observations of two spawning adult Chinook salmon indicate that anadromous waters likely extend beyond the documented reach, potentially into the creek's headwaters, which may serve as a natal area (Brinkman et al., 2014). Furthermore, areas of flowing water under the ice during winter suggest that juvenile salmon may overwinter in Clear Creek. Northern pike (*Esox lucius*) and slimy sculpin have also been documented in Clear Creek (ADF&G 2025b).

Beaver Pond Creek is not listed in the AWC nor the AFFI. However, resident slimy sculpins were observed at the proposed road crossing during a field survey in August 2020 (UAF EPC, 2025).

Rigney Creek supports mapped populations of Arctic grayling (ADF&G 2025b), and slimy sculpins have been observed in the creek (UAF ECP, 2025).

Table 3-3. Fish Species Found in Waterbodies Within the Proposed Road Alignment Area

Waterbody	Fish Species	Life Stage or Activity Observed
Fivemile Clear Creek (Tanana River side channel)	coho salmon	rearing
	Arctic grayling [1]	unknown
Bear Creek (Tanana River side channel)	chum salmon	spawning
	coho salmon	rearing
	slimy sculpin	unknown
McDonald Creek (Tanana River side channel)	no data at the crossing site	no data at the crossing site
Dry Creek	Arctic grayling	juvenile
	slimy sculpin	unknown
Clear Creek	chum salmon	spawning, rearing
	Chinook salmon	spawning, rearing
	northern pike	juvenile
	slimy sculpin	juvenile, adult
Beaver Pond Creek	no data available	no data available
Rigney Creek	Arctic grayling	juvenile
	slimy sculpin	unknown

[1] Reported by fisherman

Work within waterbodies that contain anadromous fish requires compliance with the State of Alaska Anadromous Fish Act (AS 16.05.871- .901), and compliance with the State's Fishway (or Fish Passage Act AS 16.05.841) is required for uses or activities which may impede the efficient passage of resident or anadromous fish. All waterbodies that have Pacific salmon are considered Essential Fish Habitat under the Federal Magnuson-Stevens Fishery Conservation and Management Act (Magnuson-Stevens Act). For TFTA projects, the National Marine Fisheries Service delegates its authority under the Magnuson-Stevens Act to ADF&G Habitat Division via the Fish Habitat permitting process (USAG Alaska, 2025a).

Mammals. Most vertebrate species indigenous to Interior Alaska inhabit the TFTA. Large mammals include moose, black and grizzly bear, and caribou. Smaller mammal species in the area include wolves, coyotes, red fox, wolverine, and lynx. Within the TFTA, game species are managed by ADF&G, which also monitors for population status, reproductive success, harvest, and home ranges. The TFTA lies within Game Management Unit (GMU) 20 and comprises almost 20% of GMU subunit 20A.

Moose *(Alces alces)* occur in high densities in the TFTA. In a 1996 to 2014 sampling period, moose density on TFTA ranged from two to three and a half moose per square mile (Brinkman & Seaton 2014). The area supports critical calving habitat and, during the above sampling period, 810 calving sites were identified. A 2010 USAG Alaska study identified 138 calving sites on TFTA, most of which were located between Wood River Butte and Blair Lakes (USAG Alaska 2020). Currently, ADF&G is managing GMU 20A for a stable moose population. The unit is an "intensive management unit" with a population objective of 10,000 – 15,000 moose. A 2019 survey of GMU 20A places the population estimate at

11,770 moose (Nelson 2024). This estimate, along with all population estimates in the preceding 10 years fall within the intensive management population objective. Twinning rates, or how many cows have twins, provide an indication of the population's nutritional condition and productivity. Spring 2016-2020 twinning rates averaged 16.3%, which is slightly higher than the subsequent five-year estimate of 15.4%, and remains within the intensive management objective of a 10 to 20% twinning rate (Nelson 2024).

Black bears (*Ursus americanus*) are most common in the TFTA near Salchaket Slough, Bear Creek, Willow Creek, and McDonald Creek. In 2010, USAG Alaska and ADF&G generated bear population estimates for TFTA. Using genetic mark-recapture, 81 black bears were uniquely identified. The study found the density of black bears to be 59 individuals per 1,000 square kilometers (km^2), which is stable when compared to a 1991 estimate from a USAG Fort Wainwright and ADF&G cooperative study (USAG Alaska 2020).

Grizzly bears *(U. arctos horribilis)* are wide-ranging across TFTA. In the 2010 USAG Alaska ADF&G population estimate, 11 grizzly bears were uniquely identified via genetic mark-recapture, and the study found that grizzly bears moved throughout the TFTA. Grizzly bears are hunted on TFTA; however, zero to three grizzly bears were harvested in each of the five years prior to 2020 (USAG Alaska 2018).

Wolves (*Canis lupus*) occur in 29 packs across the TFTA and ranges of 3 additional packs may use the TFTA. Estimates in 2005 place the TFTA wolf population between 216 and 226 individuals. A spring 2013 population survey of the northern portion of GMU 20A, estimated wolf density at 15 to 17 wolves per 1000 km^2. Wolves are monitored by ADF&G, and their population is assumed stable. Hunting with a bag limit of five is allowed on GMU 20 between August and April (USAG Alaska, 2018).

Red foxes (*Vulpes vulpes*) are found in the TFTA and are widespread across most of Alaska, inhabiting regions south of the Arctic tundra. Known for remarkable adaptability, they thrive in diverse environments, including lowland marshes, hills, forested areas, and river draws. Their ability to adjust to varying habitats has contributed to their widespread presence across the state. While precise population trends within Alaska, including the TFTA, remain unclear, red foxes are considered abundant and show no indications of significant decline (USAG Alaska, 2018).

Coyotes (*C. latrans*) were first observed in Alaska on the Southeast mainland in the early 1900s. They are opportunistic feeders and their range has expanded accordingly. The species is known to hunt solo, in pairs, in packs, and cooperatively. Their diet consists of species found in the Tanana Valley such as snowshoe hares, microtine rodents (voles, lemmings, and muskrats), and carrion as well as fish and insects. Their range has expanded north into the Tanana Valley. Based on trapper questionnaires and management reports, the coyote population is presumed stable across its current range. However, ADF&G does not conduct regular population surveys (ADF&G, 2007).

Surveys for little brown bat (*Myotis lucifugus*) were conducted in the Tanana Flats Training Area from 2014 to 2017 using passive and active detection methods. Bats were detected in the project area near Clear Creek. Bat presence data was used to predict habitat suitability using species distribution modeling methods. Predictive modeling indicated low habitat suitability for bats along most of the proposed alignment except for the area near Clear Creek (Savory, 2016; Savory et al. 2017).

Avian Species. All USAG Alaska projects are required to comply with all applicable laws and regulations including the Migratory Bird Treaty Act and the Bald and Golden Eagle Protection Act. Migratory birds are generally nesting in the area from May 1 through July 15.

The rusty blackbird (*Euphagus carolinus)*, listed on the USFWS Division of Migratory Bird Management's Birds of Conservation Concern list, the Boreal Partners in Flight's Priority Species of Concern list, the DOD Partners in Flight's Mission Sensitive Priority List, and BLM's Alaska Sensitive

Animal List, were observed in areas with persistent annual water (fens) and dominated by grass and herbs in the TFTA in 2018 (Smith, et al., 2019).

The olive-sided flycatcher *(Contopus cooperi)* was last surveyed and recorded in 2010 at 13 locations in the TFTA (Ajmi, 2012). The species is on Boreal Partners in Flight's Priority Species of Concern list, BLM's Alaska Sensitive Animal List, DOD Partners in Flight's Mission Sensitive Priority List, and USFWS Division of Migratory Bird Management's Birds of Conservation Concern list.

Habitats found within TFTA (see Vegetation section above), are important to a variety of songbirds, shorebirds, and upland game birds, and home to nesting species such as gray jays, ravens, and great gray, great horned, and boreal owls. Sandhill cranes, trumpeter swans, Canada geese, American wigeons, green-winged teals, mallards, northern pintails, blue-winged teals, northern shovelers, lesser and greater scaup, bald eagles, red-tailed hawks, northern harriers, short-eared and northern hawk owls, and numerous small passerine species, including warblers, thrushes, blackbirds, and sparrows, are also found on TFTA. Primary bird types that use the TFTA are detailed below.

The Tanana River floodplain is a breeding ground for ducks, geese, and cranes. Upwards of 20,000 ducks, 10,000 geese, and 5,000 cranes inhabit the area during their breeding seasons, with waterfowl migration peaking in mid-September. Mallards (*Anas platyrhynchos*) and northern pintails (*Anas acua*) are some of the most observed species. Although sandhill cranes (*Grus canadensis*) do not routinely use TFTA land as a staging area, the airspace above TFTA is a major flight corridor for the species from mid-May to September (USAG Alaska, 2018).

According to a two-year study of landbirds within the Tanana Valley State Forest, 57 species of passerines may be present within the TFTA. A total of 5,976 individuals were observed during the two-year period. Common species included the dark-eyed junco (*Junco hyemalis*), the yellow-rumped warbler (*Dendroica coronata*), Swainson's thrush (*Catharus ustulatus*), and Townsend's warbler (*Setophaga townsendi*) (Hannah et. all 2003).

An estimated 12,000 raptors migrate through the area in spring and an estimated 23,000 in fall. In area surveys, twenty species of raptors, including two eagle species, seven hawk species, four falcon species, six owl species, and osprey have been observed. The bald eagle *(Haliaeetus leucocephalus)* is locally common and known to nest in quaking aspen and balsam poplars along both the Tanana River and Blair Lakes and in white spruce in off-river locations. The golden eagle *(Aquila chrysaetos)* inhabits forests and alpine habitats on the installation. Access to open water, wintering waterfowl, and late salmon runs provide opportunities for wintering eagles (USAG Alaska, 2018). Along the Tanana River, most nests are within 300 feet of the shoreline. In 2010, aerial surveys identified 33 nests in TFTA, which included 3 raptor-occupied nests. One was occupied by a single adult eagle, one by a pair of adult eagles, and one by a great gray owl (Ajmi, 2010).

Twenty-six shorebird species, three gull species, and the Arctic tern (*Sterna paradisaea*) have been observed in the proposed road alignment area. On TFTA waterways, four loon species and two species of grebe have been observed (USAG Alaska, 2018).

Reptiles and Amphibians. The wood frog (*Lithobates sylvaticus*) is the only amphibian species found in TFTA. No reptiles exist in the area (USAG Alaska, 2018).

3.2.4.2 Environmental Consequences

Alternative 1: No Action

Vegetation

No Action Alternative would result in negligible impacts to vegetation. The existing winter trail would continue to be used and existing operational activities, including trail maintenance, would continue to impact vegetation in the current manner.

Invasive Species

Invasive species are expected to continue to propagate and mitigation activities to deter their spread would continue under the No Action Alternative.

Fish and Wildlife

Under the No Action Alternative, fish and wildlife would continue to be impacted by use and maintenance of the existing winter trail and the operation of the Tanana Flats Training Area; however, there would be no impacts to fish and wildlife due to construction.

Effects Common to Action Alternatives

Vegetation

Although the proposed road would follow the existing winter trail alignment, additional clearing would be needed to establish the line of sight required for the double lane road. Vegetation clearing would be conducted primarily using a hydro-ax or similar equipment 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.

Some forested areas in the vicinity of Dry Creek may require timber felling equipment, including specialized machinery like feller-bunchers, harvesters, skidders, and forwarders, along with hand tools like chainsaws and axes, due to the diameter of the trees. Timber clearing would be coordinated with BLM.

The area that was previously cleared for the winter trail would be filled for the proposed road. Further, the newly cleared additional right of way on both sides of the proposed road would be managed to maintain lines of sight throughout the road corridor. The cleared area would be dominated by moss and graminoid communities and shorter ericaceous shrubs which would remain largely intact after woody vegetation, including trees and shrubs, is removed and fast growing and prolific species such as balsam poplar, paper birch, and green alder are cleared for maintenance. The removal of the tree canopy would alter the light regime within the right of way. The additional light would increase primary productivity and reduce soil moisture through evapotranspiration and radiation (USAG Alaska, 2018).

Additional forest edge habitat would be created along the cleared area, allowing individual plants on the margins of the right of way to grow larger, supporting greater general biodiversity, and altering the vegetation regime. Forest edges often have higher diversity of plant and animal species compared to either of the two adjacent habitat types. Edges provide a variety of resources (food, cover, nesting sites) and the interspersion of different habitat types which can benefit wildlife. Forest edges also provide corridors for wildlife travel.

Dust from the proposed road may negatively impact vegetation adjacent to the alignment. Dust may affect photosynthesis, respiration, transpiration, and allow the penetration of phytotoxic gaseous pollutants like

ozone, nitrogen oxides, and sulfur dioxide, that can damage plant tissues and negatively impact growth and development (Farmer 1993). Dust-fall can alter leaf surface reflectance, especially in the visible and near infrared region, which can lead to leaf injury. Also, large amounts of dust on the soil surface can draw moisture from the subsoil, reducing the amount of water available for plant growth. Dust deposition can also alter the optical properties of snow-cover, leading to an increase in vegetation surface temperature.

Impacts to vegetation are unavoidable, however the loss of vegetation would be minor in comparison to the 644,701 acres of largely intact vegetation. No major shift in vegetation growth that would impact the larger TFTA is anticipated. Impacts to vegetation would be minimized by the employment of management practices and design considerations include limiting the right of way clearing width to 70 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 moderate due to the Army's management practices.

Currently, military training and recreational use of the TFTA is generally limited to winter due to restrictions applied to maneuvers on unfrozen ground, and the impracticability of operating large vehicles in wet areas; however, the proposed road would enable access to the TFTA throughout the year. Military use (particularly clearing for bivouacs and maneuvering and other ground disturbing activities) and recreational use (offroad travel during spring, summer, and fall) could negatively impact vegetation. In order to sustainably manage natural resources, while preserving the dominant use of training lands, the Army is required to monitor lands under its management and report findings of issues. Environmental regulations and best management practices (BMPs) would insure that increased military training and recreation impacts to vegetation would be minor.

Invasive Species

Construction equipment and vehicle use of the proposed road could cause the spread of invasive species within the TFTA. The proposed road fill and vegetation disturbance could temporarily create a favorable environment for invasive species introduction and spread. Impacts to existing native vegetation through clearing or construction activities can allow for invasive plant species to establish. Invasive species impact native plants by competing with native species for food, space, and other resources and by changing habitats. Invasive species can also increase fire vulnerability. During proposed road construction, BMPs, including washing construction equipment, military vehicles, and fuel tankers prior to entering the TFTA and clearing vegetation after the ground has frozen to reduce the viability of invasive propagules, would be implemented to minimize the spread of invasive species.

Potential increased military and recreation use within the TFTA induced by the proposed road could accelerate the spread of invasive species. Military activities, especially activities that involve ground clearing or equipment impacts to native plants, have the potential to spread invasive species. People recreating and off-road vehicles (ORVs) travelling off the proposed road could spread invasive plant species to new areas. The Army continuously studies the lands within Fort Wainwright, which includes the TFTA, and updates the INRMP to help map and control the spread of invasive species.

Under both build alternatives, moderate impacts to invasive species from the proposed road would be mitigated by the Army's management practices.

Fish and Wildlife

Both build alternatives would intersect and have the potential to impact anadromous fish at two locations on Clear Creek and resident fish at Rigney Creek, Beaver Pond Creek, Dry Creek, McDonald Creek, and Bear Creek. Bridges proposed at two locations at Clear Creek and at Rigney Creek would clear span the waterways. Since all bridge components, including abutments, would be placed above the ordinary high-

water level, no in-stream construction impacts (e.g., vehicle or heavy equipment operation) to resident or anadromous fish are expected associated with the bridges; however, culverts could impact fish.

Fish could be temporarily impacted by sedimentation and a loss of habitat during the installation of culverts within fish streams. Resident fish expected to inhabit Beaver Pond Creek could be impacted by the placement of four 60-inch culverts in the creek. Resident fish expected within McDonald and Bear Creek would be impacted by the placement of 18-inch culverts. In addition, other culverts placed within drainages along the alignment have the potential to impact resident fish. All culverts would be designed to allow for resident fish passage consistent with the State of Alaska Fishway Act. Following recommendations from ADF&G Habitat Division, fish passage culverts would be installed at Beaver Pond Creek. The lower 20-30% of the culvert will be buried in the stream which will allow for passage by fish and other organisms even when water levels are low and provide natural stream bed substrate within the culvert. An ADF&G Fish Habitat Permit will be acquired. During the permitting process, ADF&G will be consulted on culvert designs; with the use of construction site BMPs, minor sedimentation impacts to fish downstream would be expected.

During construction of the proposed road and bridges, there would be temporary impacts to wildlife and habitat. Potentially disruptive construction activities would include use of ground-based heavy equipment or machinery, timber clearing and removal, and excavation machinery at material sites. Wildlife, including mammals and birds, would be affected by vegetation clearing and construction activities. During construction particulate matter may be emitted by construction equipment, which could temporarily impact air quality and affect wildlife in the area. Ground disturbance could affect foraging migratory birds, causing them to flush and expend energy. The most likely behavioral response would be avoidance of the immediate area during the most disruptive activities. Depending on the frequency, timing (e.g., during nesting), and magnitude (noise) of construction, individuals may avoid the immediate area for a prolonged period. Vegetation clearing will take place outside of the nesting bird window between May 1 and July 15 to minimize disturbances to nesting migratory birds in accordance with the Migratory Bird Treaty Act. Further, to minimize impacts to eagles, the Bald and Golden Eagle Protection Act would be followed, including conducting a nest survey before construction.

For many wildlife species in the TFTA, individual behavior would likely be altered during construction. Construction impacts could temporarily disturb wildlife foraging or traversing in the area. Moose, bears, and other wildlife using the cleared winter trail would likely avoid the area during construction due to noise and habitat disturbance. However, unless construction occurs near preferred seasonal food resources, active nesting or denning sites, or during critical periods, it is unlikely to impact wildlife populations. Following construction of most project components, wildlife individuals and populations could return to the area and adjust use based on available habitat and road activity.

The proposed road could impact mammals and birds by reducing and fragmenting available habitat. Currently, mammals may use the cleared winter trail area to facilitate dispersal and extend their range. There is the potential for wildlife to continue to use the corridor since additional right of way would be cleared. Conversely, wildlife may move to other areas to avoid continuous or unpredictable vehicular traffic noise and light on the gravel road. While the proposed road could create a barrier to wildlife movement, low traffic volume is not expected to considerably impede mammal movement within the TFTA.

The proposed low volume gravel road could pose a risk to wildlife through increased mortality from vehicle collisions; however, road traffic volume and wildlife-vehicle collisions are directly correlated; higher traffic volume generally leads to more collisions, as increased vehicle presence increases the risk of animals being struck. While most moose-vehicle accidents occur on high volume highways, 500 occur on rural Alaskan highways with lower traffic volume each year (ADOT, 1995). Moose are most common

in accidents; however, bears can be involved in vehicle accidents, especially in anadromous stream areas, where they may aggregate in the summer (Sorum, 2023). Bird mortality on roads from vehicle strikes has been documented when birds are attracted to roads by roadkill, headlights, or sanding and salt (Jacobson, 2005). Further, wildlife-vehicle accidents can cause human death and injury and property damage. It is expected that the volume on the proposed road would remain low regardless of alternative selected; therefore, wildlife vehicle collision rates are not expected to vary between alternatives. Regardless of the alternative chosen, vegetation clearing within the right-of-way, lower speed limits, and driver education would help mitigate wildlife-vehicle collision risks.

The proposed road would also improve hunter and trapper access to the more remote areas of TFTA throughout the year, which are difficult to reach when the winter trail is not in place. These areas have previously provided refuge for game animals in the TFTA. Once the road is constructed, hunting and trapping of all targeted species in the TFTA could increase due to improved accessibility, particularly during fall hunts.

Moose populations are dense in GMU 20A (2 to 3.5 per square mile), and ADF&G's goal is to keep hunting steady in the unit. Black bears are also abundant in the TFTA and GMU 20A; the annual limit is three bears and there is no closed season. If wildlife hunting and trapping success rates or other factors (such as moose twinning rates or population decreases due to forest fires or snow depths) impact populations, ADF&G may reassess permit issuances; however, a slight increase in moose harvest with the proposed road is expected to have a negligible impact the TFTA moose population.

Military training within the TFTA currently occurs in winter via the winter trail; however the proposed road would allow year-round access. Increased military activity could negatively impact fish and wildlife due to habitat disturbance, noise, accidental or intentional mortality (e.g., vehicular strikes, self-defense kills), introduction of unnatural food sources (e.g., garbage), and other factors. The Army continuously assesses and monitors the lands under its management and updates the INRMP every five years in order to sustainably manage natural resources, while allowing for training activities to continue. When considered with the environmental regulations and BMPs employed by the Army, there would be minor adverse indirect impacts to fish and wildlife due to increased military usage.

The proposed road could cause increased recreational use of the TFTA throughout the year. Increased ORV operation in support of hunting and trapping could degrade vegetation if OVRs are used off the road alignment. Off-road vehicles also have the potential to ignite wildfires and leak or spill hazardous materials, such as 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. See Section 3.2.6 for details.

The proposed road could increase the number of game animals taken from the TFTA by hunting and trapping. The management of game animals is adjudicated by the ADF&G, which bases harvest limits on regular census. The ADFG would modify harvest limits in the GMU if it is determined the increased usage has an unsustainable impact on wildlife population (USAG Alaska, 2018).

Preferred Alternative: Double Lane Road with Dry Creek Low Water Crossing

Vegetation

Under the Preferred Alignment, an additional 30 feet of width would need to be cleared along the already cleared alignment. This assumes that the winter trail's cleared alignment is approximately 40 feet wide and the new cleared right of way would be 70 feet wide, and would therefore result in approximately 86 acres of total vegetation clearing; however, the vegetation in about 37 of these acres was impacted by the 2024 McDonald Wildfire.

Fish and Wildlife

Under the Preferred Alternative, resident fish in Dry Creek would not be impacted by construction of the low water crossing, since it would be constructed when there is no water in the creek. Flood events may necessitate maintenance and repair work to re-establish the crossing site, but this work would also be conducted when the channel is dry and no fish are present. The low water crossing structure would permanently fill resident Arctic grayling habitat and grayling could be impounded during flood events; however, the location is not likely to be important fish habitat because it is an ephemeral and remains dry or contains little water for most of the year.

The double lane road and material sites would result in the loss of approximately 543 acres of wildlife habitat under the Preferred Alternative; however, approximately 223 acres of this habitat were impacted by the McDonald wildfire in 2024. Furthermore, the TFTA is a large area, and wildlife would have ample habitat outside the proposed road alignment. While more wildlife-vehicle collisions tend to occur on double-lane roads (FHWA, 2008), it is unlikely that the Preferred Alternative would result in more accidents than a single-lane road because traffic volume would remain the same under the alternatives.

The Preferred Alternative would have moderate adverse impacts on fish and wildlife because much of the available habitat has already been disturbed by clearing for the winter trail, there would be limited impacts to fish below waterbodies' ordinary high water, and the Army would implement management practices.

Approximately 456 acres of forests would be impacted by the Preferred Alternative with about 47% of the area (214 acres) impacted by the 2024 wildfire. Approximately 87 acres of scrub vegetation communities would be cleared, including 8 acres (10%) of wildfire impacted vegetation. About 0.7 acres of herbaceous plant communities would be cleared; however, the entire area was burned in 2024. Most vegetation impacts would be due to the material sites (314 acres) and road fill (143 acres). Approximately 41% of the vegetation affected by the Preferred Alternative had already been impacted by the 2024 McDonald Wildfire.

The Preferred Alternative would have moderate adverse impacts on vegetation because the alignment is within a previously disturbed area and due to the Army's management practices.

Table 3-4. Preferred Alternative's Impacts to Alaska Vegetation Classification Communities, Including Areas Burned in the 2024 McDonald Creek Wildfire

Vegetation Community Type	Clearing	Road	Material Sites/ Staging Area	TOTALS
Forest (acres)				
Needleleaf Forest	37.8	62.9	104.3	**205.00**
Recently Burned	24.6	41.1	58.2	**123.9**
Broadleaf Forest	13.9	23.3	56.6	**93.8**
Recently Burned	0.3	0.5	0.0	**0.8**
Mixed Forest	19.8	33.0	104.1	**156.9**
Recently Burned	8.2	13.5	67.5	**89.2**
TOTAL FOREST	**71.5**	**119.2**	**265.0**	**455.7**
TOTAL RECENTLY BURNED	**33.1**	**55.1**	**125.7**	**213.9**
Scrub (acres)				
Tall Scrub	6.6	11.1	22.3	**40**
Recently Burned	0.7	1.2	0	**1.9**
Low Scrub	7.5	12.5	26.6	**46.6**
Recently Burned	2.4	4	0	**6.4**
TOTAL SCRUB	**14.1**	**23.6**	**48.9**	**86.6**
TOTAL RECENTLY BURNED	**3.1**	**5.2**	**0**	**8.3**
Herbaceous (acres)				
Graminoid	0.3	0.4	0	**0.7**
Recently Burned	0.3	0.4	0	**0.7**
TOTAL SCRUB	**0.3**	**0.4**	**0**	**0.7**
TOTAL RECENTLY BURNED	**0.3**	**0.4**	**0**	**0.7**
PREFERRED ALTERNATIVE TOTALS (ACRES)				
VEGETATION IMPACTS	**85.9**	**143.2**	**313.9**	**543.0**
RECENTLY BURNED	**36.5**	**60.7**	**125.7**	**222.9**

Alternative 4: Single-Lane Road with Dry Creek Low-Water Crossing

Vegetation

Alternative 4 would result in fewer impacts to vegetation than the Preferred Alternative. Approximately 407 acres of vegetation would be impacted, with 168 acres or 41% of the total vegetation impacts to recently burned areas. Most of the impacts would be to forest communities (343 acres) and scrub communities (64 acres) and, similar to the Preferred Alignment, are due to the development of material sites. About 47% of the forested areas and 10% of the scrub areas were burned by the McDonald wildfire in 2024.

Table 3-5 identifies acres of vegetation communities and previously burned areas that would be impacted by Alternative 4. With the least amount of clearing, Alternative 4 would have moderate adverse impacts to vegetation.

Table 3-5. Alternative 4's Impacts to Alaska Vegetation Classification Communities, Including Areas Burned in the 2024 McDonald Wildfire

Forest (Acres)				
Needleleaf Forest	0.6	40.3	104.3	**145.20**
Recently Burned	0.3	26.3	58.1	**84.7**
Broadleaf Forest	0.2	14.9	56.6	**71.7**
Recently Burned	0.0	0.3	0.0	**0.3**
Mixed Forest	0.4	21.1	104.1	**125.6**
Recently Burned	0.1	8.7	67.5	**76.3**
TOTAL FOREST	**1.2**	**76.3**	**265.0**	**342.5**
TOTAL RECENTLY BURNED	**0.4**	**35.3**	**125.6**	**161.3**
Scrub (Acres)				
Tall Scrub	0.1	7.1	22.3	**29.5**
Recently Burned	0	0.8	0	**0.8**
Low Scrub	0.1	8	26.6	**34.7**
Recently Burned	0.1	2.5	0	**2.6**
TOTAL SCRUB	**0.2**	**15.1**	**48.9**	**64.2**
TOTAL RECENTLY BURNED	**3.1**	**3.3**	**0**	**6.4**
Herbaceous (Acres)				
Graminoid Herbaceous	0	0.3	0	**0.3**
Recently Burned	0	0.3	0	**0.3**
TOTAL SCRUB	**0**	**0.3**	**0**	**0.3**
TOTAL RECENTLY BURNED	**0**	**0.3**	**0**	**0.3**
ALTERNATIVE 4 TOTALS (ACRES)				
VEGETATION IMPACTS	**1.4**	**91.7**	**313.9**	**407.0**
RECENTLY BURNED	**3.5**	**38.9**	**125.6**	**168.0**

Fish and Wildlife

Similar to the Preferred Alignment, Alternative 4 would include a fill structure within Dry Creek associated with a low water crossing; however, impacts to resident Arctic grayling would not be expected since the crossing structure would be installed when the creek is dry. The crossing location is not likely to be important fish habitat because it is an ephemeral and remains dry most of the time.

Alternative 4 would be constructed more quickly than the Preferred Alternative and would have fewer temporary impacts on wildlife due to construction activities. This alternative would also have a lesser permanent impact on wildlife habitat. About 407 acres of habitat would be affected by Alternative 4, which is approximately 162 acres less than the Preferred Alternative. About 41% of the wildlife habitat impacted by Alternative 4 was burned during the 2024 McDonald wildfire.

With the least impact, Alternative 4 would have moderate adverse impacts on fish and wildlife.

3.2.5 Water Resources

3.2.5.1 Affected Environment

This section describes water resources in a ROI that primarily includes an area centered on the proposed road alignment. Approximately 576,869 acres of TFTA, or 89% of the training area, are categorized as waterbodies. Waterbodies within the TFTA include wetlands, surface water, groundwater, and floodplains.

Wetlands

The U.S. Environmental Protection Agency and the U.S. Army Corps of Engineers regulate wetlands through the Clean Water Act Section 404 Permitting. The agencies define wetlands 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" (40 CFR § 230(t)). This definition of wetlands generally includes swamps, marshes, bogs, and similar areas.

A wetland and waterbody delineation report, identifying and describing wetlands and waterbodies in the proposed road alignment area, was prepared for this effort and is based on ground-based-surveys conducted between 2013 and to 2023 (UAF ECP, 2025).

According to the wetland delineation, the most common wetland type within the surveyed area along the proposed road alignment is palustrine scrub-shrub wetlands. The surveyed area along the proposed road corridor includes 30.5 acres (24.8%) of these wetlands. Of these wetlands, 18.8 acres are classified as palustrine needleleaf evergreen scrub-shrub (PSS4, PSS2), and the remaining 11.7 acres are classified as palustrine broadleaf scrub-shrub (PSS1, PSS3). Broadleaf evergreen species, such as Labrador tea and low-bush cranberry, are common codominants of both wetland types. Across both vegetation cover types, most of the wetlands are found growing on saturated, poorly drained soils, with histic epipedons (a water saturated soil layer) or Alaska redox wetland indicators, underlain by permafrost (UAF ECP, 2025). Figure 3-3 shows the wetland areas within the proposed project corridor.

Needleleaf evergreen scrub-shrub wetlands dominated by black spruce are common on flats in depressions and in areas with shallow permafrost, and dense black spruce stands are common along the surveyed area of the proposed road corridor. In these stands, the vascular plant understory is sparse due to a lack of light. In more open wetland spruce stands, common understory vegetation includes ericaceous shrubs (Labrador tea, lingonberry, and blueberry), horsetail, and feather and sphagnum moss (UAF ECP, 2025).

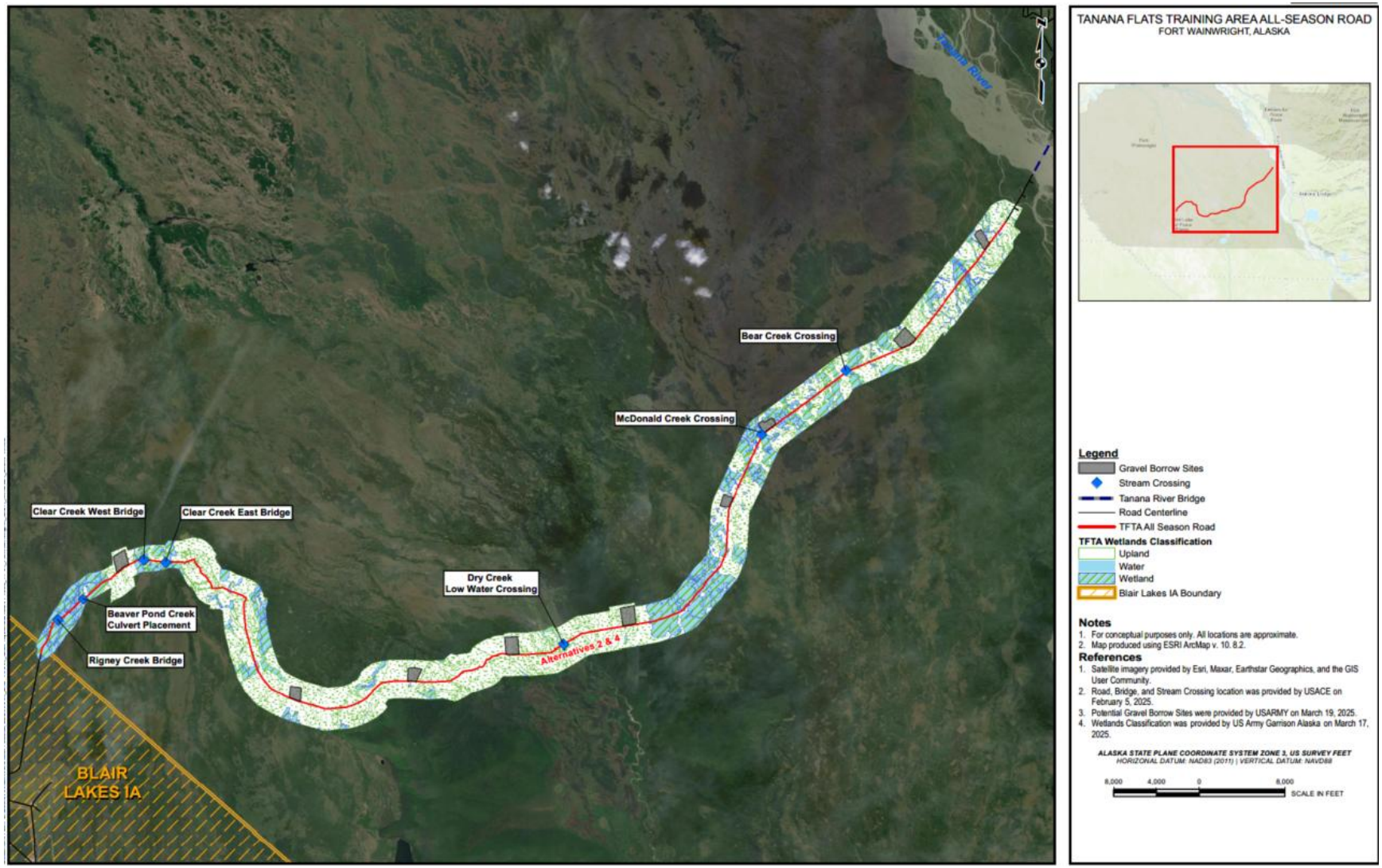
Within the surveyed area along the proposed road alignment, broadleaf deciduous scrub-shrub wetlands are concentrated in lowlands, depressions, and relict channels where recent disturbances, such as fire or trail clearing, have eliminated the tree cover. Vegetation is mostly low-growing scrub, with a dominant cover of dwarf birch, mostly codominated by regenerating black spruce and Labrador tea. Common understory species include cloudberry (*Rubus chamaemorus*), tussock cottongrass (*Eriophorum vaginatum*), and bluejoint reedgrass (*Calamagrostis canadensis*). Plant assemblages are similar to needleleaf evergreen wetlands, except with less prominent cover of black spruce and greater cover of tussock cottongrass (UAF ECP, 2025).

Palustrine forested wetlands (PFO1, PFO4) cover 1.4% (1.7 acres) of the surveyed area along the proposed road corridor. These wetlands are found in transitional areas between wetlands and uplands where soils are slightly warmer and drier than scrub-shrub wetlands. Typically, the dominant cover in these areas is black spruce with an understory dominated by dwarf birch, Labrador tea, and horsetail. Tamarack is occasionally co-dominant within these wetlands. Soils within these wetlands typically display indicators of histic epipedons or Alaska redox (UAF ECP, 2025).

Palustrine emergent wetlands (PEM1) are rare in the proposed road alignment surveyed area and cover 1.8% (2.2 acres) of the proposed road corridor surveyed area. They are found in depressions or areas

where disturbance, such as clearing for the winter trail, has eliminated tree and shrub cover. These wetlands included various hydrologic regimes, such as, semi-permanently flooded, seasonally flooded, and saturated. Wetland soil indicators in this area typically consist of histic epipedons or Alaska redox. Vegetation was dominated by graminoids, such as obligate wetland sedge species (*Carex aquatilis*, *C. utriculata*, *Eriophorum angustifolium*) or bluejoint reedgrass.

Figure 3-3. Tanana Flats Training Area All-Season Road Wetlands



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 in the TFTA, and many freeze solid during the winter. Blair Lakes are the largest lakes in the TFTA (USAG Alaska, 2018). The proposed road alignment occurs on the west side of the Tanana River, entirely within the Tanana Flats – Tanana River 4th order watershed (HUC 19080307). The area is a large coalesced alluvial fan complex that is exceedingly flat, with a total elevation change of 119 feet (36.3 meters). Flow throughout the project area generally occurs in a southeast- to- northwest pattern, with an average gradient of approximately 0.001 feet/feet, (5.28 feet/mile, 1 meter/kilometer). The surface drainage pattern in the proposed road alignment area is a combination of discontinuous or heavily anastomosed channels, particularly in the portions close to the Tanana River. Moving away from the Tanana River, the topography rises slightly, resulting in more defined drainage networks (Geroy, 2025).

The proposed road alignment area includes 20 stream crossings that were identified via a combination of the National Hydrography Dataset (NHD) and field work (Geroy, 2025). As previously mentioned, the route will completely bisect Dry Creek, Clear Creek East, Clear Creek West, Beaver Pond Creek, and Rigney Creek. It will also cross smaller channels of Moose Creek, Tanana River and McDonald Creek.

Dry Creek is a flashy, intermittently flooded stream with a fine sand and silt bed that drains parts of the Alaska Range to the south. For most of the year, the stream is dry, but after rain events and spring breakup, it swells rapidly with silt-laden water. Where the proposed road alignment crosses the creek, the channel is broad and shallow, with an inconspicuous bank. The main channel is approximately 130 feet wide; however, at high water the bank is easily overtopped, flooding up to a 1,200 feet wide expanse of the current winter trail. When the creek floods, water moves in the form of sheet flow and ever-changing side channels through the surrounding forest. Shortly after crossing the project route, Dry Creek becomes nonchannelized, and the water is dispersed into the surrounding wetlands (UAF ECP 2025).

The proposed road alignment crosses two channels of Clear Creek. True to its name, Clear Creek is a clear, perennial stream, with a gravel and sand bed and a relatively consistent volume of water. Ice bridges are constructed at each Clear Creek crossing, enabling winter travel for Air Force personnel to and from the BLRC. Repeated ice bridge construction in combination with recreational traffic during summer and fall has created deep holes at the crossing points. (UAF ECP, 2025).

Beaver Pond Creek is a small, dynamic, multi-channel, perennial stream with mud substrate. There are five active channels of Beaver Pond Creek in the proposed road alignment area. The channels are approximately 12 inches wide and less than 12 inches deep. Significant aufeis has been observed in the proposed road alignment area in late winter and early spring (UAF ECP, 2025).

Rigney Creek is a perennial stream with a sand and gravel substrate. The stream is about 10 feet wide and 2 feet deep in the proposed road alignment area (UAF ECP, 2025).

Every two years, the ADEC reviews readily available water quality data to determine if waterbodies are meeting water quality standards. Within the TFTA, the following Category 3 waterbodies are found on the 2024 Integrated Report Assessed Waters Map (ADEC, 2024). Category 3 waterbodies are those for which the ADEC has insufficient or no data and information to determine if any designated use is attained.

- Tanana River (AK_R_8030710_009); listed in the ADEC's Final 2022 Integrated Report for impairment due to alkalinity, barium, chloride, copper, dissolved oxygen, iron, manganese, nickel, nitrate, pH, temperature, turbidity, and zinc (ADEC 2022).

- Bear Creek (Salchaket Slough; AK_R_8030713_001; ADEC 2008 #) listed in ADEC's Alaska's Final 2008 Integrated Water Quality Monitoring and Assessment Report (ADEC 2008); however, no details are provided.
- McDonald Creek (Salchaket Slough; AK_R_8030713_004; ADEC 2008 #AK-40507-005) listed in the above 2008 ADEC report (ADEC 2008); however, no details are provided.

Floodplains

Floodplains are land adjacent to a river or stream that is subject to flooding. The Federal Emergency Management Agency (FEMA) has mapped floodplains throughout the TFTA and project area, including special flood hazard areas subject to the 100 year flood associated with a 1% annual chance of flooding. Most of the 100 year flood zone areas within the TFTA are Zone A, associated with streams, ponds, and lakes where the base flood elevation has not been determined. Zone X areas, comprised of areas of 500-year flood or areas of 100 year flood less than 1 foot or within a drainage of less than 1 square mile, make up most of the rest of the TFTA. The Tanana River and the area that surrounds contains Zone AE floodplains, where the base flood elevation has been determined. There is a large floodway area in the Zone AE associated with the Tanana River, which must be clear of encroachment so that the flooding will not result in substantial increase in the flood height (FEMA 2014a, 2014b, 2014c, 2014d, 1992).

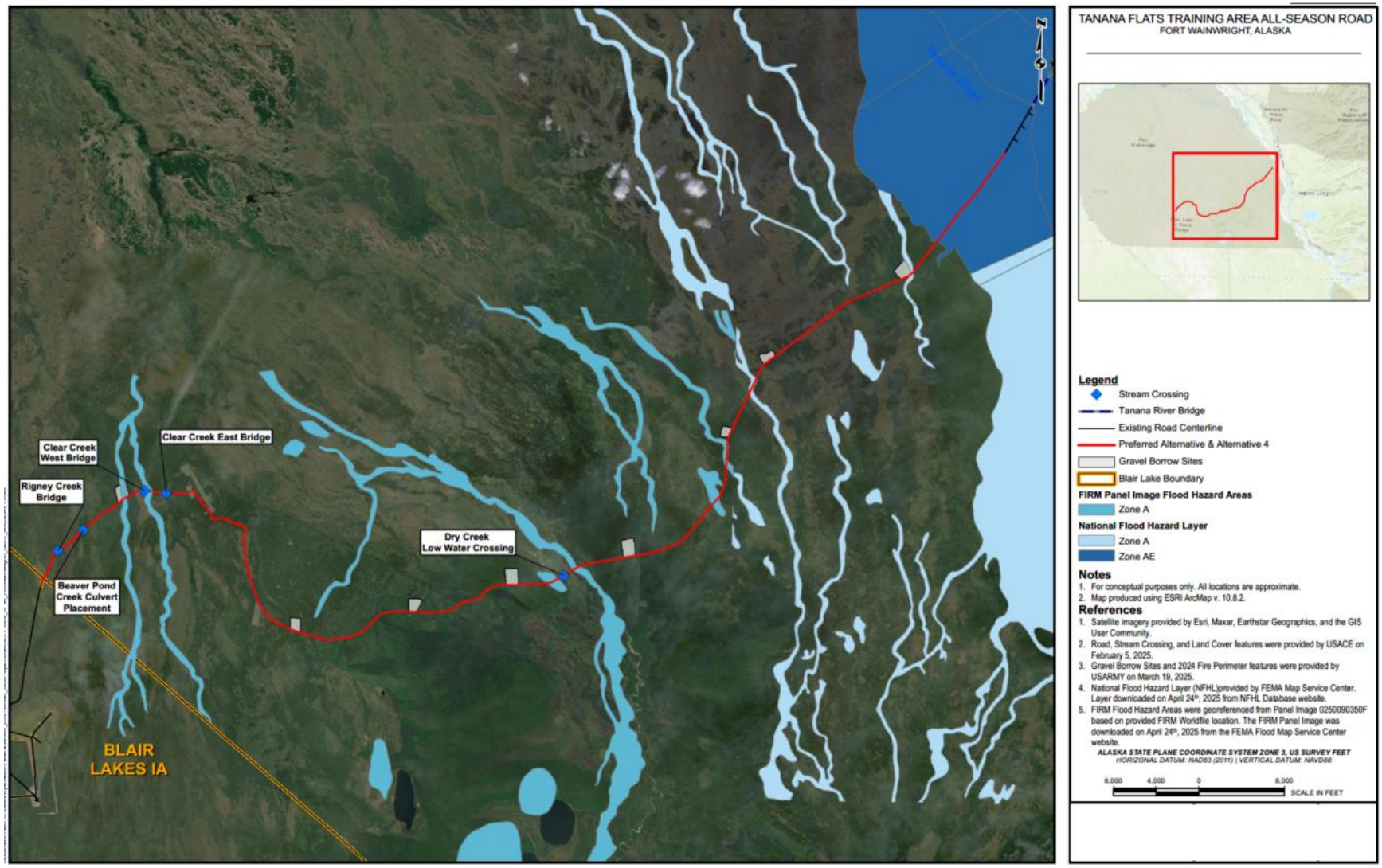
The Fairbanks North Star Borough (FNSB) is currently updating flood maps and taking comments on preliminary mapping. The northeast portion of the proposed road alignment near the Tanana River has new more refined preliminary mapping; however, flood maps for most of the TFTA have not changed (FNSB 2025). The borough requires floodplain permits to construct projects within mapped floodplains.

Groundwater

Hydrology in the TFTA is dominated by groundwater discharge that moves slowly through an exceedingly complex mosaic of floating mat fens, birch and black spruce forests, and shrub bogs (Geroy, 2025). Classified as an alluvial aquifer, the groundwater flows along a low-angle alluvial fan northwest from source waters in Alaska Range foothills and discharges to the Tanana River (USAG Alaska, 2018). Spatially discontinuous permafrost and seasonally frozen soils exert a primary control on surface, shallow subsurface, and deep lateral redistribution of water (Geroy, 2025). However, generally, groundwater approaches the surface as it moves away from the Alaska Range; therefore, surface waterways, including wetlands and streams, lose volume to groundwater in their upper reaches and gain volume from groundwater in their lower reaches, where the aquifer is near the surface. Groundwater potential is best near the Tanana River, where wells are capable of yielding 3,000 gallons per minute at depths less than 200 feet (Department of Army, 2018). Groundwater quality is good in the TFTA, with the exception of naturally occurring metals, especially iron and arsenic (USAG Alaska, 2018).

Groundwater aquifers within the TFTA are not used as a source of public or domestic water supply, or for commercial uses (ADEC, 2025).

Figure 3-4. Tanana Flats Training Area All-Season Road Floodplains



3.2.5.2 Environmental Consequences

No Action Alternative

Wetlands

Under the No Action Alternative, there would be no new impact to wetlands due to construction of a new road. Currently, there are areas along the winter trail that have experienced damage to wetlands due to military equipment or ORVs trying to avoid wetter areas. Degraded wetland areas would continue to grow with the widening of the trail surface as users avoid degraded surfaces and could expand to multiple parallel trails.

Surface Water

Negligible impacts to surface water resources would continue under the No Action Alternative, since these resources will be frozen during initial construction of the winter trail when in it is in use.

Floodplains

Under the No Action Alternative, there would be no new impacts to floodplains since there would be no new construction. Similar to wetlands, floodplain areas along the winter trail that have been damaged from equipment and ORVs trying to avoid wetter areas would continue to grow with the widening of the trail surface and could expand to multiple parallel trails.

Groundwater

Implementation of the No Action Alternative would continue to have only minor impacts to groundwater since the ground would be frozen during initial construction of the winter trail when in it is in use.

Effects Common to Action Alternatives

Wetlands

The Tanana Flats is comprised of large wetland complexes interspersed with uplands. Complete avoidance of wetland impacts is not feasible. Placing fill and clearing the right of way for the proposed road would permanently impact wetlands; however, material sites would be located entirely in uplands to avoid wetland impacts. Prior to establishing the original winter trail, which most of the proposed road alignment follows, wetland surveys and mapping were used to route the trail through the fewest wetlands possible. The route for the winter trail was laid out to avoid severely wet areas and traveling through unstable, saturated ground.

The proposed road is routed to minimize wetland impacts. Eighteen-inch corrugated metal pipe culverts would be installed in 30 seasonally flooded channels along the proposed road alignment to maintain hydrologic connectivity of seasonally flooded wetlands and prevent ponding which could accelerate thermal degradation adjacent to the road. Upon completion, the proposed road's side slopes will be seeded with certified weed-free native grasses to prevent erosion and the discharge of sediments into adjacent wetlands and waters. As detailed in Section 2.4.2, to mitigate for moderate adverse impacts to wetlands, at least two materials sites will be recontoured and restored to create at least 70.4 acres of open water/emergent wetland complexes after gravel extraction is complete.

Currently, impacts to wetlands from military and recreational activities are mostly limited to the winter, when wetlands are frozen and resilient to impact. However, there are wetland areas along the existing winter trail that have been degraded by military and ORV use. The proposed road would enable the military and recreationists to travel along an alignment within damaged wetlands. Conversely, the proposed road could lead to military and recreational activities occurring off road during seasons when wetlands are more vulnerable to damage. The Fort Wainwright Outdoor Recreation Regulations explicitly

prohibit "disturbing the landscape by rutting, trenching, or damaging wetlands." Fort Wainwright Environmental would also perform road condition surveys in order to evaluate road 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.

Surface Water

During construction and operation of the proposed road, there is the potential for increased turbidity within adjacent surface waters due to erosion associated with the road fill and channel degradation. These minor adverse impacts can generally be successfully mitigated through construction BMPs and proper drainage design and installation techniques (Geroy, 2025).

The proposed road alignment would involve 20 stream crossings that were identified through a combination of the NHD and field work (Geroy, 2025), including 9 crossings of Moose/Bear Creek-Tanana River (including 1 crossing of Bear Creek as identified by ADF&G), 3 crossings of McDonald Creek, 1 crossing of Dry Creek, 4 crossings of Clear Creek (including the 2 large crossings), and 3 crossings of Clear Creek Butte, and crossings of Beaver Pond Creek and Rigney Creek.

Bridges would be installed along the proposed road alignment at two locations on Clear Creek and at Rigney Creek. These clear-span bridges would avoid impacts below the ordinary high-water mark, meaning there would be no direct effects on surface water at these crossings.

At Beaver Pond Creek, four 60-inch culverts would be installed. These culverts would be oversized to accommodate high flows and overflow, as noted, in the vicinity of the creek crossing. Additionally, approximately thirty 18-inch culverts would be placed in seasonal drainages and wetlands.

The proposed road and its crossings could alter natural surface water drainage patterns, potentially concentrating or redirecting water. Ponding could occur where water is redirected, leading to changes in the stage and velocity of surface water flow. This could increase the risk of localized flooding and change the volume of discharges at different locations. Increases in discharges within creeks could alter channel morphology, causing bank instability and increasing erosion and migration of the channel. These impacts would be most pronounced if culvert size, placement, or maintenance (such as blocking due to snow or ice) are inadequate (Geroy, 2025). To avoid and minimize these minor adverse impacts to surface waters, culvert crossing locations would be selected to reduce ponding opportunities, and culverts would be appropriately sized and maintained to avoid blockages.

The proposed road and its culverts could also alter natural surface water drainage pathways and cause the formation of aufeis (ice accumulation from frozen overflow) in winter. If aufeis forms on the proposed road surface, it could become impassable, potentially causing traffic accidents. It could also block water flow through culverts and cause drainage issues, leading to road damage and washout, or cause impacts to the proposed road subgrade and embankments and the winter lifting and spring loading of bridge structures (Turcotte et al. 2024). Mitigation design approaches or techniques, such as installing bridges and oversizing culverts, would be employed to reduce the likelihood of aufeis formation along the proposed road alignment.

Minor adverse impacts to water resources may result from increased military usage of the TFTA due to year-round road access. Areas made more accessible by the road throughout the year could be impacted by off-road maneuvers, but military training would continue to undergo environmental analysis and response through appropriate mechanisms based on the level of impact (USAG Alaska, 2018).

Increased recreational activities throughout the year within the TFTA caused by the proposed road could also impact surface water if not controlled. Off-road vehicle travel off the roadway through creeks and other waterbodies could degrade riparian vegetation, shorelines, and water quality through sedimentation.

However, the dense nature of the forest along much of the proposed road alignment would likely deter a large portion of recreational users from deviating from the road, reducing the likelihood of water resource impacts. Army oversight, environmental regulations, and BMPs would help insure that increased military training and recreational activities do not negatively affect surface waters (USAG Alaska, 2018).

Floodplains

Much of the proposed road alignment crosses floodplains. Based on updated preliminary FEMA flood maps, the alignment is not with the Zone AE floodway associated with the Tanana River; however, it would cross about 9,240 linear feet of Zone AE floodplains and about 10,520 linear feet of Zone A floodplains associated with streams (FNSB 2025). There are no other practicable alternatives that would meet the purpose and need for proposed road outside of the 100-year floodplain.

Bridges and culverts designs would minimize potential harm to, or within, floodplains. As detailed above, the proposed bridges at Clear Creek and at Rigney Creek would avoid impacts below the ordinary high-water mark and would be designed to accommodate flood flows, and the Beaver Pond Creek culverts would be oversized to accommodate flood flows. Other culverts along the alignment would be designed to accommodate known flood flows within Zone AE floodplains and expected flood flows in Zone A floodplains. It is expected that the dry water crossing across the Dry Creek Zone A floodplain would need to be repaired following flooding events.

A Finding of No Practical Alternative (FONPA) will be issued to address these potential impacts to floodplains, and FNSB floodplain permit would be obtained to ensure the proposed construction meets all the necessary requirements.

The Preferred Alternative and Alternative 4 would have moderate adverse impacts to floodplains.

Groundwater

According to Geroy (2025), groundwater impacts associated with the proposed road alignment would coincide with the degradation of permafrost throughout the Tanana Flats (Jorgenson et al. 2001, Jorgenson et al. 2020). In areas with discontinuous permafrost, a reduction in the total percentage of permafrost is likely to result in deeper groundwater flow paths and increased groundwater residence times (Walvoord et al. 2012). Near larger rivers like Clear Creek, the new deeper flow paths could lead to a higher proportion of the baseflow coming from deep groundwater, resulting in muted peaks and higher baseflows. Conversely, in smaller streams and drainage systems that typically rely on active zone flows, there could be a reduction in groundwater contributions and a decrease in total baseflow volume. Possible implications of these altered flow regimes include changes to channel morphology, fish habitat, stream temperature dynamics (cooler in summer, warmer in winter), stream chemistry, and aufeis formation (Sjöberg et al. 2020).

The proposed road could contribute to the formation of aufeis (as discussed in the surface water section) by disrupting natural drainage patterns, potentially increasing the risk of flooding and icing particularly in areas where road cuts expose groundwater or where shallow subsurface flow is interrupted by grading or filling, and forcing it to the ground surface. The alignment of the road perpendicular to the primary direction of subsurface flow could encourage the development of aufeis in areas with disrupted shallow groundwater movement (USAG Alaska, 2018).

There would be moderate adverse impacts to groundwater from construction of the proposed road and increased military or recreational activities under both the Preferred Alternative and Alternative 4.

Preferred Alternative: Double-Lane Road with Dry Creek Low Water Crossing

Wetlands

Under the Preferred Alternative, approximately 35 acres of wetlands would be filled for placement of the road, and an additional 22 acres would be cleared along the right of way. Most impacts would be to Palustrine Needleleaf Scrub-Shrub (17 acres) and Palustrine Needleleaf Scrub-Shrub (14 acres) wetlands. Many of these wetland areas (approximately 64%) were impacted by the McDonald wildfire in 2024. There would be about 108 acres of impacts to uplands. About 33% of the fill placed for the road would be within wetlands. Table 3-6 details acres of impacts for each alternative by wetland type.

The Preferred Alternative would fill wetlands; however, there are large expanses of wetland available within the TFTA. In addition, the road would provide a solid travel path in areas where vehicles continue to damage wetland areas. The Preferred Alternative would have moderate adverse impacts to wetlands; however, wetland impacts would be mitigated by creating over 70 acres of wetlands in associated materials sites, as described above.

Table 3-6. Proposed Road Alternatives' Impacts to Wetlands

Wetland Type	Road Fill (Acres)	
	Preferred Action	Alternative 4
Palustrine Needleleaf Scrub-Shrub	17.0	10.8
Recently Burned	15.6	9.9
Palustrine Broadleaf Scrub-Shrub	13.8	8.7
Recently Burned	5.9	3.8
Palustrine Emergent Persistent	1.9	1.3
Recently Burned	0.3	0.2
Palustrine Broadleaf Forest	0.0	0.0
Recently Burned	0.0	0.0
Palustrine Needleleaf Evergreen Forest	1.7	0.9
Recently Burned	1.0	0.6
Water - Riverine	1.0	0.7
TOTAL WETLAND	**35.4**	**22.4**
TOTAL RECENTLY BURNED	**22.8**	**14.5**
TOTAL UPLAND	108.0	69.5
TOTAL RECENTLY BURNED	38.0	24.3

Surface Water

The Preferred Alternative would include a low-water crossing at Dry Creek. Since the Dry Creek area has minimal water flow throughout the year, the crossing would have minimal impacts at that location. However, the Dry Creek crossing may be impassable during high-water events and area flooding. While the crossing structure would be designed and constructed appropriately, repairs would likely be needed following major flooding events. Other impacts to surface waters would be the same under the build alternatives.

Because the Preferred Alternative is routed to minimize creek crossings and incorporates clear span bridge structures and properly sized culverts it would have moderate adverse impacts to surface waters.

Alternative 4: Single Lane Road with Dry Creek Low Water Crossing

Wetlands

Alternative 4 would result in fewer impacts to wetlands (22 acres) because it includes filling for a single-lane road (Table 3-6). Similar to the Preferred Alternative, most of the impacts would be to Palustrine Needleleaf Scrub-Shrub (11 acres) and Palustrine Broadleaf Scrub-Shrub wetlands (9 acres). About 32% of the fill placed for Alternative 4 would be within wetlands. Notably, about 65% of the wetlands impacted by Alternative 4 were burned during the 2024 McDonald wildfire.

With less wetlands impact and the same mitigation measures, Alternative 4 would have moderate adverse impacts to wetlands.

Surface Water

Alternative 4 would have moderate adverse impacts to surface water similar to the Preferred Alternative.

3.2.6 Land Use

This section describes land uses, including military and recreation, in a ROI that includes the TFTA.

3.2.6.1 Affected Environment

While TFTA's primary land use is for training and military operation, the Army is required to manage its land for multiple uses, provided those uses do not compromise the military mission. These uses include hunting, fishing, trapping, firewood gathering, Christmas tree cutting, kayaking, rafting, canoeing, hiking, mountain climbing, downhill and cross-country skiing, ORV use, biking, berry picking, wildlife viewing, and scouting. The Army is also mandated to conserve and rehabilitate sensitive and fragile areas, such as wetlands and alpine tundra, to the greatest extent practicable under the Sikes Act.

Training

Approximately 644,700 acres are available for military training at the TFTA, with maneuver areas and drop zones accounting for approximately 92 percent of the land area. Of this, 56,835 acres are designated as active impact areas. Most training activities take place in the Alpha Impact Area in the northern part of the TFTA and the Blair Lakes Impact Area in the southern part (USAG Alaska, 2025b). Outside of the impact areas, there are three indirect fire facilities and eight light maneuver training areas. Non-live fire facilities within the TFTA include 3 drop zones, 22 landing zones, 3 artillery fire points, and 3 observation points. The Clear Creek Assault Strip, a 3,500-foot-long by 60-foot-wide tactical airstrip, is capable of handling C-130 aircraft (USAG Alaska, 2025c).

The BLRC, located 26 miles southwest of Eielson Air Force Base and 32 miles south of Fairbanks, covers 63,100 acres. Of this, 33,961 acres are used exclusively by the U.S. Air Force under a Land Use Permit, 29,317 acres are used jointly by the Army and Air Force, and 1,300 acres are used exclusively by the Army. Since its activation in 1941 (under Executive Order 8847, amended by Public Land Order 2676), the Army has conducted tank maneuvers, live fire artillery, and ground force training in the BLRC. The U.S. Air Force operates bombing, strafing, and live ordnance detonation facilities (USAG Alaska 2018).

Access to training areas in the southern portion of TFTA, including the BRLC, Clear Creek Assault Strip, Clear Creek Butte, and Salmon Loaf, is via the Tanana River Bridge and the winter trail. This trail was originally approved partially with the intent to support at least one training exercise from Company to Battalion level annually during the winter season. Due to proximity to the Alpha Impact Area, exercises involving mortar and/or artillery occur at Salmon Loaf and Clear Creek Butte, while exercises with small arms live fire take place near the Clear Creek Assault Strip. Training activities are regulated by U.S.

Army Alaska Regulation 350-1 and 350-2, which mandate the protection of environmental resources during training (USAG Alaska 2018).

Recreation

Recreational activities are permitted on lands managed by USAG Alaska, including much of the TFTA, provided they do not conflict with military training activities. Recreational use areas include "open use areas (open to all types of recreational activity), "modified use areas" (off-limits to ORVs outside of winter), and "limited use areas" (open to low-impact activities, such as hiking, bird watching, skiing, and berry picking). Recreational users must register with USAG Alaska, obtain a SAP, check-in on the USAG Alaska iSportsman system before recreating, and carry proof of the SAP while in the area (USAG Alaska, 2025d). Acceptance of the SAP ensures compliance with USAG Alaska's INRMP.

Certain areas within the TFTA are closed to recreation, including the Alpha Impact Area (which includes Bear and McDonald Creeks and all waterways within the impact area) and the Blair Lakes Impact Area (USAG Alaska, 2023b). Recreational users also may not enter any areas indicated as closed on the USAG Alaska iSportsman system or as indicated by placard, blockade, verbal warning, red flag, website or other means of communication (USAG Alaska, 2023c). Additionally, any areas open to recreation may be temporarily closed during periods of military use (USAG Alaska, 2025d).

The existing winter trail is managed as an open use area and regulated by USAG Alaska Regulation 190-13 (USAG Alaska, 2023c). It is closed to motorized use between April 1 and November 1. When soil is frozen and there is more than six inches of snow accumulation, there are no restrictions for ORVs. In summer, when the ground is not frozen, ORVs over 1500 lbs. (e.g., road vehicles, dune buggies, Argo small unit support vehicles) are restricted to existing roads and trails. ORVs under 1500 lbs. (e.g., all-terrain vehicles and dirt bikes) have no restrictions. The condition of the trail is monitored by USAG Alaska, which specifically monitors for unacceptable impacts such as alteration of hydrology in the Tanana Flats, severe rutting, anthropogenic wildfire, poaching, dumping, and extreme soil damage.

Recreational access to the existing winter trail is controlled by a locked gate at the TFTA boundary, west of the AKRR-owned Tanana River Bridge. The Tanana River Bridge is the only all-season route across the Tanana River, and both ends of the bridge are on land owned by the State of Alaska. The AKRR permits access to the Tanana River Bridge for September moose hunting. Two smaller bridges over Boundary and Beebee Sloughs were conveyed from the State of Alaska to the Army in 2020 (USAG Alaska, 2025f). The boundary of the TFTA starts at Boundary Slough.

The TFTA can also be accessed when the Tanana River is flowing by landing crafts, which can unload ATVs on the Tanana Flats. Shallow draft vessels (e.g., airboats, flat bottom boats with surface drive motors) can travel up channels, sloughs, and oxbows to enter the TFTA. In the winter, TFTA can be accessed by crossing the frozen Tanana River by way of the Bonnifield Trail System on snow machines, skis, or snowshoes.

As mentioned earlier, the TFTA is located within Game Management Unit 20A, which is bordered to the south by Unit 13, to the east by the west bank of the Delta River, to 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 to the west by the east bank of the Nenana River. The high density of moose in the region, combined with its proximity to population centers such as Fairbanks, North Pole, and Eielson Air Force Base, make it a popular hunting area. Access to the TFTA for hunting is possible via airplane, the Tanana River Bridge, or snow-machine once the river freezes. Hunting on TFTA land is authorized under the Sikes Act (16 CFR § 670) and Army Regulation 190-13 (USAG Alaska 2023c).

The Sikes Act Improvement Act

The 1960 Sikes Act Improvement Act (or Sikes Act), as amended in 1997, promotes planning, development, maintenance, and coordination of wildlife, fish, and game conservation and rehabilitation in military reservations, including the TFTA. The act authorizes the Secretary of Defense to carry out a program to provide for the conservation and rehabilitation of natural resources (lands, waters, airspace, and coastal resources) on military installations while allowing the military lands to continue to meet the needs of military operations. Under the Act, the DoD is required to develop and implement INRMPs for military installations across the United States. The INRMPs are prepared in cooperation with state and federal fish and wildlife agencies and reflect the mutual agreement of the parties concerning conservation, protection, and management of fish and wildlife resources. Finally, the Sikes Act ensures, to the extent feasible, that professionally trained natural resources management personnel and natural resources law enforcement personnel are available and assigned responsibility to carry out all the requirements under the act (U.S. Army Environmental Command, 2025).

3.2.6.2 Environmental Consequences

No Action Alternative

Training

Under the No Action Alternative, training, operations, and maintenance activities are expected to continue in the TFTA without change. The use of impact areas, landing zones, and drop zones would remain unchanged, and training activities would proceed as currently conducted.

Recreation

Under the No Action Alternative, recreation activities in the TFTA would remain unchanged. Management and access to the area would continue as currently established.

Effects Common to Action Alternatives

Training

Construction of a proposed road would provide year-round access to TFTA training lands, eliminating the seasonal limitations imposed by the existing winter trail. This would enhance operational flexibility for military units, enabling more consistent and efficient scheduling and implementation of training exercises. A road to the BLRC would improve the efficiency and availability of operations throughout the year. Vehicles would be able to move staff, equipment, and supplies in and out of the complex with minimal delays due to weather.

Increased military use would align with the established land use for the TFTA. The TFTA was withdrawn from public land in 1941 by Executive Order 8847 for military training purposes. Implementation of the Preferred Alternative would support the area's designated land use. Training activities are regulated by U.S. Army Alaska Regulation 350-1 and 350-2, which mandate the protection of environmental resources during training.

The Preferred Alternative and Alternative 4 would have beneficial impacts to military training.

Recreation

Currently, recreationists access the TFTA in winter via the existing winter trail, and this access would become year-round with the proposed road. Potential impacts from increased recreation along the proposed road could include a higher risk of human-induced wildfires, poaching, dumping, and other environmental concerns. Access would remain controlled through the AKRR Tanana River Bridge and the USAG Alaska iSportsman SAP system. While use may increase, it would be monitored and regulated.

Conservation Officers from USAG Alaska would continue to patrol the area and enforce regulations, through inspections of harvested fish and game, vehicle and weapons checks, SAP verification, trap line inspections, black bear bait site inspections, and search-and-rescue operations. They would also continue investigating trespassing incidents and unauthorized structures within the TFTA (Department of Army, 2020). The USAG Alaska would employ adaptive management measures to prevent unacceptable impacts to the Tanana Flats, including access restrictions, partial exclusion areas, or other damage-prevention strategies (USAG, 2018).

The Preferred Alternative and Alternative 4 would have beneficial impacts for recreators and negligible adverse impacts to recreation due to the Army's established management practices.

3.2.7 Transportation and Transportation Systems

This section describes transportation and transportation systems in a ROI that includes the TFTA and the area just east of the Tanana River adjacent to the TFTA.

3.2.7.1 Affected Environment

Running parallel to the Tanana River just north and east of the TFTA, the Richardson Highway is a two-lane paved highway serving as a primary conduit for multiple communities between Fairbanks and Valdez. Vehicle traffic bound for the TFTA from Fort Wainwright and Eielson AFB approach the low volume gravel road on southbound Richardson Highway, turning right onto Tom Bear Trail (mile marker 332) in the community of Salcha, approximately 7 miles south of Eielson AFB and 27 miles from Fort Wainwright. Traffic volume on Tom Bear Trail is light, and residences are generally set back from the road on large lots.

As discussed in previous sections, the Tanana River Bridge provides access to the TFTA. The bridge, built in 2014, is a 3,300-foot single-lane bridge designed for unidirectional rail and vehicle traffic. The bridge has gates controlled by the AKRR to prevent access by unauthorized vehicles. Currently, AKRR does not utilize the bridge and only the military and recreational users authorized by AKRR may travel on it (USAG Alaska, 2025f). During construction of the bridge, a dedicated right turn land was added on southbound Richardson Highway at Tom Bear Trail to minimize traffic impacts from bridge construction.

3.2.7.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, traffic volume would not change in the TFTA. Vehicle access to and from the TFTA would remain the same.

Effects Common to Action Alternatives

Following the construction, it is expected that vehicular traffic to TFTA on public roadways will increase, particularly during the summer seasons when access will be available outside of winter. The all-season road will facilitate fuel transportation in 8,000 to 10,000-gallon tanker trucks throughout the year. In winter, there will be an increase in military convoy traffic to TFTA. The movements of these convoys on public roads would continue to be coordinated with the Alaska Department of Transportation and Public Facilities to minimize potential traffic conflicts (USAG Alaska, 2018).

Under the build alternatives, although annual traffic volume is projected to rise, minor adverse impacts on traffic are anticipated.

3.2.8 Hazardous Materials/ Hazardous Waste

This section describes hazardous materials and waste in a ROI that includes the TFTA.

3.2.8.1 Affected Environment

Transportation and use of hazardous materials, including primarily petroleum and petroleum-based products (e.g., diesel fuel, oils, and lubricants), are required to operate TFTA facilities. There is potential for hazardous materials spills during and after road construction. Small non-reportable quantities of hazardous materials in equipment such as fuel and fluids have the potential to be accidentally released. To mitigate accidental releases, civilian and military vehicles transporting small amounts of hazardous materials (55 gallons or less) within the TFTA are equipped with a spill kit and drivers receive emergency response training (USAG Alaska, 2013). Personnel working in the TFTA are trained in spill prevention and emergency response procedures described in the USAG Alaska Hazardous Material and Waste Management Plan (HMWMP).

Fuel at BLRC is currently stored in a tank farm system, which is filled every two years. Fuel storage and handling adhere to DOD BMPs, including the use of secondary containment systems, spill kits, and personnel training. Non-fuel materials, including hazardous materials, are currently transported to and from BLRC by helicopter in drums sealed in overpacks. Batteries are transported in specially designed carriers to prevent leaks.

Surveys have not indicated the presence of UXOs along the proposed road corridor (Shannon & Wilson 2009). However, there is the potential for unidentified UXO to be present anywhere within the TFTA.

3.2.8.2 Environmental Consequences

No Action Alternative

Under the No Action Alternative, transportation and use of hazardous materials would not change in the TFTA.

Effects Common to Action Alternatives

Construction of the proposed road would involve the use of common hazardous materials and petroleum products. Vehicles and equipment would contain fuel, oils, and lubricants. Construction equipment may be fueled on-site, and minor repairs may be conducted on-site; however, routine or major repairs would be done off-site at an appropriate maintenance facility. In addition, construction could generate some waste such as used oil or oily rags, and leaks or accidental spills or releases could occur. Any spills will be reported in accordance with the USAG Alaska HMWMP (USAG Alaska, 2013).

To ensure safe handling of hazardous materials and minimize the potential for spills or accidents during construction, materials will be managed in compliance with the USAG Alaska HMWMP (USAG Alaska, 2013) and hazardous waste materials handling will be managed in compliance with the Resource Conservation and Recovery Act, as amended by the Hazardous and Solid Waste Amendments and codified in 40 CFR Part 260-273 and Part 279. Hazardous materials transport and handling must also comply with the Defense Transportation Regulations (49 CFR Parts 170-177) and hazard communication and workplace safety (29 CFR Part 1910). The subcontractor will be responsible for identification, proper handling, use, storage, transportation, and disposal of all hazardous material/hazardous waste used during the proposed road construction following procedures in USAG Alaska's HMWMP. Management of hazardous material will be coordinated with the Directorate of Public Works (DPW) Environmental Division office.

All spills and encounters with historic spills will be reported to the DPW Environmental Division and trained personnel will take immediate action to control the spill while maintaining personal safety, per the USAG Alaska HMWMP. The DPW Environmental office will ensure proper spill reporting to agencies. All military, civilian, and contractor personnel operating on TFTA will abide by the most current version of the USAG Alaska HMWMP for reporting spills.

Under the build alternatives, there could be an increased number of refueling tanker truck trips on the proposed road to provide fuel to the BLRC facility. With an increase in trips, there is higher probability that accidents may occur, resulting in fuel or hazardous materials spills. However, the improved design and infrastructure of the proposed road over the existing winter trail may lessen the potential for spills of hazardous materials by providing a more consistent road surface and engineered stream crossings. Improved road conditions may also facilitate emergency response if a spill or other emergency occurs.

There is the potential for minor adverse impacts to the human or natural environment from hazardous materials and waste from the build alternatives; however, numerous plans and mitigation measures are in place to respond to accidental spill or emergency situations.

CHAPTER 4. PERSONS AND AGENCIES CONSULTED/COORDINATED

The following persons and agencies were contacted in the preparation of this EA:

Table 4-1. Persons and Agencies Consulted/Coordinated

Federal Agencies	
Advisory Council on Historic Preservation	U.S. Army Corps of Engineers, Regulatory Division
Bureau of Land Management, Fairbanks District	U.S. Fish and Wildlife Service, Northern Alaska Fish and Wildlife Field Office
Bureau of Land Management - Alaska Fire Service	U.S. National Park Service, Region 11 Cultural Resources
U.S. Air Force, Eielson AFB	
State Agencies	
Alaska Department of Environmental Conservation	Alaska Department of Natural Resources
Alaska Department of Fish and Game	State Historic Preservation Officer
Department of Transportation & Public Facilities, Northern Region	
Elected Officials	
Honorable Bryce Ward, Mayor Fairbanks North Star Borough	Honorable Chandra Clack, Mayor Pro Tem City of North Pole
Senator Lisa Murkowski	Representative Nick Begich
Senator Dan Sullivan	Office of the Governor
Local Agencies	
Fairbanks North Star Borough, Community Planning Department	Fairbanks North Star Borough Historic Preservation Commission
Salcha Fire and Rescue	
Tribal Entities	
Village of Dot Lake	Nenana Native Association
Healy Lake Village	Native Village of Tanacross
Native Village of Minto	Native Village of Tetlin
Northway Village	Tanana Chiefs Conference
Other Stakeholders	
Alaska Railroad Company	

CHAPTER 5. LIST OF PREPARERS

Name/Organization	Education	Resource Area	Years of Experience
Robin Reich, Solstice Alaska Consulting, Inc.	B.S., Biology	NEPA, Cultural Resources, Biological Resources, Water Resources, Land Use	27 years
Sarah Belway, Aleut Federal	B.S. Civil Engineering	Review	29 years
Marianne Batchelder, Geosyntec Consultants, Inc.	B.S. Biology, M.S. Environmental Science	Air Quality, Geology and Soils, Transportation and Transportation Systems, Hazardous Material/Hazardous Waste	18 years
Tony Lewkowski, Solstice Alaska Consulting, Inc.	B.S. Environment & Society	Biological Resources, Water Resources, Land Use	3 years
Kaelan Dickinson, Solstice Alaska Consulting, Inc.	B.A. Law & Society	Biological Resources, Water Resources, Land Use	2 years
Joshua Buzby, Fort Wainwright Integrated Training Area Management (ITAM) Coordinator	B.S. Natural Resources Management	Natural Resource Management	25 years
Melanie Roed, USAG Alaska. NEPA Program Manager DPW-ENV	B.S. Environmental Science	Review	16 years
Elizabeth Cook, USAG Alaska Cultural Resource Manager / Native Liaison	M.A. Cultural Anthropology	Cultural Resources, Government-to-Government Relations	17 years
Dr. Heidi Long, U.S. Army Corps of Engineers - Alaska District Military Environmental/IIS Section CEPOA-PM-ESP-IIS	PhD. Biology	Review	18 years
Kathleen Gannon, USAG Alaska Hazardous Waste Program Manager	M.S. Environmental Chemistry	RCRA Hazardous Waste	24 years
Kate Beattie, UAF/USAG Alaska Natural Resource Specialist	Natural Resource Specialist	Water Resources, Biological Resources	24 years

CHAPTER 6. REFERENCES

Ajmi, A. 2012. U.S. Department of the Army - Fort Wainwright - Tanana Flats Training Area (TFTA) and Yukon Training Area (YTA), Alaska in Alaska Boreal Partners in Flight. Accessed at https://d9-wret.s3.us-west-2.amazonaws.com/assets/palladium/production/s3fs-public/atoms/files/BPIF_annual_meeting_report_and_project_summaries_2011.pdf on March 13, 2025.

Ajmi, A. 2010. Landbird Update from Fort Wainwright Tanana Flats Training Area (TFTA) And Yukon Training Area (YTA) in Alaska Boreal Partners in Flight. Accessed at https://d9-wret.s3.us-west-2.amazonaws.com/assets/palladium/production/s3fs-public/atoms/files/BPIF_annual_meeting_report_and_project_summaries_2010.pdf on March 13, 2025.

Alaska Beacon. 2024. Alaska wildfire season, marked by significant smoke events, closes with below-average totals. October 2, 2024. Accessed at https://alaskabeacon.com/2024/10/02/alaska-wildfire-season-marked-by-significant-smoke-events-closes-with-below-average-totals/#:~:text=Of%20particular%20significance%20to%20the%20state's%20second%2Dlargest,176%2C000%20acres%20after%20merging%20with%20another%20fire. on March 20, 2025.

Alaska Department of Environmental Conservation (ADEC). 2025. Alaska DEC Drinking Water Protection Areas. Accessed at https://adec.maps.arcgis.com/apps/mapviewer/index.html?webmap=13ed2116e4094f9994775af9a62a1e85 on March 14, 2025.

ADEC. 2024. 2024 Integrated Report Assessed Waters Mapper. Accessed at https://adec.maps.arcgis.com/apps/instant/basic/index.html?appid=38797f38377647eaab757bde0c5acc1e on March 15, 2025.

ADEC. 2022. ADEC's Final 2022 Integrated Report Fact Sheet. Accessed at https://dec.alaska.gov/media/22953/final-2020-ir-factsheet.pdf on March 15, 2025.

ADEC. 2008. Final 2008 Integrated Water Quality Monitoring and Assessment Report. Accessed at https://dec.alaska.gov/media/16347/2008-final-integrated-report.pdf on March 15, 2025.

Alaska Department of Fish and Game (ADF&G). 2025a. Subsistence in Alaska Nonsubsistence Areas. Accessed at https://www.adfg.alaska.gov/index.cfm?adfg=subsistence.nonsubsistence on May 14, 2025.

ADF&G. 2025b. Alaska Freshwater Fish Inventory. Accessed at https://experience.arcgis.com/experience/1a4eb07b42ff4ebb8c71ba45adaedf0c/page/AFFI-Stats on March 12, 2025.

ADF&G. 2025c. Anadromous Waters Catalog. Accessed at https://experience.arcgis.com/experience/1a4eb07b42ff4ebb8c71ba45adaedf0c/ on March 12, 2025.

ADF&G. 2015. 2015 Alaska Wildlife Action Plan. Accessed at https://www.adfg.alaska.gov/static/species/wildlife_action_plan/2015_alaska_wildlife_action_plan.pdf accessed on March 1, 2025.

ADF&G. 2007. Coyote. Accessed from https://www.adfg.alaska.gov/static/education/wns/coyote.pdf on 3/13/2025.

Bateman, Pierce A. and K. Freeman. 2021. Trappers, Trailblazers, and Training Missions: A History of the Tanana Flats Training Area. Colorado State University, Center for Environmental Management of Military Lands.

Brinkman, A.R., P.L. McCall, and J.A. Haddix. 2014. Documenting Anadromous Headwaters in the Tanana Flats of interior Alaska, in Response to Proposed Road Development. Internal report: unpublished. CEMML, Colorado State University and U.S. Army Garrison, Fort Wainwright, AK.

Brinkman, T. J., and K. K. Seaton. 2014. Tanana Flats Training Area moose calving site study. Alaska Department of Fish and Game, Final Report, U. S. Army W912DY-029-2-011, Fairbanks.

Department of Army. 2020. Memorandum for Record, Subject Standard Operating Procedure #23-Conservation. Accessed at https://home.army.mil/wainwright/5615/8861/2864/USAG_Alaska_CLE_SOP_2020.pdf on March 13, 2025.

Department of Army. 2018. Environmental Impact Statement for the Transformation of U.S. Army Alaska. Final. Accessed at https://home.army.mil/wainwright/about/environmental/national-environmental-policy-act-nepa/environmental-impact-statements/eis-transformation-us-army-alaska on March 14, 2025.Department of Defense (DOD). 2024. Arctic Strategy. Accessed from https://media.defense.gov/2024/Jul/22/2003507411/-1/-1/0/DOD-ARCTIC-STRATEGY-2024.PDF on March 13, 2025.

Esdale, Julie A., H.D. Hardy, W.E. McLaren, and R.J. Nethken. 2023. USAG Alaska Cultural Resources Annual Report, 2022. Prepared by the Center for Environmental Management of Military Lands for Planning Branch, Directorate of Public Works, U.S. Army Garrison Alaska Fort Wainwright, AK.

Esdale, J.A., H.D. Hardy, J.J. Lynch, G.J. Henderson, J.K.T. Smith, W.E. McLaren, and K.S. Yeske. 2017. Cultural Resources Survey and Evaluation, Fort Wainwright and Training Lands, 2015 & 2016. Prepared by the Center for Environmental Management of Military Lands.

Fairbanks North Star Borough (FNSB). 2025. Fairbanks North Star Borough - Flood Map Update website. Accessed at https://storymaps.arcgis.com/stories/543ab0e010014e61a625653bb26c45bd on April 23, 2025.

Farmer, A.M. 1993. The Effects of Dust on Vegetation-A Review. Environmental Pollution. 79-1, 63-75.

FEMA. 2014a. Flood Insurance Rate Map Community Panel Number 02090C6400J. Revised March 17, 2014.

FEMA. 2014b. Flood Insurance Rate Map Community Panel Number 025009 0350F. Revised March 17, 2014.

FEMA. 2014c. Flood Insurance Rate Map Community Panel Number 6425J; Map Number 02090C6425J. Revised March 17, 2014.

FEMA. 2014d. Flood Insurance Rate Map Community Panel Number 7552J; Map Number 02090C7552J. Revised March 17, 2014.

FEMA. 1992. Flood Insurance Rate Map Community Panel Number 025009 0325 E. Revised January 2, 1992.

Geroy, I. 2025. Hydrology Analysis Tanana Flats Training Area All Season Road Fort Wainwright, AK. Salcha-Delta Soil and Water Conservation District Delta Junction, AK.

Jacobson, S.L. 2005. Mitigation Measures for Highway-caused Impacts to Birds. USDA Forest Service Gen. Tech. Rep. PSW-GTR-191. Accessed at https://www.fs.usda.gov/psw/publications/documents/psw_gtr191/psw_gtr191_1043-1050_jacobson.pdf on March 12, 2025.

Natural Resources Conservation Service (NRCS). 2025. "Hydric Soils." Website. Accessed at https://www.nrcs.usda.gov/conservation-basics/natural-resource-concerns/soil/hydric-soils on February 26, 2025.

NRCS. 2016a. Construction Specification for Earthfill. November 2016.

NRCS. 2016b. Soil Survey Geographic Database for Fort Wainwright Area, Alaska. October.

Savory, G.A. 2016. Report on Little Brown Bat Study, Fort Wainwright, Alaska. CEMML, Colorado State University, Fort Wainwright, AK.

Savory, G.A., Anderson, V., and Smith, J. 2017. Evaluating Bat Habitat on Fort Wainwright, Alaska. CEMML, Colorado State University, Fort Wainwright, AK.

Shannon & Wilson, Inc. 2009. Geotechnical Feasibility Study Tanana Flats Training Area Fort Wainwright, Alaska. Prepared for HDR, Inc. September.

Sjöberg, Y., A.J. Khattak, S. Painter, E. Coon, M. Carey, J. O'Donnell, J. Koch. 2020. Permafrost Promotes Shallow Groundwater Flow and Warmer Headwater Streams. Water Resources Research. 57. 10.1029/2020WR027463.

Smith, J., G. Savory, K. Jochum. 2019. (BCR 4) Neotropical Bird Habitat Assessment, Fort Wainwright, Alaska as reported in Boreal Partners in Flight. 2018 Summary of Landbird Projects, January 2019. Accessed at https://d9-wret.s3.us-west-2.amazonaws.com/assets/palladium/production/s3fs-public/atoms/files/BPIF_2018_project_summaries_0.pdf on March 13, 2025.

Sorum, M.S., M.D. Cameron, A. Crupi, G.K. Sage, S.L. Talbot, G.V. Hilderbrand, K. Joly. 2023. Pronounced Brown Bear Aggregation Along Anadromous Streams in Interior Alaska. Wildlife Biology. 2023-3. Accessed at https://nsojournals.onlinelibrary.wiley.com/doi/10.1002/wlb3.01057 on March 12, 2025/

Turcotte, B., A. Dubnick, and R. McKillop. 2024. Icing and aufeis in cold regions II: consequences and mitigation. Canadian Journal of Civil Engineering. 51(2): 125-139. Accessed at https://doi.org/10.1139/cjce-2023-0119 on March 15, 2025.

U.S. Army. 2021. Regaining Arctic Dominance. Accessed at https://www.army.mil/e2/downloads/rv7/about/2021_army_arctic_strategy.pdf on March 13, 2025.

U.S. Army Command. 2025. Sikes Act. Accessed at https://aec.army.mil/Conservation/Sikes-Act/ on May 15, 2025.

U.S. Army Garrison Alaska (USAG Alaska). 2025a. Email from Daniel Rees, USAG Alaska Natural Resource Manager, regarding Essential Fish Consultations, to Joshua Buzby, Fort Wainwright Integrated Training Area Management (ITAM) Coordinator, on February 24, 2025.

USAG Alaska. 2025b. USAG Alaska Reference Map Fort Wainwright. Prepared by DPW ENV GIS. Accessed at

https://usartrak.isportsman.net/files/Documents%2FMaps%2FInstallation%20Reference%20Maps%2FFWA_RecMap116.pdf on March 13, 2025.

USAG Alaska. 2025c. Email from Joshua Buzby, Fort Wainwright Integrated Training Area Management (ITAM) Coordinator, regarding existing TFTA facilities, to Sarah Belway, Aleut Federal Project Manager, on March 14, 2025.

USAG Alaska. 2025d. iSportsman website. Accessed at https://usag-alaska.isportsman.net/#:~:text=All%20areas%20that%20are%20determined,if%20that%20is%20your%20preference. on March 13, 2025. USAG Alaska. 2025e. Email from Joshua Buzby, Fort Wainwright Integrated Training Area Management (ITAM) Coordinator, regarding existing bridge and ownership adjacent to the TFTA, to Sarah Belway, Aleut Federal Project Manager, on March 14, 2025

USAG Alaska. 2024. USAG Alaska 2024 Natural Resource Management Report to the Bureau of Land Management. Directorate of Public Works Environmental Division, Natural Resources Program. Accessed at https://home.army.mil/wainwright/5717/4181/5762/2024_Natural_Resources_Management_Report_to_BLM.pdf on March 13, 2025.

USAG Alaska. 2023a. USAG Alaska 2023 Natural Resource Management Report to the Bureau of Land Management. Directorate of Public Works Environmental Division, Natural Resources Program. Accessed at https://home.army.mil/wainwright/8217/1225/9098/2023_USAG_Alaska_NR_Report_to_BLM.pdf on March 13, 2025

USAG Alaska. 2023b. USAG Alaska Reference Map Fort Wainwright. Accessed at https://usag-alaska.isportsman.net/files/Documents%2FMaps%2FInstallation%20Reference%20Maps%2FFWA_RecMap116.pdf on May 15, 2025.

USAG Alaska. 2023c. U.S. Army Garrison Regulation 190-13. Outdoor Recreation, Conservation, and Natural Resources Policies and Enforcement on United States Army Garrison Alaska Installation Land and Water. Accessed at https://usartrak.isportsman.net/files/Documents%2FRegulations%2FUSAG_Alaska_190-13_2023.pdf on May 15, 2025.

USAG Alaska. 2020. USAG Alaska Integrated Natural Resources Management Plan. September 2020.

USAG Alaska. 2018. Tanana Flats Training Area Winter Trail Finding of No Significant Impact and Environmental Assessment.

USAG Alaska. 2013. Hazardous Material and Waste Management Plan. Fort Wainwright, Alaska. December.

U.S. Census Bureau. 2020. “Salcha CDP, Alaska.” Website. Available at https://data.census.gov/all?q=salcha. Accessed March 4, 2025.

U.S. Fish and Wildlife Service USFWS. 2025. Information for Planning and Consultation for the Tanana Flat Training Area Access Project. Accessed from https://ecos.fws.gov/ipac/ on January 9, 2025.

University of Alaska Fairbanks, Environmental Community Partnership. 2025. Wetlands and Waterbodies Study, Tanana Flats Training Area Road Tanana Flats Training Area, Interior Alaska. Prepared for U.S. Army Garrison Alaska, Department of Public Works, Environmental Division. March 2025.

Viereck, L.A., Dyrness, CT., Batten, A.R., and Wenzlick, K.J. 1992. The Alaska Vegetation Classification. Accessed from https://www.fs.usda.gov/pnw/pubs/pnw_gtr286.pdf on March 13, 2025.

Walvoord, M., C. Voss, and T. Wellman. 2012. Influence of permafrost distribution on groundwater flow in the context of climate-driven permafrost thaw: Example from Yukon Flats Basin, Alaska, United States. Water Resources Research. 48. 7524-. 10.1029/2011WR011595.

Appendix A.
Tanana Flats Training Area All-Season Road – Environmental Assessment Air Quality and Greenhouse Gas Emissions Technical Analysis

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Technical Memorandum

Date:	May 20, 2025
To:	U.S. Army Garrison Alaska
From:	Christopher Lovett and Fuad Wadud, Geosyntec Consultants
CC:	Marianne Batchelder, Geosyntec Consultants
Subject:	Tanana Flats Training Area All-Season Road – Environmental Assessment Air Quality and Greenhouse Gas Emissions Technical Analysis

PROJECT DESCRIPTION

The U.S. Army Garrison Alaska (USAG Alaska) is proposing to construct a 25-mile, two-lane gravel road (All-Season Road) within the Tanana Flats Training Area (TFTA) to facilitate year-round motor vehicle access from the Tanana River Bridge to the Blair Lakes Range Complex (BLRC) and surrounding training areas within the TFTA. The TFTA is located in a remote area south of Fort Wainwright, Alaska, and consists of approximately 644,701 acres of training area.

In accordance with the National Environmental Policy Act of 1969 (NEPA, 42 USC §4321 *et seq*.), all projects requiring federal funding, including military projects, must perform an assessment of environmental impacts that may result from a proposed action and present the findings in a formal Environmental Assessment (EA) document. In support of the EA for the action proposed, Geosyntec Consultants (Geosyntec) conducted a technical assessment of the air quality and greenhouse gas (GHG) emissions impacts associated with construction and operations of the project. Results of this analysis and discussion of their significance are presented below.

AIR QUALITY AND GREENHOUSE GAS EMISSIONS

National Ambient Air Quality Standards

The United States Environmental Protection Agency (EPA) is the federal government agency that regulates air pollution in the United States. EPA has been responsible for enforcing major legislation enacted by Congress with the stated goal of protecting air quality, including the Clean Air Act (CAA) of 1970 and the Clean Air Act Amendments (CAAA) of 1990. The CAA and CAAA mandate the regulation of mobile and stationary sources of air pollution at the federal level. To this end, EPA has established and enforces National Ambient Air Quality Standards (NAAQS) for criteria pollutants, which are deemed to be protective of human health. The NAAQS are quantified as concentrations in parts per million (ppm), parts per billion (ppb), or micrograms per cubic meter ($\mu g/m^3$) over specific averaging periods such as 8 hours, 24 hours, and 1 year. A geographic region such as a county or air basin violating one or more NAAQS is designated as a "non-attainment" area for that pollutant. An area in which ambient air quality has improved sufficiently to meet a formerly violated NAAQS is known as a "maintenance" area.

Criteria pollutants are airborne pollutants with established federal and state ambient air quality standards that are protective of public health, and include a determined margin of safety. Criteria pollutants come from several sources and include carbon monoxide (CO), particulate matter (PM), lead (Pb), sulfur oxides (SO_X), ozone (O_3), and nitrogen oxides (NO_X). PM is often further categorized into two size fractions, each with its own ambient standards: particles less than 10 micrometers in diameter (PM_{10}) and particles less than 2.5 micrometers in diameter ($PM_{2.5}$). Reactive organic gases (ROG), also known as volatile organic compounds (VOC), do not have NAAQS and are not considered criteria pollutants. However, these compounds are regulated in the same way as criteria pollutants because, through a series of photochemical reactions involving NO_X, they contribute to the formation of tropospheric ozone, which is a criteria pollutant.

Common sources and adverse health effects of each criteria pollutant are summarized in **Table 1**.

Table 1: Criteria Pollutants – Sources and Health Effects

Criteria Pollutant	Common Sources	Adverse Health Effects
CO	Incomplete combustion of fuels	Cognitive impairment; suffocation; death
$PM_{10}/PM_{2.5}$	Stationary combustion; industrial processes; construction activities	Reduced lung function; aggravation of respiratory diseases; cardiovascular effects
Pb	Manufactured products; metal processing	Nervous system impairment
SO_X	Combustion of materials containing sulfur (coal, oil, etc.)	Aggravation of respiratory diseases; reduced lung function
O_3	Atmospheric reaction of ROG and NO_X	Reduced lung function; aggravation of respiratory diseases; increased cough
NO_X	Motor vehicle exhaust; stationary combustion	Aggravation of respiratory illness

For the proposed project, emissions of the following criteria pollutants were evaluated: CO, PM_{10}, $PM_{2.5}$, SO_X (as SO_2), and NO_X, as well as ROG as an ozone precursor.

Hazardous Air Pollutants

Hazardous Air Pollutants (HAPs) are "non-criteria" air contaminants with no established ambient air quality standards, though they may pose an immediate or potential long-term hazard to human health. Hundreds of different HAPs exist with varying levels of toxicity, which results in some HAPs being more strictly regulated than others. Exposure to HAPs may result in adverse chronic and/or acute effects on human health, such as birth defects, irritation to eyes, nose and throat, cardiovascular disease, neurological deficits, and asthma. In addition to inducing chronic and acute adverse health effects, HAPs may also be carcinogenic and result in an elevated risk of cancer. Diesel particulate matter (DPM) is one common HAP of concern found in the exhaust of diesel-powered equipment used during construction of a project, as well as in the exhaust of diesel-fueled motor vehicles, and thus often contributes to a project's construction and operational emissions.

HAP emissions were not evaluated for the proposed project because its location is in a remote area far from any residential receptors that might be affected. Further, the project will not involve the construction or operation of stationary sources, which are the major contributors of HAPs. While diesel-fueled off-road construction equipment and mobile sources are sources of DPM, the use of this equipment will be limited to two years and travel on the proposed All-Season Road infrequent.

General Conformity

EPA's General Conformity Regulations (40 CFR 93, Subpart B and 40 CFR 51, Subpart W) specify that any proposed federal project that may contribute to the violation of any NAAQS in a non-attainment or maintenance area must undergo a General Conformity analysis to determine whether the project's air emissions would conform to the approved State Implementation Plan (SIP). Each state is required by EPA to prepare a SIP, which formally presents the goals, strategies, and enforcement actions that a state has implemented to ensure compliance with all NAAQS. As the currently proposed project does not lie within a federally designated non-attainment or maintenance area, a General Conformity assessment is not required.

Greenhouse Gases

Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), and fluorinated gases such as hydrofluorocarbons and perfluorocarbons are commonly referred to as "greenhouse gases" because they function like a greenhouse in the atmosphere, letting light in but preventing heat from escaping. Natural sources of GHGs include the decomposition of organic matter; respiration of bacteria, plants, animals, and fungi; evaporation from oceans; and volcanic outgassing. Anthropogenic sources of GHG emissions include fossil fuel combustion during operation of off-road construction equipment, electricity generation, industrial activities, motorized transport, and manufacturing processes; deforestation and biomass burning; agricultural activity; and solid waste decomposition.

An Environmental Assessment conducted to fulfill NEPA requirements involves evaluating a project's contribution to regional GHG concentrations and thus its air quality. This assessment determines whether the GHG emissions generated by a project could result in a cumulatively considerable, or significant, impact when considered in combination with other sources and existing conditions in the region. The evaluation of GHG impacts thus inherently involves assessing a project's individual contribution to cumulative impacts in the region.

EMISSIONS CALCULATIONS

Criteria pollutant and GHG emissions associated with construction and operation of the Preferred Alternative (Alternative 2), the double-lane gravel road with a low-water crossing over Dry Creek, were evaluated. The air quality impacts of other Alternatives are assumed to be of equal or lesser significance as compared to those estimated for the Preferred Alternative because it is anticipated that the construction effort and operation of all Alternatives will be similar. Potential air emissions that would result from the Preferred Alternative were estimated using the *California Emissions Estimator Model* (CalEEMod, version 2020.4.0), a standard emissions modeling software package.

CalEEMod is a modeling tool commonly used to quantify the criteria pollutant and GHG emissions that would directly result from the construction and operational activities of a project, including those generated by off-road construction equipment, stationary and mobile (vehicular) sources, and indirect emissions related to solid waste disposal, vegetation planting/removal, and water use. The CalEEMod model was designed to estimate emissions associated with land use development and other projects for the purpose of evaluating environmental impacts, and thus allows for the input of project-specific information based on several parameters and construction details, such as the number of pieces of equipment used, construction hours, duration of each phase of construction activities, selection of emissions control measures, and extensive details of its operational use.

While CalEEMod is primarily utilized for projects in California, the default assumptions, parameters, and emission factors the model uses are very conservative, and thus appropriate for the current analysis. Modeling results were used to determine the potential environmental impacts of the proposed project in preparing the Environmental Assessment as part of the NEPA process.

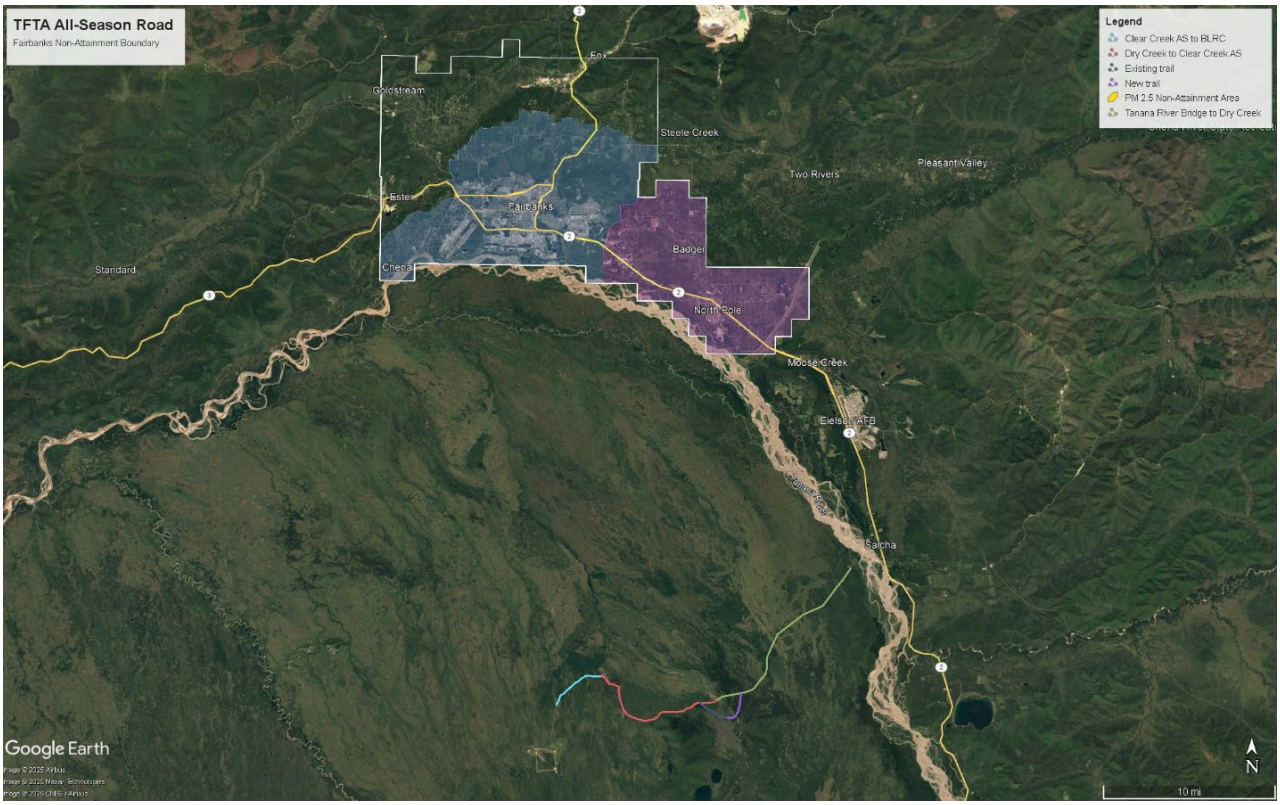
EVALUATION OF AIR QUALITY AND GHG IMPACTS

Evaluating the environmental impacts of a project's criteria pollutant emissions involves an analysis of how the emissions directly generated during the construction and operational phases will affect existing air quality in the region. Adverse air quality impacts will occur if a project causes ambient concentrations of criteria pollutants to increase above any NAAQS, contributes to an existing violation of a NAAQS, or prevents ongoing attainment with any NAAQS. Additionally, if a project is a major source of HAPs, impairs visibility within a federally-mandated Class I area, significantly increases regional GHG concentrations, or triggers a General Conformity determination, its environmental impacts are potentially significant and must be investigated further.

Air quality impacts that would result from the proposed action were evaluated by estimating the annual criteria pollutant emissions associated with construction and operation of the project and comparing these to federal prevention of significant deterioration (PSD) thresholds, which apply to emissions sources in geographic areas considered to be in attainment with the NAAQS. For attainment pollutants, the PSD threshold for NO_X, CO, SO_X (as SO_2), PM_{10}, $PM_{2.5}$, and ROG (ozone precursors), is 250 tons per year, as specified in 40 CFR Part 52, Section 21(b). The PSD thresholds provide a conservative indicator for determining whether a project's emissions would have a significant impact on air quality. A project resulting in annual criteria pollutant emissions below PSD thresholds would not cause or contribute to an exceedance of the NAAQS for each pollutant, and its impact on regional air quality would be considered insignificant.

As can be seen in **Figure 1** below, the TFTA and project area lie within the region south of the Fairbanks $PM_{2.5}$ NAAQS non-attainment area boundary. Thus the region in which the project lies is in attainment with all NAAQS and impacts on air quality would be considered significant only if the annual criteria pollutant emissions due to the project were to exceed any PSD threshold. Further, as the project lies in a region that currently complies with all federal air quality standards, i.e. an attainment area, General Conformity requirements are not applicable.

Figure 1. Project Area – Attainment Status



To determine the environmental impact of the proposed project's GHG emissions, a conservative significance threshold of 75,000 tons-per-year of CO_2e was used. This quantitative threshold is not used as an indicator of a significant impact, rather it provides a *de minimis* threshold to identify projects whose impact on regional GHG levels is too trivial or minor to merit consideration. If the annual quantity of GHG emissions generated by a project falls below this threshold, its impact on regional GHG levels is considered insignificant and does warrant any further analysis. Based on this criterion, if the GHG emissions generated by the proposed project are estimated to be less than 75,000 tpy CO_2e during the construction or operational phases, the project would be considered as having an insignificant impact on regional air quality.

Modeling Results

Airborne emissions associated with construction and operation of the proposed project would result in increased ambient concentrations of both criteria pollutants and GHGs. However, the modeled annual mass emissions rates were not found to exceed any PSD threshold, nor the 75,000 TPY CO_2e *de minimis* GHG threshold, and thus the project would not have a significant impact on air quality or atmospheric GHG levels. **Table 2** below summarizes the estimated maximum annual emissions resulting from construction and operations of the project based on modeling results as well as the relevant significance threshold used for each pollutant.

Table 2. TFTA All-Season Road – Maximum Annual Emissions

Project Phase	ROG (ton/yr)	NO_X (ton/yr)	CO (ton/yr)	SO_2 (ton/yr)	PM_{10} (ton/yr)	$PM_{2.5}$ (ton/yr)	CO_2e (ton/yr)
Construction	3.17	24.8	23.6	0.073	13.0	5.62	7,150
Operational (non-mobile)	0.22	1.30	1.44	0.0060	0.046	0.043	582
Operational (mobile) [a]	0.031	0.043	0.18	0.00026	0.0035	0.0015	28.0
TOTAL	**3.42**	**26.1**	**25.2**	**0.079**	**13.0**	**5.67**	**7,760**
PSD Threshold	250	250	250	250	250	250	75,000
Exceeds Threshold?	No	No	No	No	No	No	No

[a] Operational mobile emissions (truck travel to/from site) calculated off-model using vehicle-specific emissions factors

CONCLUSION

Based on the criteria pollutant and GHG emissions modeling performed, impacts to air quality and atmospheric greenhouse gas concentrations that would result from construction and operations of the proposed project would be less than significant. Estimated annual criteria pollutant emissions due to the project were all determined to be below federal PSD standards and GHG emissions were estimated as insignificant. Additionally, as the geographic region in which the TFTA and proposed project are located does not lie within a federal NAAQS non-attainment or maintenance area for any regulated air pollutant, General Conformity requirements are not applicable and conformance with the SIP was not assessed. Finally, as the proposed project would not involve the construction or operations of permanently-installed stationary sources of air pollutant emissions, no air quality permitting would be required. Therefore, the proposed project's potential impacts on regional air quality and GHG levels are deemed insignificant and do not require further consideration.

* * * *

Attachment A

Emissions Modeling Results

TFTA All-Season Road
Air Emissions - Modeling Assumptions

Project: Construction of a **25-mile**, 2-lane gravel road in a remote area south of Fairbanks, Alaska

We assume 2 full seasons (4 full months and up to 2 winter months – for pit development and other support tasks). We assume 2 full road crews plus 2 pit development crews (1 pit will be active and 1 will be developed at the same time).

Count		days/yr	
180	days (6 months x 30 days)	180	days/crew
2	Crews (180 days/crew)	360	crew-days

Road Crew - Construction (includes mobile source trips)

June-Oct, opportunistically the rest of the year (assume up to 2 months between Nov and May), 7 days/wk, 24 hr/day (assume 2 years)

Each piece of equipment is assumed to run 12 hours, default hp and load factor value were used. 2 hydro-axes were assumed to have same parameters as bulldozers.

*For emissions estimation purposes, equivalent days of equipment use per year ("eq-days/yr") is equal to crew-days/year (360) x number of pieces of equipment (#).

Count	Equipment Type	eq-days/yr*	hrs/day	hp	load factor
2	# drum roller	720	12	80	0.38
2	# graders	720	12	187	0.41
4	# front end loaders	1440	12	203	0.36
2	# bulldozers	720	12	247	0.40
2	# hydro-axes (equivalent to bulldozers)	720	12	247	0.40
2	# Fuel Trucks	720	12	402	0.38
2	# Water trucks	720	12	402	0.38
4	# Portable generator	1440	12	84	0.74
4	# Pickup trucks	1440	12	402	0.38
8	# Rock Trucks	2880	12	402	0.38
	max distance rock truck travel between quarry and site = **4.6 miles; 25 cu yd/truck**	trips/year	mi/year	rocks/yr	
8	# Rock Trucks	2880	26,496	72,000	cu. yd.
15	# Crew (for personal vehicle travel estimate)	5400	302,400		
	15 pickups will commute each day to/from Fairbanks (28 miles via highway)				

Pit Development Crew - Construction (includes mobile source trips)

Count	Equipment Type	eq-days/yr*	hrs/day	hp	load factor
1	# crane	360	12	231	0.29
2	# bulldozers	720	12	247	0.40
4	# Excavators	1440	12	158	0.38
2	# Screening plants (rock screening)	720	12	168	0.40
4	# Light Plants (winter months) (powered lighting)	1440	12	88	0.34
4	# Pickup Trucks	1440	12	402	0.38

TFTA All-Season Road
Air Emissions - Modeling Assumptions

Permanent Use / Operations (mobile source trip emissions calculated using emission factors)

TFTA

Summer Training: 1-2 pickups per week - Assume that entire 25 miles is driven, one-way, in a single day. Assume 4 mo total (16 weeks)

		trips/year	mi/year
2	Pickup Trucks (2 per week)	32	1600

Winter Training: Estimated 2 tactical maneuver exercises per year, 12 days each (assume 12 hr/day)
For each maneuver: assume a 1-way trip, 12 days operating in training area, and a 1-way return trip.
Also evaluate the 12-day training exercise (in addition to travel on the road to/from the training area)
Assume all training exercise equipment (rows 57-59) will operate 12 hrs/day x 12 days.

Max (4x)	(For each vehicle, assume a 1-way trip, 12 days training, and a 1-way return trip)	days/yr	hrs/day
8	1,000 g refueler (1)	192	12
12	military personnel carriers & cargo trucks (assume equivalent to a box truck)	288	12
4	small to mid-size trucks (e.g., Humvees)	96	12

BLRC- Assume that entire length (25 mi.) is driven, one-way, in a single day (7d/wk)		days/yr	mi/year
2	Pickup Trucks (2 per day)	730	36,500
1	8,000 gallon fuel trucks (12 days/year)	12	600
	Assume that each refueling trip will be 2 days (1 day in, 1 day out).		
1	plow truck 12 days/year	12	600
1	grader 3 days/year	3	150

limate data: https://www.usclimatedata.com/climate/fairbanks/alaska/united-states/usak0083 — 112 days precip. per year
limate data: https://akclimate.org/data/ — 11.67" precip; 2.1 m/sec (4.7 mph) wind speed

TFTA All-Season Road

Air Emissions - Modeling Assumptions

Construction - Vehicle Emissions Modeled in CalEEMod	trips/year	mi/year	Truck Class
8 # Rock Truck Hauling (travel between quarry and site = 4.6 miles) (8 round-trips of 9.2 miles/day x 360 days)	2880	26,496	
15 # Crew Commutes (travel between Fairbanks and site = 28 miles) 15 pickups will commute each day to/from Fairbanks (15 round-trips of 56 miles/day x 360 days)	5400	302,400	

453.592 gram/lb

2000 lb/ton

Permanent Use (Operations) - Vehicle Travel Emissions	trips/year	miles/year	Truck Class	Emissions (ton/yr) ROG	NO_x	CO	SO_2	PM2.5	PM10	CO2e
Summer (round-trips of 50 miles/week x 16 weeks)										
2 Pickup Trucks (2 per week)	32	1600	LDT2	0.00096	0.00045	0.00539	0.00001	0.00004	0.00008	0.620
Winter (round-trips of 50 miles/day x 12 days)										
8 1,000 g refueler (1)	96	4,800	MHD	0.00057	0.01786	0.00766	0.00005	0.00035	0.00079	5.831
12 military personnel carriers & cargo trucks (equivalent to box truck)	144	7,200	MDV	0.00518	0.00234	0.02600	0.00003	0.00016	0.00038	3.426
4 small to mid-size trucks (e.g., Humvees)	48	2,400	MDV	0.00173	0.00078	0.00867	0.00001	0.00005	0.00013	1.142
BLRC										
2 Pickup Trucks (2 per day) (round-trips of 50 miles/day x 365 days)	730	36,500	LDT2	0.02187	0.01023	0.12286	0.00014	0.00082	0.00192	14.142
1 8,000 gallon fuel trucks (12 days/year) (round-trips of 50 miles/day)	12	600	MHD	0.00007	0.00223	0.00096	0.000007	0.000044	0.00010	0.729
1 plow truck (12 days/year)	12	600	HHD	0.00035	0.00720	0.00518	0.000015	0.000040	0.00008	1.670
1 grader (3 days/year)	3	150	HHD	0.00009	0.00180	0.00129	0.000004	0.000010	0.00002	0.418
TOTAL OPERATIONAL MOBILE EMISSIONS:				**0.03081**	**0.04289**	**0.17801**	**0.00026**	**0.00152**	**0.00350**	**27.978**

Emission Factors (EMFAC)* (gram/mile)	ROG	NO_x	CO	SO_2	PM2.5	PM10	CO2e
LDT2	0.544	0.254	3.053	0.0034	0.020	0.048	351.5
MDV	0.652	0.295	3.277	0.0042	0.021	0.048	431.7
MHD	0.108	3.376	1.448	0.0101	0.066	0.150	1,102.1
HHD	0.529	10.888	7.831	0.0224	0.061	0.124	2,525.5

*2025 EFs from CalEEMod

TFTA All-Season Road
Air Emissions - Modeling Assumptions

EMFAC Annual Emission Factors (g/mile) - 2025 EFs from CalEEMod

Emission Type	LDT2	MDV	MHD	HHD
CH4_IDLEX	0	0	0.003547	0.026655
CH4_RUNEX	0.002653	0.003031	0.001184	0.037631
CH4_STREX	0.051172	0.058156	0.008343	0
CH4	**0.053825**	**0.061187**	**0.013074**	**0.064286**
N2O_IDLEX	0	0	0.009957	0.182851
N2O_RUNEX	0.004994	0.006706	0.125795	0.197708
N2O_STREX	0.025565	0.026927	0.007088	0.000003
N2O	**0.030559**	**0.033633**	**0.14284**	**0.380562**
CO2_NBIO_IDLEX	0	0	68.842642	1,160.42
CO2_NBIO_RUNEX	282.268305	348.436119	981.783062	1,250.05
CO2_NBIO_STREX	58.766456	71.7354	8.541013	0.033604
CO2	**341.03**	**420.17**	**1059.17**	**2410.50**
CO2e	**351.49**	**431.72**	**1102.06**	**2525.51**
CO_IDLEX	0	0	0.386617	7.4936
CO_RUNEX	0.682866	0.716359	0.166208	0.333833
CO_STREX	2.370629	2.560142	0.895003	0.003915
CO	**3.053495**	**3.276501**	**1.447828**	**7.831348**
NOX_IDLEX	0	0	0.380267	6.169322
NOX_RUNEX	0.049164	0.056619	1.281971	2.359322
NOX_STREX	0.205128	0.238008	1.713755	2.359523
NOx	**0.254292**	**0.294627**	**3.375993**	**10.888167**
PM10_IDLEX	0	0	0.00025	0.002631
PM10_PMBW	0.03675	0.03675	0.13034	0.061116
PM10_PMTW	0.008	0.008	0.012	0.035629
PM10_RUNEX	0.001352	0.001381	0.007311	0.024406
PM10_STREX	0.001593	0.001608	0.000099	0
PM10	**0.047695**	**0.047739**	**0.15**	**0.123782**
PM25_IDLEX	0	0	0.000239	0.002517
PM25_PMBW	0.01575	0.01575	0.05586	0.026193
PM25_PMTW	0.002	0.002	0.003	0.008907
PM25_RUNEX	0.001244	0.001273	0.006989	0.02335
PM25_STREX	0.001465	0.001478	0.000091	0

TFTA All-Season Road
Air Emissions - Modeling Assumptions

EMFAC Annual Emission Factors (g/mile) - 2025 EFs from CalEEMod

Emission Type	LDT2	MDV	MHD	HHD
PM2.5	**0.020459**	**0.020501**	**0.066179**	**0.060967**
ROG_DIURN	0.068526	0.084696	0.000405	0.000001
ROG_HTSK	0.11242	0.133491	0.017313	0.000055
ROG_IDLEX	0	0	0.017676	0.506137
ROG_RESTL	0.065768	0.082962	0.000254	0.000001
ROG_RUNEX	0.010468	0.012321	0.012369	0.022865
ROG_RUNLS	0.055494	0.062628	0.017363	0.000024
ROG_STREX	0.230874	0.275991	0.042343	0.000001
ROG	**0.54355**	**0.652089**	**0.107723**	**0.529084**
SO2_IDLEX	0	0	0.000653	0.010872
SO2_RUNEX	0.002792	0.003444	0.009361	0.011549
SO2_STREX	0.000582	0.00071	0.000085	0
SO2	**0.003374**	**0.004154**	**0.010099**	**0.022421**
TOG_DIURN	0.068526	0.084696	0.000405	0.000001
TOG_HTSK	0.11242	0.133491	0.017313	0.000055
TOG_IDLEX	0	0	0.024035	0.579363
TOG_RESTL	0.065768	0.082962	0.000254	0.000001
TOG_RUNEX	0.015229	0.017882	0.015204	0.06285
TOG_RUNLS	0.055494	0.062628	0.017363	0.000024
TOG_STREX	0.252778	0.302176	0.04636	0.000001

TFTA All-Season Road

Statewide , Annual

1.0 Project Characteristics

1.1 Land Usage

Land Uses	Size	Metric	Lot Acreage	Floor Surface Area	Population
User Defined Recreational	25.00	User Defined Unit	0.00	5,280,000.00	0

1.2 Other Project Characteristics

Urbanization	Rural	**Wind Speed (m/s)**	2.1	**Precipitation Freq (Days)**	112
Climate Zone	14			**Operational Year**	2027
Utility Company	Lancaster Choice Energy				
CO2 Intensity (lb/MWhr)	615.98	**CH4 Intensity (lb/MWhr)**	0.033	**N2O Intensity (lb/MWhr)**	0.004

1.3 User Entered Comments & Non-Default Data

Project Characteristics - Modeling Fairbanks, Alaska. Assumptions: 2.1 m/sec wind speed, 112 annual days precip, climate zone 14.

Land Use - 2-lane gravel road: 25 miles x 5,280 ft/mi x 40 ft wide = 5,280,000 sq ft

Construction Phase - Road Construction assumes 360 days/yr (2 crews x 180 days/year) x 12 hrs/day of crew equipment operation; 2 Road Crews + 2 Pit Development Crews

Off-road Equipment - Pit Development Crew: equipment hp and load factor defaults; 12 hrs/day; 360 days accounts for 2 crews x 180 days/year; 'Other Material Handling' = Screening Plants; 'Other General Industrial Equipment' = Light Plants

Off-road Equipment - Pit Development Crew: 360 days/yr (2 crews x 180 days/year) x 12 hrs/day of equipment operation; 'Other General Industrial' equipment = Light Plants; 'Other Material Handling' equipment = Screening Plants; all trucks assumed off-highway trucks

Off-road Equipment - Road Crew: 360 days/yr (2 crews x 180 days/year) x 12 hrs/day of equipment operation; 2 hydro-axes assumed equivalent to bulldozers; all trucks assumed off-highway trucks

Grading - 25 miles x 5,280 ft/mi x 40 ft x 1 acre/43,560 sq ft = 121.2 acres; 25 cu yd of material imported per truck x 8 trucks/day x 360 days/yr = 72,000 cu yd/yr

Trips and VMT - Road Crew: 15 workers/day (28 mi one-way) + 8 haul trucks/day (4.6 mi one way) per day x 360 days/yr

On-road Fugitive Dust - Worker Commutes via Highway (paved); Haul Routes unpaved

Vehicle Trips - Operational Phase: Use EMFAC to estimate vehicle emissions

Landscape Equipment - Assume 180 snow days

Operational Off-Road Equipment - Maneuvers (2 per year): 8 Refuel Trucks, 12 pers carriers, 4 humvees - 12 hrs/day; BLRC: 8,000 gal fuel truck (12 days/yr), plow truck (12 days/yr), grader (3 days/yr) - 12 hrs/day; Trucks assumed off-road (pickup truck trips modeled separately)

Consumer Products - No Coatings, Feritlizers, Etc.

Area Coating - No Coatings, Feritlizers, Etc.

Solid Waste - No Landfill Gas

Area Mitigation - No Coatings

Table Name	Column Name	Default Value	New Value
tblAreaCoating	Area_EF_Nonresidential_Exterior	250	0
tblAreaCoating	Area_EF_Nonresidential_Interior	250	0
tblAreaCoating	Area_EF_Parking	250	0
tblAreaCoating	Area_EF_Residential_Exterior	250	0
tblAreaCoating	Area_EF_Residential_Interior	250	0
tblConstructionPhase	NumDays	0.00	360.00
tblConstructionPhase	NumDays	0.00	360.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConstructionPhase	NumDaysWeek	5.00	7.00
tblConsumerProducts	ROG_EF	2.14E-05	0
tblConsumerProducts	ROG_EF_Degreaser	3.542E-07	0
tblConsumerProducts	ROG_EF_PesticidesFertilizers	5.152E-08	0
tblGrading	AcresOfGrading	540.00	121.20
tblGrading	AcresOfGrading	2,160.00	121.20
tblGrading	MaterialImported	0.00	72,000.00
tblLandscapeEquipment	NumberSnowDays	0	180
tblLandUse	LandUseSquareFeet	0.00	5,280,000.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	HaulingPercentPave	100.00	0.00
tblOnRoadDust	VendorPercentPave	100.00	0.00

tblOnRoadDust	VendorPercentPave	100.00	0.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	3.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	24.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	24.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	24.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperDaysPerYear	260.00	12.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	12.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	12.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	12.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	12.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	12.00
tblOperationalOffRoadEquipment	OperHoursPerDay	8.00	12.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	8.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	12.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	4.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblOperationalOffRoadEquipment	OperOffRoadEquipmentNumber	0.00	1.00
tblProjectCharacteristics	PrecipitationFrequency	54	112
tblProjectCharacteristics	UrbanizationLevel	Urban	Rural
tblProjectCharacteristics	WindSpeed	2.2	2.1
tblSolidWaste	LandfillCaptureGasFlare	94.00	0.00
tblSolidWaste	LandfillNoGasCapture	6.00	0.00
tblTripsAndVMT	HaulingTripLength	20.00	4.60
tblTripsAndVMT	HaulingTripLength	20.00	0.00
tblTripsAndVMT	HaulingTripNumber	9,000.00	2,880.00
tblTripsAndVMT	VendorTripLength	6.60	0.00
tblTripsAndVMT	VendorTripLength	6.60	0.00

tblTripsAndVMT	WorkerTripLength	16.80	28.00
tblTripsAndVMT	WorkerTripLength	16.80	28.00
tblTripsAndVMT	WorkerTripNumber	85.00	15.00
tblTripsAndVMT	WorkerTripNumber	43.00	15.00
tblVehicleTrips	CC_TL	6.60	0.00
tblVehicleTrips	CNW_TL	6.60	0.00
tblVehicleTrips	CW_TL	14.70	0.00

2.0 Emissions Summary

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.1 Overall Construction

Unmitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	3.1745	24.8328	23.5539	0.0734	12.0013	0.9944	12.9957	4.7047	0.9198	5.6245	0.0000	6,436.9097	6,436.9097	1.9588	3.0600e-003	6,486.7903
2026	2.1404	16.7467	15.8785	0.0495	8.1370	0.6707	8.8076	3.1777	0.6203	3.7980	0.0000	4,339.9783	4,339.9783	1.3210	1.9900e-003	4,373.5959
Maximum	**3.1745**	**24.8328**	**23.5539**	**0.0734**	**12.0013**	**0.9944**	**12.9957**	**4.7047**	**0.9198**	**5.6245**	**0.0000**	**6,436.9097**	**6,436.9097**	**1.9588**	**3.0600e-003**	**6,486.7903**

Mitigated Construction

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Year	tons/yr										MT/yr					
2025	3.1745	24.8328	23.5539	0.0734	12.0013	0.9944	12.9957	4.7047	0.9198	5.6245	0.0000	6,436.9021	6,436.9021	1.9588	3.0600e-003	6,486.7826
2026	2.1404	16.7467	15.8785	0.0495	8.1370	0.6707	8.8076	3.1777	0.6203	3.7980	0.0000	4,339.9732	4,339.9732	1.3210	1.9900e-003	4,373.5907
Maximum	**3.1745**	**24.8328**	**23.5539**	**0.0734**	**12.0013**	**0.9944**	**12.9957**	**4.7047**	**0.9198**	**5.6245**	**0.0000**	**6,436.9021**	**6,436.9021**	**1.9588**	**3.0600e-003**	**6,486.7826**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

Quarter	Start Date	End Date	Maximum Unmitigated ROG + NOX (tons/quarter)	Maximum Mitigated ROG + NOX (tons/quarter)
1	**6-1-2025**	**8-31-2025**	11.9835	11.9835
2	**9-1-2025**	**11-30-2025**	11.8547	11.8547
3	**12-1-2025**	**2-28-2026**	11.7245	11.7245
4	**3-1-2026**	**5-31-2026**	11.2018	11.2018
		Highest	11.9835	11.9835

2.2 Overall Operational

Unmitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.0000e-005	0.0000	4.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.9000e-004	8.9000e-004	0.0000	0.0000	9.5000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.2156	1.2975	1.4371	5.9600e-003		0.0464	0.0464		0.0426	0.0426	0.0000	523.7121	523.7121	0.1694	0.0000	527.9466
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2157**	**1.2975**	**1.4375**	**5.9600e-003**	**0.0000**	**0.0464**	**0.0464**	**0.0000**	**0.0426**	**0.0426**	**0.0000**	**523.7130**	**523.7130**	**0.1694**	**0.0000**	**527.9476**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

2.2 Overall Operational

Mitigated Operational

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Area	4.0000e-005	0.0000	4.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.9000e-004	8.9000e-004	0.0000	0.0000	9.5000e-004
Energy	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Mobile	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Offroad	0.2156	1.2975	1.4371	5.9600e-003		0.0464	0.0464		0.0426	0.0426	0.0000	523.7121	523.7121	0.1694	0.0000	527.9466
Waste						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Water						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total	**0.2157**	**1.2975**	**1.4375**	**5.9600e-003**	**0.0000**	**0.0464**	**0.0464**	**0.0000**	**0.0426**	**0.0426**	**0.0000**	**523.7130**	**523.7130**	**0.1694**	**0.0000**	**527.9476**

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio-CO2	Total CO2	CH4	N20	CO2e
Percent Reduction	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**	**0.00**

3.0 Construction Detail

Construction Phase

Phase Number	Phase Name	Phase Type	Start Date	End Date	Num Days Week	Num Days	Phase Description
1	Road Crew	Site Preparation	5/31/2025	5/25/2026	7	360	Road Crew: 2 x 180 days
2	Pit Development Crew	Grading	5/31/2025	5/25/2026	7	360	Pit Dev Crew: 2 x 180 days

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Acres of Grading (Site Preparation Phase): 121.2

Acres of Grading (Grading Phase): 121.2

Acres of Paving: 0

Residential Indoor: 0; Residential Outdoor: 0; Non-Residential Indoor: 0; Non-Residential Outdoor: 0; Striped Parking Area: 0 (Architectural Coating – sqft)

OffRoad Equipment

Phase Name	Offroad Equipment Type	Amount	Usage Hours	Horse Power	Load Factor
Road Crew	Generator Sets	4	12.00	84	0.74
Road Crew	Graders	2	12.00	187	0.41
Road Crew	Off-Highway Trucks	8	12.00	402	0.38
Road Crew	Off-Highway Trucks	2	12.00	402	0.38
Road Crew	Off-Highway Trucks	2	12.00	402	0.38
Road Crew	Off-Highway Trucks	4	12.00	402	0.38
Road Crew	Rollers	2	12.00	80	0.38
Road Crew	Rubber Tired Dozers	6	12.00	247	0.40
Road Crew	Rubber Tired Loaders	4	12.00	203	0.36
Pit Development Crew	Cranes	1	12.00	231	0.29
Pit Development Crew	Excavators	4	12.00	158	0.38
Pit Development Crew	Off-Highway Trucks	4	12.00	402	0.38
Pit Development Crew	Other General Industrial Equipment	4	12.00	88	0.34
Pit Development Crew	Other Material Handling Equipment	2	12.00	168	0.40
Pit Development Crew	Rubber Tired Dozers	2	12.00	247	0.40

Trips and VMT

Phase Name	Offroad Equipment Count	Worker Trip Number	Vendor Trip Number	Hauling Trip Number	Worker Trip Length	Vendor Trip Length	Hauling Trip Length	Worker Vehicle Class	Vendor Vehicle Class	Hauling Vehicle Class
Road Crew	34	15.00	0.00	2,880.00	28.00	0.00	4.60	LD_Mix	HDT_Mix	HHDT

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Pit Development Crew	17	15.00	0.00	0.00	28.00	0.00	0.00	LD_Mix	HDT_Mix	HHDT

3.1 Mitigation Measures Construction

3.2 Road Crew - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8945	0.0000	5.8945	3.2102	0.0000	3.2102	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3229	18.1342	15.5380	0.0536		0.7061	0.7061		0.6545	0.6545	0.0000	4,701.5231	4,701.5231	1.4161	0.0000	4,736.9265
Total	**2.3229**	**18.1342**	**15.5380**	**0.0536**	**5.8945**	**0.7061**	**6.6005**	**3.2102**	**0.6545**	**3.8647**	**0.0000**	**4,701.5231**	**4,701.5231**	**1.4161**	**0.0000**	**4,736.9265**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Road Crew - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1800e-003	0.0379	0.0172	1.3000e-004	4.0364	2.3000e-004	4.0366	0.4030	2.2000e-004	0.4032	0.0000	12.6499	12.6499	3.5000e-004	2.0000e-003	13.2543
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6000e-003	5.5100e-003	0.0774	2.7000e-004	0.0320	1.6000e-004	0.0322	8.5400e-003	1.5000e-004	8.6800e-003	0.0000	24.3174	24.3174	4.2000e-004	5.3000e-004	24.4859
Total	**8.7800e-003**	**0.0435**	**0.0946**	**4.0000e-004**	**4.0684**	**3.9000e-004**	**4.0688**	**0.4115**	**3.7000e-004**	**0.4119**	**0.0000**	**36.9673**	**36.9673**	**7.7000e-004**	**2.5300e-003**	**37.7401**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					5.8945	0.0000	5.8945	3.2102	0.0000	3.2102	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	2.3229	18.1342	15.5380	0.0536		0.7061	0.7061		0.6545	0.6545	0.0000	4,701.5176	4,701.5176	1.4161	0.0000	4,736.9208
Total	**2.3229**	**18.1342**	**15.5380**	**0.0536**	**5.8945**	**0.7061**	**6.6005**	**3.2102**	**0.6545**	**3.8647**	**0.0000**	**4,701.5176**	**4,701.5176**	**1.4161**	**0.0000**	**4,736.9208**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Road Crew - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	1.1800e-003	0.0379	0.0172	1.3000e-004	4.0364	2.3000e-004	4.0366	0.4030	2.2000e-004	0.4032	0.0000	12.6499	12.6499	3.5000e-004	2.0000e-003	13.2543
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6000e-003	5.5100e-003	0.0774	2.7000e-004	0.0320	1.6000e-004	0.0322	8.5400e-003	1.5000e-004	8.6800e-003	0.0000	24.3174	24.3174	4.2000e-004	5.3000e-004	24.4859
Total	**8.7800e-003**	**0.0435**	**0.0946**	**4.0000e-004**	**4.0684**	**3.9000e-004**	**4.0688**	**0.4115**	**3.7000e-004**	**0.4119**	**0.0000**	**36.9673**	**36.9673**	**7.7000e-004**	**2.5300e-003**	**37.7401**

3.2 Road Crew - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.9975	0.0000	3.9975	2.1674	0.0000	2.1674	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5666	12.2301	10.4791	0.0362		0.4762	0.4762		0.4414	0.4414	0.0000	3,170.7947	3,170.7947	0.9551	0.0000	3,194.6713
Total	**1.5666**	**12.2301**	**10.4791**	**0.0362**	**3.9975**	**0.4762**	**4.4737**	**2.1674**	**0.4414**	**2.6089**	**0.0000**	**3,170.7947**	**3,170.7947**	**0.9551**	**0.0000**	**3,194.6713**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Road Crew - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.9000e-004	0.0253	0.0116	9.0000e-005	2.7222	1.5000e-004	2.7224	0.2718	1.5000e-004	0.2719	0.0000	8.3504	8.3504	2.4000e-004	1.3200e-003	8.7496
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8400e-003	3.3500e-003	0.0488	1.7000e-004	0.0216	1.0000e-004	0.0217	5.7600e-003	9.0000e-005	5.8500e-003	0.0000	15.8939	15.8939	2.5000e-004	3.4000e-004	16.0003
Total	**5.6300e-003**	**0.0287**	**0.0604**	**2.6000e-004**	**2.7438**	**2.5000e-004**	**2.7441**	**0.2776**	**2.4000e-004**	**0.2778**	**0.0000**	**24.2443**	**24.2443**	**4.9000e-004**	**1.6600e-003**	**24.7499**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					3.9975	0.0000	3.9975	2.1674	0.0000	2.1674	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	1.5666	12.2300	10.4791	0.0362		0.4762	0.4762		0.4414	0.4414	0.0000	3,170.7909	3,170.7909	0.9551	0.0000	3,194.6676
Total	**1.5666**	**12.2300**	**10.4791**	**0.0362**	**3.9975**	**0.4762**	**4.4737**	**2.1674**	**0.4414**	**2.6089**	**0.0000**	**3,170.7909**	**3,170.7909**	**0.9551**	**0.0000**	**3,194.6676**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.2 Road Crew - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	7.9000e-004	0.0253	0.0116	9.0000e-005	2.7222	1.5000e-004	2.7224	0.2718	1.5000e-004	0.2719	0.0000	8.3504	8.3504	2.4000e-004	1.3200e-003	8.7496
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8400e-003	3.3500e-003	0.0488	1.7000e-004	0.0216	1.0000e-004	0.0217	5.7600e-003	9.0000e-005	5.8500e-003	0.0000	15.8939	15.8939	2.5000e-004	3.4000e-004	16.0003
Total	**5.6300e-003**	**0.0287**	**0.0604**	**2.6000e-004**	**2.7438**	**2.5000e-004**	**2.7441**	**0.2776**	**2.4000e-004**	**0.2778**	**0.0000**	**24.2443**	**24.2443**	**4.9000e-004**	**1.6600e-003**	**24.7499**

3.3 Pit Development Crew - 2025

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0064	0.0000	2.0064	1.0745	0.0000	1.0745	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.8352	6.6496	7.8440	0.0191		0.2878	0.2878		0.2648	0.2648	0.0000	1,674.1019	1,674.1019	0.5414	0.0000	1,687.6378
Total	**0.8352**	**6.6496**	**7.8440**	**0.0191**	**2.0064**	**0.2878**	**2.2942**	**1.0745**	**0.2648**	**1.3393**	**0.0000**	**1,674.1019**	**1,674.1019**	**0.5414**	**0.0000**	**1,687.6378**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Pit Development Crew - 2025

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6000e-003	5.5100e-003	0.0774	2.7000e-004	0.0320	1.6000e-004	0.0322	8.5400e-003	1.5000e-004	8.6800e-003	0.0000	24.3174	24.3174	4.2000e-004	5.3000e-004	24.4859
Total	**7.6000e-003**	**5.5100e-003**	**0.0774**	**2.7000e-004**	**0.0320**	**1.6000e-004**	**0.0322**	**8.5400e-003**	**1.5000e-004**	**8.6800e-003**	**0.0000**	**24.3174**	**24.3174**	**4.2000e-004**	**5.3000e-004**	**24.4859**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					2.0064	0.0000	2.0064	1.0745	0.0000	1.0745	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.8352	6.6496	7.8440	0.0191		0.2878	0.2878		0.2648	0.2648	0.0000	1,674.0999	1,674.0999	0.5414	0.0000	1,687.6358
Total	**0.8352**	**6.6496**	**7.8440**	**0.0191**	**2.0064**	**0.2878**	**2.2942**	**1.0745**	**0.2648**	**1.3393**	**0.0000**	**1,674.0999**	**1,674.0999**	**0.5414**	**0.0000**	**1,687.6358**

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3.3 Pit Development Crew - 2025

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	7.6000e-003	5.5100e-003	0.0774	2.7000e-004	0.0320	1.6000e-004	0.0322	8.5400e-003	1.5000e-004	8.6800e-003	0.0000	24.3174	24.3174	4.2000e-004	5.3000e-004	24.4859
Total	**7.6000e-003**	**5.5100e-003**	**0.0774**	**2.7000e-004**	**0.0320**	**1.6000e-004**	**0.0322**	**8.5400e-003**	**1.5000e-004**	**8.6800e-003**	**0.0000**	**24.3174**	**24.3174**	**4.2000e-004**	**5.3000e-004**	**24.4859**

3.3 Pit Development Crew - 2026

Unmitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3741	0.0000	1.3741	0.7269	0.0000	0.7269	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5633	4.4846	5.2901	0.0129		0.1941	0.1941		0.1786	0.1786	0.0000	1,129.0454	1,129.0454	0.3652	0.0000	1,138.1743
Total	**0.5633**	**4.4846**	**5.2901**	**0.0129**	**1.3741**	**0.1941**	**1.5682**	**0.7269**	**0.1786**	**0.9055**	**0.0000**	**1,129.0454**	**1,129.0454**	**0.3652**	**0.0000**	**1,138.1743**

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Pit Development Crew - 2026

Unmitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8400e-003	3.3500e-003	0.0488	1.7000e-004	0.0216	1.0000e-004	0.0217	5.7600e-003	9.0000e-005	5.8500e-003	0.0000	15.8939	15.8939	2.5000e-004	3.4000e-004	16.0003
Total	**4.8400e-003**	**3.3500e-003**	**0.0488**	**1.7000e-004**	**0.0216**	**1.0000e-004**	**0.0217**	**5.7600e-003**	**9.0000e-005**	**5.8500e-003**	**0.0000**	**15.8939**	**15.8939**	**2.5000e-004**	**3.4000e-004**	**16.0003**

Mitigated Construction On-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Fugitive Dust					1.3741	0.0000	1.3741	0.7269	0.0000	0.7269	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Off-Road	0.5633	4.4846	5.2901	0.0129		0.1941	0.1941		0.1786	0.1786	0.0000	1,129.0441	1,129.0441	0.3652	0.0000	1,138.1730
Total	**0.5633**	**4.4846**	**5.2901**	**0.0129**	**1.3741**	**0.1941**	**1.5682**	**0.7269**	**0.1786**	**0.9055**	**0.0000**	**1,129.0441**	**1,129.0441**	**0.3652**	**0.0000**	**1,138.1730**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

3.3 Pit Development Crew - 2026

Mitigated Construction Off-Site

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Hauling	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Vendor	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Worker	4.8400e-003	3.3500e-003	0.0488	1.7000e-004	0.0216	1.0000e-004	0.0217	5.7600e-003	9.0000e-005	5.8500e-003	0.0000	15.8939	15.8939	2.5000e-004	3.4000e-004	16.0003
Total	**4.8400e-003**	**3.3500e-003**	**0.0488**	**1.7000e-004**	**0.0216**	**1.0000e-004**	**0.0217**	**5.7600e-003**	**9.0000e-005**	**5.8500e-003**	**0.0000**	**15.8939**	**15.8939**	**2.5000e-004**	**3.4000e-004**	**16.0003**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

4.0 Operational Detail - Mobile

4.1 Mitigation Measures Mobile

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

4.2 Trip Summary Information

	Average Daily Trip Rate			Unmitigated	Mitigated
Land Use	Weekday	Saturday	Sunday	Annual VMT	Annual VMT
User Defined Recreational	0.00	0.00	0.00		
Total	0.00	0.00	0.00		

4.3 Trip Type Information

	Miles			Trip %			Trip Purpose %		
Land Use	H-W or C-W	H-S or C-C	H-O or C-NW	H-W or C-W	H-S or C-C	H-O or C-NW	Primary	Diverted	Pass-by
User Defined Recreational	0.00	0.00	0.00	0.00	0.00	0.00	0	0	0

4.4 Fleet Mix

Land Use	LDA	LDT1	LDT2	MDV	LHD1	LHD2	MHD	HHD	OBUS	UBUS	MCY	SBUS	MH
User Defined Recreational	0.539862	0.060038	0.184193	0.129104	0.025174	0.006677	0.011747	0.011396	0.000800	0.000462	0.026022	0.000939	0.003587

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.0 Energy Detail

Historical Energy Use: N

5.1 Mitigation Measures Energy

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Electricity Mitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Electricity Unmitigated						0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Mitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
NaturalGas Unmitigated	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.2 Energy by Land Use - NaturalGas

Unmitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	NaturalGas Use	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Land Use	kBTU/yr	tons/yr										MT/yr					
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

5.3 Energy by Land Use - Electricity

Unmitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Electricity Use	Total CO2	CH4	N2O	CO2e
Land Use	kWh/yr	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

6.0 Area Detail

6.1 Mitigation Measures Area

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Category	tons/yr										MT/yr					
Mitigated	4.0000e-005	0.0000	4.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.9000e-004	8.9000e-004	0.0000	0.0000	9.5000e-004
Unmitigated	4.0000e-005	0.0000	4.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.9000e-004	8.9000e-004	0.0000	0.0000	9.5000e-004

6.2 Area by SubCategory

Unmitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.9000e-004	8.9000e-004	0.0000	0.0000	9.5000e-004
Total	**4.0000e-005**	**0.0000**	**4.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**8.9000e-004**	**8.9000e-004**	**0.0000**	**0.0000**	**9.5000e-004**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

6.2 Area by SubCategory

Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
SubCategory	tons/yr										MT/yr					
Architectural Coating	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Consumer Products	0.0000					0.0000	0.0000		0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
Landscaping	4.0000e-005	0.0000	4.6000e-004	0.0000		0.0000	0.0000		0.0000	0.0000	0.0000	8.9000e-004	8.9000e-004	0.0000	0.0000	9.5000e-004
Total	**4.0000e-005**	**0.0000**	**4.6000e-004**	**0.0000**		**0.0000**	**0.0000**		**0.0000**	**0.0000**	**0.0000**	**8.9000e-004**	**8.9000e-004**	**0.0000**	**0.0000**	**9.5000e-004**

7.0 Water Detail

7.1 Mitigation Measures Water

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EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

	Total CO2	CH4	N2O	CO2e
Category	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

7.2 Water by Land Use

Unmitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

7.2 Water by Land Use

Mitigated

	Indoor/Outdoor Use	Total CO2	CH4	N2O	CO2e
Land Use	Mgal	MT/yr			
User Defined Recreational	0 / 0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

8.0 Waste Detail

8.1 Mitigation Measures Waste

Category/Year

	Total CO2	CH4	N2O	CO2e
	MT/yr			
Mitigated	0.0000	0.0000	0.0000	0.0000
Unmitigated	0.0000	0.0000	0.0000	0.0000

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

8.2 Waste by Land Use

Unmitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

Mitigated

	Waste Disposed	Total CO2	CH4	N2O	CO2e
Land Use	tons	MT/yr			
User Defined Recreational	0	0.0000	0.0000	0.0000	0.0000
Total		**0.0000**	**0.0000**	**0.0000**	**0.0000**

9.0 Operational Offroad

Equipment Type	Number	Hours/Day	Days/Year	Horse Power	Load Factor	Fuel Type
Graders	1	12.00	3	187	0.41	Diesel

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

Off-Highway Trucks	8	12.00	24	402	0.38	Diesel
Off-Highway Trucks	12	12.00	24	402	0.38	Diesel
Off-Highway Trucks	4	12.00	24	402	0.38	Diesel
Off-Highway Trucks	1	12.00	12	402	0.38	Diesel
Off-Highway Trucks	1	12.00	12	402	0.38	Diesel

UnMitigated/Mitigated

	ROG	NOx	CO	SO2	Fugitive PM10	Exhaust PM10	PM10 Total	Fugitive PM2.5	Exhaust PM2.5	PM2.5 Total	Bio- CO2	NBio- CO2	Total CO2	CH4	N2O	CO2e
Equipment Type	tons/yr										MT/yr					
Graders	7.0000e-004	7.7800e-003	3.5900e-003	1.0000e-005		2.5000e-004	2.5000e-004		2.3000e-004	2.3000e-004	0.0000	1.3068	1.3068	4.2000e-004	0.0000	1.3174
Off-Highway Trucks	0.2149	1.2897	1.4335	5.9500e-003		0.0461	0.0461		0.0424	0.0424	0.0000	522.4053	522.4053	0.1690	0.0000	526.6292
Total	**0.2156**	**1.2975**	**1.4371**	**5.9600e-003**		**0.0464**	**0.0464**		**0.0426**	**0.0426**	**0.0000**	**523.7121**	**523.7121**	**0.1694**	**0.0000**	**527.9466**

10.0 Stationary Equipment

Fire Pumps and Emergency Generators

Equipment Type	Number	Hours/Day	Hours/Year	Horse Power	Load Factor	Fuel Type

Boilers

Equipment Type	Number	Heat Input/Day	Heat Input/Year	Boiler Rating	Fuel Type

User Defined Equipment

Equipment Type	Number

EMFAC Off-Model Adjustment Factors for Gasoline Light Duty Vehicle to Account for the SAFE Vehicle Rule Not Applied

11.0 Vegetation

Appendix B.
National Historic Preservation Act Section 106 Materials

THE STATE of ALASKA
GOVERNOR MIKE DUNLEAVY

Department of Natural Resources
DIVISION OF PARKS AND OUTDOOR RECREATION
Office of History & Archaeology

550 West 7th Avenue, Suite 1310
Anchorage, AK 99501-3561
907-269-8700
http://dnr.alaska.gov/parks/oha

March 6, 2025

File No.: 3130-1R Army
2024-00145 / 2023-00086

Elizabeth Cook
Cultural Resource Manager / Native Liaison
U.S. Army Garrison Alaska
Fort Wainwright, Alaska 99703-6000
Elizabeth.a.cook80.civ@army.mil

Subject: Blair Lakes Trail Reconfiguration
Supplemental Archaeological District Report, Tanana Flats Training Area

Dear Ms. Cook:

The Alaska State Historic Preservation Office (AK SHPO) received your correspondence (dated January 29, 2024) and report titled *Archaeological Districts on Tanana Flats Training Area: Contributing and Non-contributing Properties Supplemental Report* on February 3, 2025, as well as additional information on February 27, 2025. As always, thank you for considering our prior comments.

Our office agrees with the Alaska Army Garrison's assessment that the majority of the unsurveyed trail segment and potential material sources have low potential to contain cultural resources. We support ground-truthing this desktop assessment in the summer of 2025 through pedestrian survey of areas that are neither seasonally flooded nor covered in standing water. It is our understanding that pedestrian survey in 2025 will precede any ground disturbing work, including grubbing. Please note that if any cultural resources are discovered during survey, then the Alaska Army Garrison will need to consult with consulting parties, including AK SHPO pursuant to 36 CFR 800.4-6.

AK SHPO reviewed the documentation pursuant to 36 CFR 60.4, and we concur with the following determinations of eligibility (Table 1, page 2) for listing in the National Register of Historic Places (NRHP). We look forward to using the updated framework in the future, including any updates based on new information. In addition, we recommend reviewing the boundary of the districts located with the Tanana Flats Training Area as more sites are evaluated for NRHP eligibility in the future.

Based on the nature of the undertaking and the steps Alaska Army Garrison has proposed to phase identification and minimize effects to known historic properties, AK SHPO agrees that a finding of no historic properties adversely affected is appropriate for the subject undertaking. Please note that this finding is contingent on the Alaska Army Garrison completing archaeological pedestrian survey in 2025 of the noted areas and implementing the 5-year monitoring plan. We look forward to receiving the reports documenting the 2025 archaeological survey(s) and site monitoring.

Thank you for the opportunity to comment and providing additional information to aid our understanding of how the project has changed since 2023. Please contact Sarah Meitl at 907-269-8720 or sarah.meitl@alaska.gov if you have any questions or if we can be of further assistance.

Sincerely,

Judith E. Bittner
State Historic Preservation Officer

JEB:sjm

Table 1. Determinations of Eligibility

No.	AHRS#	Street Address/ Site Name	USAG Determination		AK SHPO Comment	
			Individual	Historic District	Individual	Historic District
1	FAI-00055	FAI-00055	Not Eligible	FAI-00335 - No	Concur	Concur
2	FAI-00056	FAI-00056	Eligible	FAI-00335 - Yes	Concur	Concur
3	FAI-02045	FAI-02045	Not Eligible	FAI-00335 - No	Concur	Concur
4	FAI-02046	FAI-02046	Not Eligible	FAI-00335 - No	Concur	Concur
5	FAI-02048	FAI-02048	Not Eligible	FAI-00335 - No	Concur	Concur
6	FAI-02053	FAI-02053	Not Eligible	FAI-00335 - No	Concur	Concur
7	FAI-02054	FAI-02054	Not Eligible	FAI-00335 - No	Concur	Concur
8	FAI-02055	FAI-02055	Not Eligible	FAI-00335 - No	Concur	Concur
9	FAI-02056	FAI-02056	Not Eligible	FAI-00335 – Yes	Concur	Concur
10	FAI-02057	FAI-02057	Not Eligible	FAI-00335 – No	Concur	Concur
11	FAI-02058	FAI-02058	Eligible	FAI-00335 – Yes	Concur	Concur
12	FAI-02062	FAI-02062	Not Eligible	FAI-00335 – No	Concur	Concur
13	FAI-02074	FAI-02074	Not Eligible	FAI-00335 – No	Concur	Concur
14	FAI-02236	FAI-02236	Eligible	FAI-00335 – Yes	Concur	Concur
15	FAI-02238	FAI-02238	Not Eligible	FAI-00335 – No	Concur	Concur
16	FAI-02245	FAI-02245	Not Eligible	FAI-00335 – No	Concur	Concur
17	FAI-02246	FAI-02246	Not Eligible	FAI-00335 – No	Concur	Concur
18	FAI-02247	FAI-02247	Not Eligible	FAI-00335 – No	Concur	Concur
19	FAI-02248	FAI-02248	Eligible	FAI-00335 – Yes	Concur	Concur
20	FAI-02321	FAI-02321	Not Eligible	FAI-00335 – Yes	Concur	Concur
21	FAI-02361	FAI-02361	Not Eligible	FAI-00335 – No	Concur	Concur
22	FAI-02391	FAI-02391	Not Eligible	FAI-00335 – No	Concur	Concur
23	FAI-02392	FAI-02392	Eligible	FAI-00335 – Yes	Concur	Concur
24	FAI-02394	FAI-02394	Not Eligible	FAI-00335 – No	Concur	Concur
25	FAI-02824	FAI-02824	Not Eligible	FAI-00335 – No	Concur	Concur
26	FAI-01357	FAI-01357	Eligible	FAI-00336 – Yes	Concur	Concur
27	FAI-02199	FAI-02199	Not Eligible	FAI-00336 – Yes	Concur	Concur
28	FAI-02095	FAI-02095	Eligible	N/A	Concur	N/A

MEMORANDUM FOR RECORD

On February 27, 2025, USAG Alaska CR staff participated in a meeting via phone with staff of the Alaska SHPO to conclude consultation for the Blair Lakes Trail Reconfiguration undertaking.

While the undertaking was initially determined to be an adverse effect to the Blair Lakes Archaeological District, evolution of the undertaking and continued work within the APE resulted in a revised finding of *no historic properties adversely affected*.

Additionally, a large volume containing Determinations of Eligibility, including archaeological sites within the APE, was previously submitted for review by SHPO staff and received concurrence on March 6, 2025.

Prior to the February 27 meeting, the Advisory Council was called and accepted the revised determination pending SHPO concurrence. During the meeting with SHPO staff, the following support information was used as illustration. This meeting resulted in correspondence from the SHPO concurring with the new finding on March 6, 2025.

While some work—pedestrian survey and site monitoring—within the APE will continue during the 2025 field season, outcomes are not anticipated to require further revision of the finding of effect.

Note: A 3.6-mile bypass illustrated in Figure 1 was eliminated from evaluation as it was determined to be an unfunded alternative during the consultation process. If this alternative is later determined necessary and funding becomes available, the area will be reviewed per NHPA Section 106 at that time.

Elizabeth A. Cook
USAG Alaska CRM
March 19, 2025

SUPPLEMENTAL INFORMATION

Initial consultation with Alaska's State Historic Preservation Officer (SHPO) occurred on January 27, 2023. During initial consultation, the programmatic approach to the hardened all-seasons trails included a vast network across the Blair Lakes Archaeological District, and to and around the upper and lower Blair Lakes with four potential gravel pit locations.

As consultation continued and the Army continued to develop the concept with reasonable expectations of funding, the scope was narrowed. By August 2023, as a Programmatic Agreement (PA) was being composed with its treatment plan, the undertaking was refined to a smaller all-season trail that included a 3.6-mile bypass to the south.

During the time taken for extended internal Army review of the PA, range developers further refined the undertaking. By October 2024 the 3.6-mile bypass became addressed as an alternate need and the number of potential gravel pit locations was increased to ten. The APE was defined to include only the trail's footprint with a 100-meter from centerline buffer and the proposed potential gravel pit areas with 100-meter surrounding buffers, comprising 2,283 acres (Figure 1).

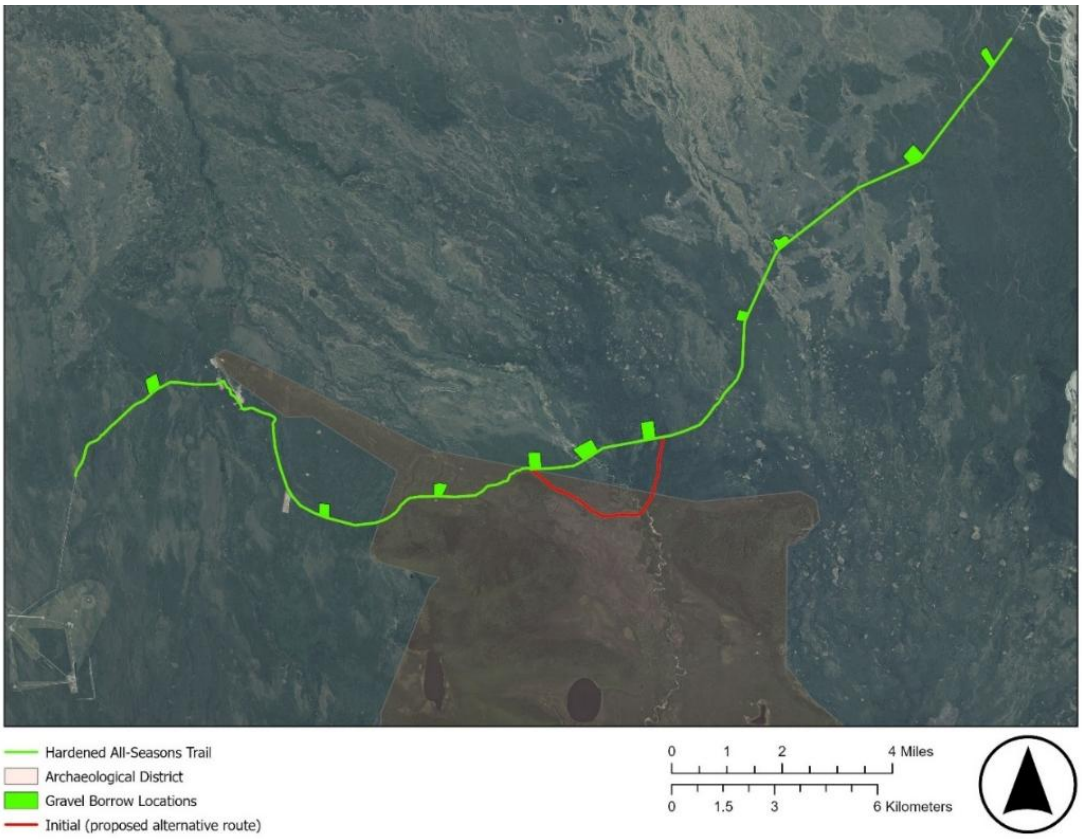

Figure 1. Additional refinement of the undertaking with 3.6-mile bypass defined as "alternate" and additional potential gravel pit locations identified.

As of January 2025, the Advisory Council has been notified that USAG Alaska wishes to cease consultation and revise the determination of effect. The 3.6-mile bypass has been removed from the undertaking as this has been determined currently unnecessary by planners. The remaining field work to be completed in the 2025 field season includes survey of 1,090 acres of trail, potential gravel pits, and respective buffers (Figure 2).

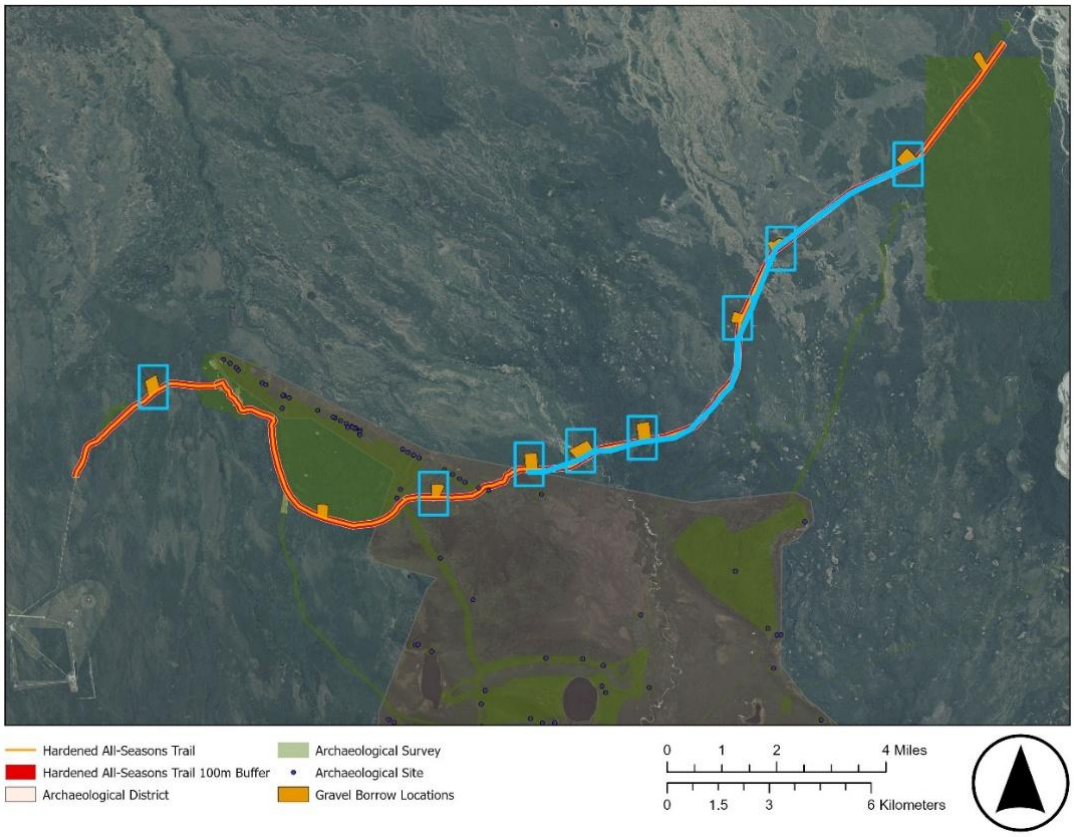

Figure 2. Bypass concept abandoned as funding for development has not been secured. 2025 field season survey areas identified in blue.

The ten mile stretch of trail requiring survey is located outside of the archaeological district and passes through the lowlands between McDonald Creek and Dry Creek. This stretch of trail intersects a flat expanse of abandoned floodplain that contains ~11.8 acres of land that is defined as hydric soils by NRCS soil surveys and 24.2 acres of wetlands. Overall, this section of the route is characterized by poorly drained soils underlain by permafrost and several wetland features that are intermittently flooded seasonally by each respective creek. Due to these characteristics, these portions of trail are considered low probability for cultural resources. Locations void of standing water or that are not flooded seasonally will be pedestrian surveyed in 2025. Eight gravel pit locations that have yet to be surveyed will also be surveyed in 2025. This will include systematic shovel testing at these locations.